

Future of Business and Finance

David B. Audretsch ·  
Alice Civera · Erik E. Lehmann ·  
Konstantin P. Leidinger ·  
Jonah M. Otto · Laurenz Weiße ·  
Katharine Wirsching *Editors*

# The Strategic Management of Place at Work

Why, What, How and Where

 Springer

# **Future of Business and Finance**

The Future of Business and Finance book series features professional works aimed at defining, analyzing, and charting the future trends in these fields. The focus is mainly on strategic directions, technological advances, challenges and solutions which may affect the way we do business tomorrow, including the future of sustainability and governance practices. Mainly written by practitioners, consultants and academic thinkers, the books are intended to spark and inform further discussions and developments.

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# Acknowledgments

This book serves two key purposes – one is academic in nature, and the other more personal. On the surface, this is a text which has a very practical aim, that is, to break apart a theoretical framework into applicable terms, measurements, sources, and examples so that practitioners in the economic development space have a roadmap to craft public policies which will provide their localities with sustainable economic performance. Below that surface lies the book's second function, which is to be a celebration of its inspiration. The timing of the publication of this book is anything but random, as it coincides with the 10-year anniversary of the Summer School program, an annual, short-term, intercultural study abroad course coordinated between the faculty, staff, and students of three universities, namely the University of Bergamo (Italy), Indiana University (USA), and the University of Augsburg (Germany). Academically, the Summer School is centered on the theoretical framework which this book then further expounds upon. In fact, all of the case study contributions to this volume come from some of the projects completed by the international student groups of the Summer School. In this way, the book not only displays the diversity of applications of the theory at hand, but it also commemorates the spirit of international relationships and collaboration which are at the core of the Summer School's mission.

As the editors of such a manuscript, we of course have many people to thank, without whom this book simply would not be possible. First, there are the administrative staff members of the three Summer School universities, who have put up with our impossible requests and timelines in order to make the program a reality. Here, a special thank you goes to Cornelia Noglinski for her indispensable assistance and who has been with us the whole way. Next we thank our colleagues at the University of Bergamo, particularly Silvio Vismara, Stefano Paleari, Michele Meoli, Matteo Kalchschmitt, and G. B. Gagninelli, whose leadership and contributions have made an invaluable impact on the Summer School over the years. We are additionally grateful to University of Augsburg VP of Research and Internationalization Peter Welzel and Indiana University VP of International Affairs Hannah Buxbaum, whose unwavering institutional support enabled the longevity of our

partnership and collaboration. We also thank Weisser Spulenkörper GmbH & Co. KG, Roschmann GmbH & Co. KG, the Bergamo Chamber of Commerce, SIAD S.p.A., the Bavarian American Academy/Amerikahaus Munich, and the other business and institutions that have opened their doors to our students in order to bring the lessons of the class to life. In this regard, we particularly thank Alexander Starnecker and the Starnecker family, Gökhan Ertürk, Andrea Locati, Margaretha Schweiger-Wilhelm, James Cunningham, Thomas Schwartz, Andrea Adam Moore, and the multitude of other guest speakers who have enriched this program with their knowledge and examples. Most importantly, we thank our students, the lifeblood of the Summer School, whose curiosity, openness, patience, and engagement have truly made the Summer School what it is and have rewarded us many times over. Of course, an extra thank you goes to the students who contributed directly to the chapters of this book. Last, but certainly not least, we thank Prashanth Mahagaonkar and the Springer editorial team for their time, understanding, and unbelievable effort in helping us to make this book a reality.

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# The Strategic Management of Places: Applying a Framework to Analyze Local Economies



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and Katharine Wirsching

**Abstract** The introduction to this book details the central problem at hand—how can localities work toward sustainable economic success, and what tools are available to help in that process? Starting by presenting the Strategic Management of Places Framework, this chapter puts forward a unique and more holistic way of addressing this issue. Following this, each individual component of this theoretical framework is then broken down and explained in detail, and practical cases demonstrating each component are also explicated so that the reader can easily conceive how these concepts can be practically implemented. After these in-depth examinations of the core tenets of the framework, the roadmap for the rest of the book is laid out and an overview of the countries and regions of the case studies in the book is provided.

## 1 Introduction

If we are to understand sustained economic growth on a trajectory of different sets of recourses and input factors based increasingly on the endowment of a place to harness them (Solow, 1956), we then must acknowledge that a broad “one strategy fits all places” approach to fostering regional economic development is misleading. As Audretsch (2015a) has stressed, economic progress largely depends on strategic choices made by key actors (e.g., governments, firms, institutions, organizations, and individuals) in places (e.g., municipalities, regions, and states) to effectively and efficiently manage or augment the input factors available in that place, be they natural or knowledge resources, specific labor capacities or infrastructure.

Solow (1956) once stated that all efforts to describe differences in economic growth using culture are too spurious. Consequently, they must “end up in a blaze of

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amateur sociology” (Krugman, 1991, p. 93). However, places are characterized by, to some extent, individuals, cultural, and institutional elements (Mokyr, 2016; Putnam, 2000). Therefore, we must regard regional economic development as context-based and grounded in the strategic management of place theory (Audretsch & Feldman, 1996; Audretsch et al., 2020).

If so, the ability to access, analyze, and utilize regional economic inputs is fundamental in setting and determining decision and strategy-making processes within places (Chatzoglou et al., 2018). Out of this resource-based view (RBV), the strategy goal is to evaluate and leverage specific tangible and intangible bundles to gain a competitive advantage (Barney, 1986). Thus, what applies to firms also applies to places; one key to subsequently build and sustain a place’s performance is to deploy resources that competing places cannot imitate, purchase, or substitute (Barney, 1986).

As rapid technological advancements have been reducing transportation and communication costs, it has had profound implications for the way that falling entry barriers have brought global competition into local places and left previously successful strategies in doubt (e.g., Loebbecke & Picot, 2015; Sussan & Acs, 2017). The arising questions are, on one hand, how can firms conform their strategy to a place and its input factors, and on the other hand, how can places identify, make available, and develop their resources and input factors to foster its economic development?

A large and growing body of literature on the strategic management of places provides a window into topics at the heart of economic development. Understanding the problems and proposed strategies may offer not only an explanation for why some places do better and some face struggles but may also address what economists are increasingly analyzing the impact of—culture and institutions, labor economics, entrepreneurship, growth economics, narratives, economic geography, and management studies, among so many others. The purpose of this essay is to detail various categories of regional economic inputs which can be managed for local economic development, provide case study examples of how each category has been successfully managed through strategic decision-making, and to explain how place managers and scholars can observe/measure/analyze these input categories in respective places. This purpose is methodologically achieved through the application of a rigorous theoretical framework for local economic development.

To understand the differing level of economic performance of various places, it is not sufficient to look at the strategic management of firms and places only from a singular perspective. The roots of this paper are based upon Audretsch’s (2015a) *Everything in its Place: Entrepreneurship and the Strategic Management of Cities, Regions, and States*, which links public policy with scholarly literature and valuable experiences from practitioners and professionals in the field of economic development. Inspired by the German concept of *Standortpolitik* (“place policy”), Audretsch (2015a) notes that in local economic development research, “there is no field providing an intellectual framework for decision-making in a manner analogous to the field of strategic management for firms and organizations.” In his argument, influencing the management of a place through the strategic management of different



dimensions is crucial for analyzing and ultimately improving the performance of that place.

Thus, what is still missing is how this framework can be applied in order to create and manage places in a strategic sense. As Audretsch and Lehmann (2017) point out, having a coherent and well-formulated strategy is fundamental to generating a strong performance for a place. Places in the past had not developed the discipline and practice of systematically and explicitly articulating their strategy—usually a strategy combining physical capital with unskilled labor—because, since there was only one strategy available, there was no point in analyzing and reflecting on it; to do so would be squandering precious time and resources. But where could policymakers and place advocates look for guidance and for a framework to help structure a strategy designed to improve their place, particularly in a globalized environment? Where could city and regional leadership find insights as to why some places prosper while others stagnate or deteriorate?

In fact, there were many contributions from a broad spectrum of scholarly fields and academic disciplines that filled the ensuing intellectual void, suggesting new approaches and strategies to deliver a strong economic performance. Contributions did not just come from urban economics; understanding the problem and proposed strategies originated from sociology, innovation and technological change, labor economics, entrepreneurship, growth economics, psychology, business, and management—to name a few. In addition, economic development professionals, ranging from experts on cities, states, and national-based agencies, to non-profit organizations, foundations, and consulting firms, have all contributed their thoughts and wisdom in this arena (Audretsch & Lehmann, 2017).

Out of all this research, thought and practical experience is a diverse set of insights, which taken together provide the basis for identifying and articulating the underlying forces shaping and influencing the performance of a place, along with what a place in turn can do to influence those underlying forces. This framework, based on the insights offered by scholarly research and insights from practitioners, is depicted in Fig. 1.

The framework is organized into four main elements, the three dimensions—(1) *factors of production*, (2) *spatial structure and organization*, and (3) *the human dimension*, and how they interact with one another—ultimately determine the economic performance of a place and are analyzed to effectively develop the fourth element, (4) *public policy* (Audretsch, 2015a, p. 24). The holistic nature of the approach emerges when the individual dimensions, as path-dependent components, form a multifaceted and coherent approach for the strategic management of places, through public policy, to foster a place's improved performance.

The past, present, and the future of economic growth lie with places and that generate both challenges and opportunities. The theoretical and empirical research discussion in each of the following sections represents the individual dimensions of Audretsch's "*Framework for the Strategic Management of Places*." Section 2 reviews the "*Factors of production*." Section 3 provides information on the "*Spatial Structure and Organization*" and Section 4 develops the "*Human Dimension*." Section 5 concludes the paper with "*Public Policy*" implications.

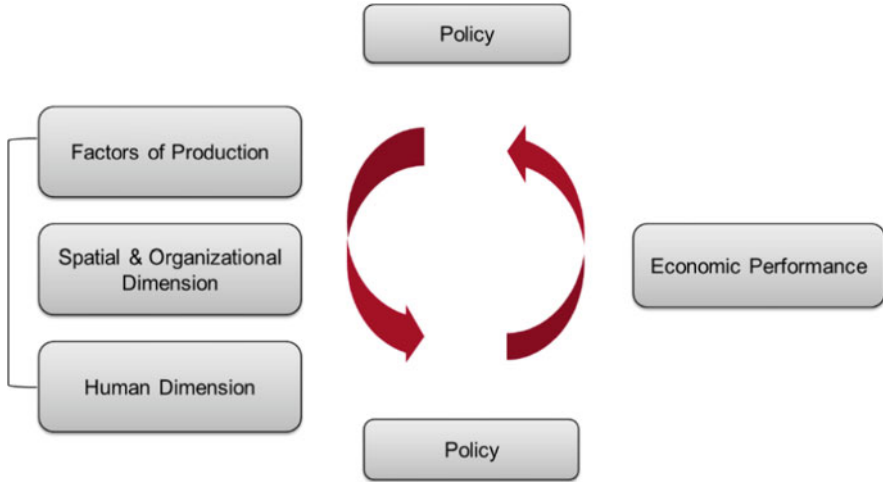


**Fig. 1** Framework for the strategic management of places (Audretsch, 2015a, p. 24)

## 2 Factors of Production and Resources

The first element, factors of production and resources, encompasses a set of factors influencing the performance and strategic competitiveness of a place. This includes not just the traditional factors of natural resources, physical capital, and infrastructure, but also human capital, skilled labor, creative workers, financial capital, and knowledge capital. Just as the resource-based view of the firm has become a cornerstone for the field of strategic management of organizations, the role of factors and resources plays a central role for the strategic management of a place (Audretsch, 2015a).

### 2.1 *Physical Resources*

What role can natural resources, such as land, vegetation, mineral, and energy resources play in the economic development of a place? The modern debate on what Chang and Jing (2011) termed as “the foundation of human survival and development” dates back, to the pioneering works of Marshall (1890), Hotelling (1931), and Romer (1986) and has been oscillating between whether natural resources are “a blessing” or a “curse” for a place (e.g., Sachs & Warner, 2001; Barbier, 2005; Dwumfour & Ntow-Gyamfi, 2018). While proponents of positive association emphasize its role as a contributor to economic development, promoting foreign direct investment (FDI), and thus domestic markets (Rosser, 2006), it can be a double-edged sword for places to rely solely on this strategy, leading to the

“resource curse.” In a short period, wealth is generated and supplied by demand, capital, and entrepreneurship in places with abundant natural resources. However, in the long run, large-scale exports based on simple products or resources lead to increased exchange rates and, as a consequence, increased imports, which is ultimately followed by a decline in productivity in a place and an end of its sustained development (Watkins, 1963; Gunton, 2003; Beine et al., 2012; Pegg, 2010).

As there continues to be a fractious debate in the literature leaving the answer unknown, it is more pertinent to focus on how natural resources can be harnessed to guarantee economic growth, as it has in the case of the Champagne region in northeast France. For 350 years, the effervescent wine, champagne, produced from the grapes of the Champagne region, has emerged as the key component of the regional economy as well as a symbol for the entire place itself, fostering both tourism and abundant exports. While the Champagne region’s charm takes the form of local wine houses and cellars and its intangible and cultural landscape attracts wine tourism (Agence Régionale du Tourisme Grand Est, 2022), more than 16,000 wine companies are involved in the production and export of more than 244 million champagne bottles every year, equivalent to EUR 4.2 billion in worth. With the second-largest foreign trade surplus in France and a 20% share of French wines and spirits’ total export value, Champagne became a marketplace icon for the whole of France. The region thus serves as an excellent example of how a place can leverage its natural resources, in this case the geographic and meteorological conditions necessary to grow perfect grapes, in order to generate local economic prosperity.

How can a place be evaluated to provide measurements of natural resources that are useful to firms, places, and decision-makers? In this context, several methods for identifying, assessing, and monitoring a region have been developed for different purposes (FAO, 1976). The most profound and advanced analysis provides geographic information systems (GIS) that envelope the process of gathering and studying geographic objects (Lü et al., 2019). Despite tremendous advances over the years, GIS is an effective, but expensive tool, with the consequence that often major public institutions, such as the German “Umweltbundesamt” (UBA, 2020), “Federal Ministry for Economic Affairs and Energy” (BMWK, 2016), or the “U.-S. Energy Information Administration” (EIA, 2016), publish openly the information gathered by GIS. Furthermore, an overview of the “total natural resources rents” in a country is supplied yearly by the World Bank (World Bank, 2021), while information on mineral and soil resources on the municipal level is to be found with agencies such as the Federal Statistical Office for Germany (Genesis, 2022) or the United States Department of Agriculture (USDA) for the U.S. To evaluate tourism resources such as scenery landscapes or functional-historical characteristics (Clawson & Knetsch, 1963), a combined overview can be found in resources such as the “Outdoor Recreation Satellite” by the U.S. Bureau of Economic Analysis (BEA, 2020). Another common method is the demand approach (Ferrario, 1979), where natural resource attractiveness is evaluated by conducting traveler surveys or analyzing tourism data.

## 2.2 *Physical Capital*

For the economists asking questions about the roots of economic growth at a place, however, consistent themes in the early growth theory model all point in the same direction: human capital, social capital, and physical capital (Becker, 1976; Putnam, 2000; Solow, 1956). Whereas social capital refers to the value of social networks and human capital to properties within individuals (Putnam, 2000), physical capital itself can be described as physical objects with which one can work or produce something.

For many places, the endowment of physical capital in the form of infrastructure (Shi et al., 2017; Pradhan et al., 2018), factories (Kim, 2007), or machines (Voigtländer & Voth, 2006) can be vital for economic growth. In his famous model, Solow (1956) asserts that places exhibiting a dearth of physical capital should grow much faster and “catch up” with high-income regions. Here, it is implicated that the strategic management of places and companies has to focus not only on the physical capital endowment in a place, but must be contextualized in a regional and global frame (Li et al., 2015).

Although the nickname “Detroit in Europe” may be misleading due to Detroit’s substantial decline, the region of Zilina, and Slovakia as a whole, has been profiting greatly for its *mélange* based on state investments in infrastructure, low labor costs, and a flat tax concept. Through its good geographic position at the intersection of Poland, Czech Republic, and Austria, Zilina has attracted many foreign direct investments to build industrial branches from scratch. For example, the paper mill industry, like Tendo or Neusiedler, and also major automakers, such as KIA or BMW, have built their plants in Slovakia. As the investments are coming, new jobs are appearing, and today Zilina is showing high retail density and low unemployment (EURES, 2020). This exemplifies a region where the development of physical capital has been paramount to economic success.

To observe the physical capital of a place, a first indication can be seen in the transportation infrastructure of a place. For example, if the place is part of a global infrastructure network, such as the Trans-European Transport Network (TEN-T, 2020), transportation costs for firms can decrease and profitability increase, making this a valuable metric. From the quality perspective, the World Economic Forum (2018) provides a full picture of the infrastructure quality in countries in its “Global Competitiveness Report,” whereas the “Global Infrastructure Hub” organized as a G20 initiative allocates more detailed information on a local scope (GIHub, 2020). Information about already resident industries that rely on physical capital is usually contributed by the country’s ministry of economic affairs (e.g., BMWK for Germany (BMWK, 2021); “Industry Finder” by the Bureau of Labor Statistics for the USA (BLS, 2021). To get a more comprehensive view, trade associations can also provide insights, such as the Association of German Chambers of Industry and Commerce (DHK) or the National Association of Manufacturers (USA), which supply information regarding industry types on a regional level.

### 2.3 *Research and Development*

A key to understanding the emergence of economic growth in a place can be gained by refocusing the attention to places that experience economic success despite a lack of physical resources. One way forward constitutes knowledge that is vague and hard to pass. Places like Heidelberg, Austin, or the Silicon Valley have grown significantly even in the absence of natural resources or big manufacturers.

How, then, does knowledge impose an explosive, self-reinforcing economic development that we can observe all over the world? The answer is technological advancements, or innovations (Romer, 1986). Whether technological or prescriptive knowledge, all places unite that were able to pass and teach knowledge among individuals within a place, enabling its vertical and horizontal transmission. As the focal point for this strategy, research and development (R&D) bring together what, according to Tirole (2017), are crucial ingredients for innovation—inventors and finance. As a result of R&D investments, financed both publicly and privately, technological improvements emerge and average productivity increases (Link et al., 2021). In the theoretical and empirical literature, R&D is seen as crucial for innovation, which leads to knowledge spillovers in a place, based on the interaction of inventors and investors (Romer, 1986; Aghion & Howitt, 1996; Yazgan & Yalçinkaya, 2018).

While in the 1950s, America's booming economy was largely dependent on the mighty factories of Detroit, North Carolina seemed to suffer and be left behind. In terms of education, knowledge accumulation, and human capital, the region took the last place in a country-wide comparison, and industry was anything but present. Shifting the focus away from traditional to high-technology clusters, the region started embracing innovations and science, as well as new, unconventional ideas. The region changed its image away from backward-looking industry to a progressive and future-oriented place. As a result, North Carolina was transformed into a desirable destination for new firms, well-educated workers, and direct investments in the local economy. As inventors and finance interacted successfully, knowledge spilled over and the region became what is recognized today as the famous Research Triangle Park (Audretsch & Lehmann, 2016a).

There are versatile indicators for the R&D endowment in a region. Taking the presented ingredients (inventors and finance) into account, a first insight is provided by the World Bank on a country level showing a wide range of R&D measures such as "Research and development expenditure (% of GDP)" or "Researchers in R&D (per million people)" (World Bank, 2022). Furthermore, the "Global Entrepreneurship Monitor (GEM)" provides data on "R&D transfers" within a country. Zooming in on a more regional level, the European Statistical Office (Eurostat) shows a comprehensive view of different regions in Europe within the "Regional Innovation Monitor Plus" (Research and Innovation, 2019).

## 2.4 Universities

If R&D endowments have indeed become one of the main explanations for economic growth, that is, why some places are successful—how else can knowledge be generated and transmitted within a region? There has been a long history in the entrepreneurship literature on the interplay of research and entrepreneurial activity and the mediating role of universities (Audretsch & Lehmann, 2005a; Åstebro & Bazzazian, 2011; Lehmann, 2015; Audretsch et al., 2013). Through research parks, joint research ventures, and technology transfer offices (TTO), among others, universities have various means of enhancing knowledge dissemination. Moreover, university research has proven to be an effective strategy for businesses looking for new ideas and insights that can be turned into innovative, novel products and for places that want to create a knowledge resource that promotes economic growth (Audretsch, 2015b).

Regional development and improvement based on university knowledge spillovers can be explored in the region of Munich (Audretsch & Lehmann, 2016a). Munich is a prime example of a location that successfully transitioned from an agriculture-based economy to a thriving, high-tech metropolis, making it the envy of the world. The way of success is not only found in the presence of high-ranked research universities (e.g., Technical University of Munich), but also a multitude of scientific institutions (e.g., Fraunhofer Society) and high-tech companies (e.g., Siemens). To foster knowledge dissemination, venture hubs such as UnternehmerTUM in Munich combine a center for entrepreneurship and innovation education, a high-tech incubator, a prototype workshop, and an innovation consultancy under one roof. By bridging the gap between research and industry, venture hubs help to transfer knowledge and finally build and finance a start-up. Consequently, Munich has seen a wave of start-ups in various high-tech sectors like biotechnology, engineering, electronics, and creative industries that have brought low unemployment, economic growth, and prosperity to the region.

How can both places and firms evaluate and participate in the knowledge transmission produced by universities? While places with universities can be easily identified by several databases (e.g., Shanghai Rankings and US News & World Report) and be ranked by generated funding or academic patents (Statista, 2021), it is more difficult to obtain a picture of the rootedness of place in the world economy. Here, the “Globalization and World Cities Research Network” ranks places on the involvement in world economic affairs. Another predictor of knowledge spillover depicts the entrepreneurship rate in regions that can be found in the dataset of the World Bank (2019). With the measures “Perceived Opportunities” and “Total Early-stage Entrepreneurial Activity,” the GEM supplies a plethora of data on a country level (GEM, 2020).

## 2.5 *Unskilled Labor*

Once a place has acquired a specific capital formation, albeit grounded on physical or human capital, the question arises what people are needed to mobilize the advantages of the assets and resources available at a place (Audretsch, 2015a). Naturally, it depends. A place loaded with physical capital in the form of high-scale manufacturing often needs a large supply of a specific type of labor, where people are employed in factories, at machines or in assembly lines rather than finding precise creative solutions, as is required for high-tech industries. It is the combination of reliable unskilled labor and capital-intensive production through physical capital that has been fruitful, especially for developing countries involved in industrialization (Mokyr, 2016; Storper & Scott, 2009; Roberts & Skoufias, 1997). This type of workforce usually has a lower amount of secondary and post-secondary education.

This particular combination has been working particularly well for the so-called “Four Guangdong Dragons”—the cities Dongguan, Zhongshan, Nanhai, and Shunde in the Pearl River Delta Economic Zone (PRD) in southern China. Hitting two birds with one stone, the “Open Door Policy” from 1979 aimed at picking up the manufacturing industry from the Western hemisphere giving the PRD more market freedom, while large-scale FDI also found an abundance of low-cost labor in the surrounding region. Fueled by myriad labor-intensive factories from DuPont to Philips, PRD has emerged as the fastest growing place in one of the world’s fastest growing economies. Although PDR has almost the size of Croatia, GDP has grown up to about the same size as Italy’s (~US\$2 trillion) (Ceicdata, 2020).

This type of input can be traced by using various indicators. As the combination of unskilled labor with physical capital can be particularly profitable, the same indicators can be useful as presented in the section on physical capital. However, to collect information on unskilled labor, different sources can be applied. In global terms, the OECD publishes a “Skills Studies series” (OECD, 2019) as well as the “World Indicators of Skills for Employment” (OECD, 2015) that focuses on work history and skills and educational background data from international organizations such as UNESCO and World Bank. Building on that report, the data platforms of World Bank (World Bank, 2019) and Eurostat (Eurostat, 2022) show a wide range of labor market practices. Information about a labor shortage, important for labor-intensive productions, can be found in sources such as the “Job Openings and Labor Turnover” report by the BLS (2021).

## 2.6 *Skilled Labor*

While some places have profited immensely by relying on the combination of physical capital and low-skilled labor, the strategy falls short in places that lack in physical capital (Audretsch, 2015a). As technology advances and new industries



emerge, many sectors demand a new, higher set of skills in the labor market that necessitate a certain amount of training or knowledge to properly apply. Examples of skilled occupations are nurses, tailors, electricians, laboratory technicians, computer operators, financial technicians, and administrative assistants. Some skilled labor jobs have become so specialized that there are labor shortages in these areas (Horbach & Rammer, 2020). Numerous studies have found evidence that this demand spawns multiple perks (Burststein & Vogel, 2017; Caselli & Coleman, 2006). When examining the so-called “skill premium” (i.e., the difference between the earnings of unskilled and skilled workers), Acemoglu and Autor (2011) find that skilled workers enjoy higher wages, which in turn attract industries with such needs that ultimately result in sustained economic growth (Caselli & Coleman, 2006).

Some regions, such as Lombardy in Italy, profit from regional, natural, and physical capital but rely particularly on different skilled labor types. Due to the digitalization of systems and innovative engineering in manufacturing, workforce requirements have been up-skilling over time. To sum, Lombardy mainly generates economic value in the service sector (67% of the workforce), in the industrial field (32%), and in agriculture (2%) today. By early anticipation of an approaching skilled labor shrinkage in Lombardy, the region passed the Employment Unified Endowment Act. Especially the industrial field, its large number of small- and mid-sized enterprises play a vital role in training and educating employees to encounter the most pressing issues like skill development and unemployment, as the unemployed people can be directly linked to firms to fill their skill gap. More than 73% of the participants are employed after having completed the program, while the program effectively acts as an employment accelerator for youth (Colombo et al., 2015). As the case of Lombardy has shown, it can be fruitful for a place and a firm to collaborate to develop and upskill laborers.

The more the skilled labor shrinkage is proliferating around the globe, the more pressing it is for firms, and for places, to find and attract, as well as educate their own, skilled laborers. While places with high demand in educated laborers can be often identified by skilled labor immigration acts (e.g., such as those passed in Canada, Germany, and Japan), for firms good indicators are depicted in regional statistics of vocational training that are provided on federal and regional level by the Federal Labor Office in Germany (by Federal Labor Office, 2020) or by the Germany Chamber of Industry and Commerce (DIHK, 2021). A comprehensive overview of the labor demographics of the USA can be found on the homepage of the U.S. Bureau of Labor Statistics on a yearly basis. A general impression of public skill development agendas is often provided by the economic/labor ministries in a country or region, such as the European Skills Agenda (European Commission, 2021a) in the European Union, or by the regional employment office in a place.



## 2.7 *Human Capital*

While physical capital is instrumental in creating economic growth, human skill has to be trained, educated, and practiced and thus depends on the absorption and diffusion of knowledge (Nelson & Phelps, 1966; Lucas, 1988). Human capital, often measured via informal and formal education, is thusly crucial to economic growth as both technological advances and regional development rely strongly upon it (Easterlin, 1981).

Although there is far from a consensus on most of the details, in literature, human capital is widely regarded as a focal point and key determinant of competitiveness and economic growth (Benhabib & Spiegel, 2005; Audretsch & Lehmann, 2005a). The linkage between human capital endowment and economic growth is based on two questions: (1) how much a place should invest in education and (2) what kind of education to provide and foster. Regarding the first question, Blackwell, Cobb and Weinberg's (2002) work on human capital impacts finds higher education as a key to human capital and in the resulting economic development. A more detailed focus on elementary and secondary education in Spain by de la Fuente (2011) shows that public investments can contribute to regional development, especially in the poorest regions. Addressing the second question, Murphy, Shleifer, and Vishny (1991) stated that countries focusing more on engineering students grow faster than countries with more law students. By shifting the attention to the role of institutions, Hsieh et al. (2019) demonstrated how institutional discrimination barriers to the acquisition of human capital, especially for white women, black men, and black women in the USA, emphasize the role of declining racial and gender discrimination as engines for future growth.

The case of Singapore displays how human capital works as a source of great importance for productivity and economic growth. Despite being bestowed with lower amounts of natural resources and physical capital, Singapore has become one of the most developed countries in the world. To do this, Singapore needed a resource that cannot be bought so easily: human capital. Besides its national strategy and its tremendous expenditure on education, the city-state shows two educational policy peculiarities that match the questions raised above: an educational policy that is built on a mutual agreement among employers, unions, and the government and also on the involvement of all relevant agencies. In these endeavors, priority was given to develop a vibrant education system to encourage future economic developments (Osman-Gani, 2004). For instance, the human capital accumulation has improved significantly and so the economic situation, in 2012, 25% of Singapore population have tertiary-level education, while in 1991, only 7% had tertiary-level education, and the GDP per capita increased from USD14,502 (1991) to US\$55,549 in 2012 (Department of Statistics Singapore, 2013).

To evaluate human capital accumulation in a place, several sources are available. The World Bank provides a plethora of information focusing on the country's educational setting, e.g., Government expenditure on education (World Bank, 2019), that helps to understand the educational setting in a country. A more precise

perspective with an abundance of data from a region is often contributed by federal agencies, such as the USA does in its “Institute of Education Science” (IES, 2021) or in Germany with the “Federal Ministry of Education and Research” (2021). Particularly comprehensive analyses of places are made possible by “European Regional Competitiveness Index” for the EU (European Commission, 2021b) at a glance and also through municipal-level regional databases, such as the “Destatis-Regionalstatistik” for Germany.

## 2.8 *Creative Class*

The classic canon of economic growth has been widely based on capital endowment at a place. What has not received enough attention yet in this work is the matter of occupational skills with a background in creativity as a specific subject of strategic management of a place (Audretsch, 2015a, b; Noonan, 2021). Florida (2002) first introduced the concept of the “creative class,” which sparked intense controversy (Glaeser, 2005; Hoyman & Faricy, 2009; Markusen, 2006), as it proposes that creative workers are pivotal for the socio-economic development of a place. Opposed to widely accepted education measures for human capital, Florida (2002) uses occupational skills to show that rather than the availability and efficient use of production factors, intellectual and creative capital bestow growth (for empirical studies see Audretsch & Belitski, 2021; Fritsch, 2007). From the creative capital perspective, to increase its prosperity, a city should try to attract the right residents. Namely, those knowledge workers who utilize their creativity to develop innovations, that are essential for sustainable growth (Florida, 2003).

For centuries, life in Denmark was about producing economic output through the industrial economy. In the wake of the work of Florida (2002), the Municipality of Copenhagen was clearly influenced, with a local leader stating that: “If the region has the three T’s, Talent, Technology and Tolerance, then according to Florida it will experience the highest growth in the modern economy” (HUR, 2003, p. 5). Increasing the pulling factor for creative laborers is a crucial locational factor for knowledge-based firms, and the main policy proposed to do so was to focus on being an attractive cultural and leisure city. Indeed, Copenhagen has been transforming into a metropolitan city of international appeal. From its public benefits, diverse services and opportunities, cultural offers, and tolerance to non-mainstream lifestyles, Copenhagen has attracted the creative class and thus high R&D investments. Consequently, Copenhagen has been bestowed the name “Medicon Valley” for its world-leading cluster of life science firms. Today, Copenhagen flourishes through the interplay of culture, creativity, and city policies.

Literature shows a wide range of data types used to explore the creative potential in a place (Lorenzen & Andersen, 2007; Audretsch & Belitski, 2013; Audretsch et al., 2021a, b; Falck et al., 2009). A large body of literature points to three main indicators of creative capital. (1) Knowledge workers can be measured as share of employees working in creative occupations, as defined by Florida (2002), and

specific data, including changes over years, are often provided by the federal Employment Agency in a country (e.g., Federal Labour Office Germany, 2020). (2) Entrepreneurship serves as a predictor for knowledge accumulation and several sources dispense entrepreneurship data, e.g., the Global Entrepreneurship Monitor (2020), the Regional Entrepreneurship and Development Index (REDI, 2020) by Eurostat, or the local statistical office for a place (e.g., Bayerisches Landesamt für Statistik, 2021). (3) Cultural opportunities and, in particular, tolerance to diversity display intangible city qualities, as Lehmann and Seitz (2017) show. For the latter, data are contributed by Eurostat, while for the former, the Intercultural City Index (2020) is suitable as a predictor for tolerance in a place for cities in Europe.

### 3 Spatial Structure and Organizational Dimension

While the first dimension of the strategic management of place framework, as depicted in Fig. 1, focuses on the amount, quantity, and quality of a particular factor or resource and how they matter in shaping local economic performance, the structure and organization of that activity matter as well. The second dimension thus focuses on how they, along with the accompanying activity, are structured and organized. There are compelling theoretical arguments and systematic empirical evidence supporting each of the following structural and organizational aspects identified—market power, competition, entrepreneurship, specialization, diversity, clusters, and ecosystems (Audretsch, 2015b). These aspects are not mutually exclusive, and in some cases, one aspect is the antithesis of a different one. The spatial structural and organizational dimension in no way advocates any singular locational strategy in terms of “one structure fits it all” rather, each place, whether it is a community, city, region, state, or even an entire country should formulate its own locational strategy based on the spatial and organizational configuration of resources and factors.

#### 3.1 *Clusters*

At least since Alfred Marshall’s (1890) principles, the tendency for industries to cluster in local areas, places, and the economic and social benefits that come with this type of spatial and organizational structure has fascinated scientists, managers, and policymakers alike. However, it is only quite recently that policymakers and managers joined the wave and began to include clusters or the geographical structure of economic activities in their set of instruments that they can use for their strategic policy agenda, in particular since Michael Porter (1998) made the concept of “clusters” popular. According to Porter, a cluster consists of businesses in related industries operating at the same place, a local and geographic concentration of interconnected companies, specialized suppliers, service providers, firms in related

industries, and associated institutions in particular fields that compete but also cooperate (Porter, 1998). Public cluster policies have since been highly prioritized and constitute a crucial policy instrument for economists and policymakers across the globe for more than 20 years. They aim at stimulating national or regional performance in developing and adapting to new technologies and bringing new services and business innovations to the markets.

Cluster-based policies can be found at the national, transnational, regional, and local levels across almost all knowledge-based economies (Audretsch et al., 2019a). Cluster initiatives have been perceived as an effective means to facilitate the exploitation of entrepreneurial opportunities as well as shape and augment regional competitiveness to achieve superior economic performance (Audretsch et al., 2015; Autant-Bernard et al., 2013; Delgado et al., 2015). Cluster policies seek to stimulate entrepreneurial innovation by bundling resources and exploiting the benefits of local agglomerations and spatial proximity, thus inducing knowledge spillovers and place-based entrepreneurship, and ultimately to spur regional prosperity (Lehmann & Menter, 2018a). The rationale for public cluster policy is justified by increasing overall welfare across regions through subsidizing economic activities in either disadvantaged regions or fostering and supporting promising regions (Lehmann & Menter, 2018b). Clusters can enhance the economic performance and competitiveness of a place by generating gains accruing from agglomeration economies, like spillovers and complementarities. Firms located within such a cluster enjoy greater employment growth, wage growth, and innovative activity (Delgado et al., 2015). Examples of clusters include software and semiconductors in Silicon Valley, banking in London, filmmaking in Hollywood, car making in Stuttgart and Munich, or medical life sciences in Tuttlingen.

### 3.2 *Market Power*

A second aspect of spatial structure and organization involves the degree of market power. Three disparate strands in the literature have identified how and why market power can influence economic performance at a place (Audretsch 2015b). The first strand comes from the field of industrial organization, which identified how firms with a high share of the market had a positive impact on the economic performance of industries. The second strand of the literature is from the field of strategic management, which analyzes the impact of firm size and power to increase the competitiveness of places. The third strand in the academic literature argues that monopoly power generates a superior economic performance for a place than does competition. In sum, the superior economic performance of the place is attributable to the high, sustained performance and rate of the return accruing to market power. Economic performance of places is shaped by agglomeration effects, and large, powerful corporations account for a large share of the market and thus attain sufficient economies of scale and scope, resulting in nearby suppliers, customers, employers, and service industries.

However, the higher and more superior rate of return for firms with market power must be transformed or redistributed to the place for the place to share in this greater return. Such redistributive and transformative mechanisms include organized labor and civic engagement, but also taxes to be spent and invested in infrastructure, higher education, and local amenities (Audretsch et al., 2021a, b), in addition to philanthropic contributions, as Acs (2012) explains. Acs makes a direct link between the philanthropic generosity of larger and more powerful companies and the performance of places and makes clear that philanthropic giving is a key mechanism for transforming wealth created by market dominance and monopoly power to a sustained economic performance for the place where that company is located.

### 3.3 *Competition*

A very different view, in fact the polar opposite, about what spurs locational performance is also put forth, arguing that having an organizational structure of monopoly will actually hinder locational performance and that the exact opposite—namely competition—is important for a sustained high level of economic performance. Monopolies tend to underinvest in research and development and may overinvest in protecting market entry. Through the continual rejection of new and innovative ideas, whether it involves a new product, process, or organizational and managerial function, places are losing their overall attractiveness rendering them from “sunset” to “sunburn” places (Audretsch & Lehmann, 2016a). However, it may not necessarily be the competition in the product markets that is driving the performance of places, rather it is competition in the factor input markets, like the market for ideas, which has generated such great locational performance of places like the Silicon Valley in the last decades. While a huge amount of large companies located there are powerful, they exert their monopoly power on the product markets, but otherwise favor and support the free market for new ideas. Thus, competition in the factor of input markets and monopoly power on the product markets is walking hand-in-hand fostering the economic performance of places. Not only do an increased number of firms provide greater competition for new ideas, but greater competition across firms also facilitates the entry of new firms specializing in some particular new product niches, becoming world market leaders in their narrow product and market areas. This is because the necessary complementary inputs and services are likely to be available from small specialist niche firms, but not necessarily from large ones (Audretsch et al., 2021a, b).

There is considerable and compelling systematic evidence from scholars linking the local structural dimension of competition to the performance of places, finding that those cities with a higher level of competition among firms also tend to exhibit higher levels of economic growth and register more innovative activity (Audretsch, 2015a).

While empirical research highlights the positive effects of large corporations to foster the economic performance and competitiveness of places, other studies argue

for the opposite, in that competition among firms increases the economic performance and competitiveness of places. What should policymakers do? The answer, however, lies in the middle: neither the domination of one or just a few large and powerful corporations will guarantee sustainable economic performance and competitiveness of a place, as the decline of the automobile and steel industry drastically showed in Detroit, Gary, and other places. Nor will a place gather economic performance and competitiveness when small- and medium-sized firms compete without reaching a minimum efficient scale.

Localized competition will also facilitate knowledge spillovers because if a particular idea is not used by a firm, it is likely to be contested and used by a different enterprise. Valuable ideas are less likely to go unused and, following the knowledge spillover theory (Audretsch & Lehmann, 2005a; Acs et al., 2013), are mostly used and commercialized at the place, the source, where the idea was generated. To complement, an important spatial and organizational structure in absorbing knowledge spillovers is played by entrepreneurial activity and the establishment of a functional entrepreneurial ecosystem.

### ***3.4 Entrepreneurship and Entrepreneurial Ecosystems***

The extent to which a place generates entrepreneurial activity is another important aspect of spatial organization and structure. The knowledge spillover theory of entrepreneurship (Feldman & Audretsch, 1999; Acs et al., 2013) suggests that the economic performance and competitiveness of a place will be stronger because entrepreneurship facilitates spillovers from organizations producing knowledge to new firm organizations where those ideas are introduced into the market and transformed into innovations. Audretsch and Lehmann (2005a) provide econometric evidence showing that knowledge spillovers and new firm creation in the high-tech and knowledge-intensive industries positively shape the economic performance of those places where new firms are located.

Entrepreneurship can benefit not just those individuals starting the new company, or their employees, but also the place where the entrepreneurship occurs (Audretsch, 2015a). By serving as the conduit for the spillover of knowledge, entrepreneurial start-ups take the knowledge created in one organizational context and facilitate the innovation in a very different organizational context, which can ultimately spur growth, jobs, and competitiveness of not just the new firm, but ultimately the entire place. While this link between entrepreneurship and growth is certainly not new—in his 1911 treatise “*Theorie der Wirtschaftlichen Entwicklungen*” (Theory of Economic Development), Joseph A. Schumpeter proposed that new firms with the entrepreneurial spirit displace less innovative incumbents, ultimately leading to higher growth—what is new today is the emergence of vibrant entrepreneurial activities for places to grow and sustain competitive advantages (Audretsch et al., 2006). There is a large body of empirical studies validating the importance of entrepreneurial activities in absorbing knowledge spillovers to increase economic

performance of places (Ghio et al., 2015; Audretsch et al., 2006). These studies provide compelling evidence that a greater degree of entrepreneurial activity, typically measured in terms of start-up rates, also tends to exhibit higher levels of economic performance, typically measured in terms of economic growth and sustainability. These studies also provide compelling systematic empirical support of the knowledge spillover theory of entrepreneurship across multiple levels of analysis, the firm, the city, state, region, and every country (Braunerhjelm et al., 2010).

In the past decade, a new literature has been developed linking entrepreneurial activities directly to places, thus generating a new type of spatial organization and structure: entrepreneurial ecosystems. Entrepreneurial ecosystems as organized attempt to establish environments that are conducive to increasing the success for newly established ventures. The underlying idea is that neither firms nor places just compete with each other through well-developed stand-alone strategies to achieve advantages over their rivals, uniquely relying on their own resources, knowledge, and capabilities. In a turbulent and hyperactive business world (D'Aveni et al., 2010), strategic and competitive advantages of places and firms are increasingly based on shared resources, network externalities, knowledge spillovers, local endowments, and governmental support, creating a need for concepts beyond the firm-specific competitive advantage approach (Audretsch et al., 2019b). Concepts, which consider not only those actors involved directly in the own firm-specific value chain, like close suppliers, financiers, or clients, but rather all factors which shape a firm's value chain, also in an indirect way, are therefore necessary. Such a view has to enrich the close competitive environment, rethinking existing causal relationships but also encompassing physical and intangible assets, like infrastructures, institutions, sources of knowledge, human capital spillovers, and network effects (Audretsch et al., 2016; Lehmann & Menter 2016, 2018a, b). The entrepreneurial ecosystem approach is used in corporate, national, and local contexts and has grown in prominence given the vital need to transform economies around the creation of innovative ideas, products, services, and technologies. Entrepreneurial ecosystems involve a network, or system, of interactions of individuals and organizations, like financial intermediaries, universities and research institutions, suppliers and customers, multinational companies, and the government. The entrepreneurial ecosystem literature has thus mainly focused on identifying the relevant stakeholders like entrepreneurial firms and entrepreneurs and how they interact with other stakeholders within a more or less defined system (Colombo et al., 2017).

### ***3.5 Specialization and Diversity***

A different aspect of spatial organization and structure is the extent to which economic activity is specialized. Specialization might enhance the economic performance associated with a place reducing the transaction costs of engaging in business since firms and individuals would be engaged in the same type of activity. Specialization of places often will produce higher economic performance than having a



large set of firms producing a broad set of products and services—there are potential economies of scale in concentrating on a smaller number of products and services. Crailsheim, a small city nearby Stuttgart in Germany, is called the “Packaging Valley,” named after a cluster of mid-size companies, albeit market leaders in their niches, producing highly specialized machines in the packaging sector, with a particular focus on the chemical and pharmaceutical industries (Audretsch & Lehmann, 2016a).

By contrast is the view that exactly the opposite holds, that diversity is more conducive to a strong economic performance of places than specialization on the grounds that inter-industry knowledge spillovers are more important than intra-industry spillovers. The competitive advantage of diversity thus stems from the exchange of complementary knowledge across diverse firms and economic agents that yields a greater return on new economic knowledge. Also, as Richard Florida points out, the degree of diversity in places contributes to the tolerance and acceptance of new ideas. Thus, diversity of population and workforce translates into a diversity of ideas and ultimately innovation activity, leading to a more diverse industry mix in places. Also, the degree of diversity at a place plays a key role in shaping economic performance according to models of evolutionary economics on two central principles, namely diversity and selection. The process of evolution takes place by a process of selection among diverse entities, which propels an economy into new direction. A place with no diversity and no selection will not evolve and still remain permanently locked in a long-run, steady-state equilibrium, as Audretsch and Lehmann (2016b) described when analyzing sunset and sundown regions in Italy. Finally, the degree of diversity shapes economic performance of places in times of turbulence and disturbance (Audretsch & Lehmann, 2016a). The higher the degree of diversity, the lower the costs of exogenous shocks. This directly follows from portfolio theoretical considerations.

Whether a place pursues a strategy of specialization or diversity may have a significant impact on its performance. It is important to emphasize that compelling examples exist where either specialization or diversity is associated with a positive and sustained economic performance, just as there are examples of places where neither specialization nor diversity is associated with poor performance. While the organizational dimension of specialization and diversity certainly matters, it does not matter in such a way that can be reduced to a formula that every place can blindly implement and follow.

## 4 Human Dimension

As discussed, the factors of production are tangible, understandable, and measurable in a relatively straightforward way. Likewise, the spatial and organizational dimension of this analysis provides a perspective that is primarily observable—the manner and density in which the aforementioned factors of production are organized and implemented. However, as Audretsch (2015a) discusses in his research, there is yet



another determinant in dictating the economic performance of a place—the people themselves. As the key variable in any economy, the populace of a place is inextricably linked to the performance of their place. By its inclusion in the strategic management of places framework, the human dimension asserts that it is not enough for a place to simply have the proper resources (factors of production) and to have them arranged properly (spatial and organizational dimension); a place must also have the right societal forces and key individuals that meld everything together in order to truly realize the economic potential of a place (Audretsch, 2015a).

The human dimension seeks to analyze how nuanced human behavior and interaction influence the performance of a region. Prior case study analyses of high-performing cities, states, and regions throughout the world have honed in on the importance of the perception of a place and its people (and a place's people perceive themselves and their place), the informational exchange and knowledge spillovers occurring within and between communities, the likelihood of people to trust and engage with one another and the propensity of individuals from all three economic sectors (public, private, and non-profit) to assume leadership roles to become catalysts in pushing economic development policies and initiatives forward (Audretsch & Lehmann, 2016a). In these case studies, these societal conditions were delineated as foundational to the economic triumphs of the places analyzed. Researchers found that places such as Berlin, Silicon Valley, Austin, Bilbao, Denver, and many others all shared a commonality of dynamic local populations, cultures, and individuals that were at the heart of their success stories (Audretsch, 2015a).

As alluded to, this human element is not as readily recognized and captured, but that does not prevent it from being felt and measured. Audretsch's (2015a) work in this field uncovered identifiable characteristics within the human dimension which can be investigated and analyzed in order to create an overall mosaic picture of how the people in a place generate economic activity and performance, thus enabling future researchers and policymakers to use this section of the framework to adequately capture and inventory the human dimension for any place. This information can then be used to determine areas of strength or opportunities for growth within these societal components, which can be compared and contrasted with those of high-performing peers. Armed with this knowledge, researchers and policymakers can then flush out the details of various policy initiatives which can be implemented in order to influence the human element to positively spur economic sustainability, while also acknowledging the historical and cultural context of each particular place. Consequently, this section of the paper proceeds by describing and exemplifying the subcomponents of the human dimension: networks and linkages, social capital, identity and image, and finally, leadership.

## 4.1 *Networks and Linkages*

Networks and linkages inform a researcher as to the nature and platforms of interpersonal communication and knowledge sharing within a city, region, or state (Audretsch, 2015a). Constituting the means by which people interact and exchange ideas, networks and linkages serve to define the formal and informal ways members of a community or society are connected with one another. Formal networks and linkages can be identified as local organizations and institutions such as trade unions, guilds, chambers of commerce, interest groups, professional associations, and industry cluster networks. Informal networks and linkages often take shape through local cultural and social traditions, such as familial and cultural ties, working relationships and practices as well as events and meeting places. Taken in combination, these formal and informal networks and linkages serve to create an overall environment of fluid interaction and exchange between and among the people of a place, which expands professional creativity and opportunities through institutional and industry knowledge spillovers, idea generation, and new or expanded business partnerships (Audretsch, 2015a).

Indianapolis, Indiana, can be looked to as an example of a place which leverages formal networks and linkages in order to promote interaction and exchange throughout the city to enhance economic growth. By fostering and hosting various associations and institutions such as the International Center, the Indianapolis Chamber of Commerce, and Junior Chamber International—Indianapolis, the city supports a variety of formal platforms and groups that are utilized to bring together economic actors from the metropolitan area which would otherwise be disparate and unconnected (Indy Chamber, 2021). For informal networks and linkages, Silicon Valley becomes an exemplar. By leveraging the presence and attraction of so many individuals and organizational actors around the high-tech industry cluster, the region has profited from an environment that is highly fluid with individuals moving in and out of different institutions and firms within the industry (Saxenian, 1996). This movement encourages a high amount of interpersonal interaction and knowledge exchange as these individuals and groups pick up new knowledge and disseminate existing knowledge with each move, thereby creating a knowledge community that speaks the same professional language and understands all of the different perspectives and players within the local environment. This widespread insight about the inner workings and nuances within the function and makeup of the dominant local industry then reduces overall uncertainty and transaction costs while simultaneously creating close personal relationships and networks across the industry, promoting innovation and new business ventures (Saxenian, 1996).

When investigating the formal and informal networks and linkages of a place, researchers can start by going to the local economic development corporation associated with that place, which generally provides an overview of the formal groups and associations within the local business community, as well as a profile of the industries, sectors, and clusters which are prevalent in the area. This then serves as a launching pad to dive deeper into those formal and informal associations,

institutions, and groups which provide that vital platform for communication and exchange. It should then be analyzed how active and vibrant these groups and their activities are, making sure to note areas of diversity and inclusion within them as well to track how well they are engaging and involving the community as a whole.

## 4.2 *Social Capital*

Researchers have long searched for a way to define and assess the feeling of a place, or the community spirit that coincides within the population of a particular area. Scholars and economic development practitioners realized that the proverbial “glue” that brought a local society together was crucial in mobilizing economic and social policy at the municipal level, and thus, producing prosperity (Woolcock, 1998). Further, this manner of interacting, socializing, and living with one another within the location then becomes intricately associated with the locality’s perception, reputation, and performance. This phenomenon has come to be known as “social capital,” defined by the World Bank as referring to,

the norms and networks that enable collective action. It encompasses institutions, relationships and customs that shape the quality and quantity of a society's interactions. [...] Social capital is critical for societies to prosper economically and for development to be sustainable. Social capital [...] can improve project effectiveness and sustainability by building the community's capacity to work together to address their common needs, fostering greater inclusion and cohesion, and increasing transparency and accountability. (World Bank, n.d.)

When seen through this lens, social capital can be thought of as producing the level of mutual trust needed in a society to come together to inspire and work toward positive change, not just in terms of economic performance, but in all aspects of civil life (Woolcock, 1998).

Places that succeed economically through a positive accumulation of social capital typically do so through a combination of a thriving community of civil society organizations as well as open public spaces and intentionally organized cultural/entertainment festivals and events, which work in concert with one another to inspire a sense of unity and togetherness within the local populace (Audretsch, 2015a; Woolcock, 1998). Within the western tradition of civil society and volunteer organizations, many communities boast robust local portfolios of groups such as Rotary Club International, Lions Club, Kiwanis, American Legion, Veterans of Foreign Wars, Shriner Clubs, United Way, Red Cross, local community foundations, and many, many more, all of which serve to bring neighborhoods and communities together in order to work toward common public benefits and causes (Salamon et al., 1999). While the examples of cities in the USA excelling in this area are many, including Denver, Boston, and Austin, cities from around the world have begun founding chapters of these organizations or starting similar organizations in order to build their stock of social capital as well (Salamon et al., 1999). The other side of the social capital equation, open spaces and events, is displayed through the example of Chicago’s Department of Cultural Affairs and Special Events (DCASE), which

sponsors and runs many of the cities exhibitions, performances, holiday events, and festivals throughout the numerous neighborhoods and communities in the metropolitan area (City of Chicago, 2021). By dedicating millions of dollars annually in staff, materials, and resources, DCASE serves as proof of the value that mayors and municipal leaders place on investing in the growth and maintenance of social capital (City of Chicago, 2021).

In order to measure and evaluate the social capital of a particular place, it is then important to observe the quantifiable aspects of local efforts to build and maintain the intangible asset of social capital. Researchers and interested persons can look to local non-profit registries or IRS filing records to observe the number of civil society/volunteer/charity organizations within a defined geographic place, and many of those organizations will often maintain local websites with facts and figures which can be used to identify membership and engagement, i.e., how active they are in the local community. Likewise, most municipalities maintain records regarding the number, frequency, and attendance of public events and festivals, and many local planning departments keep data and information on the amount of open/park/green space in local communities.

### ***4.3 Identity and Image***

Those that are familiar with common beliefs and sayings in marketing, public relations, and advertising will recognize the phrase, “perception is reality.” While the statement itself might not be literally true, the implication holds true that how people think or feel about something, someone or, in this case, someplace, impacts the relationship between people and that particular thing, person, or place. Researchers have found that the internal and external perception of a place has concrete implications for that place’s performance. Audretsch (2015a) delineates the internal perception as “identity,” or the way that the local population of a place feel about themselves and their surroundings. Audretsch (2015a) also provides a label for the external perception, noting that “image” refers to how a place is viewed by the world outside of the place’s borders.

A place that has been able to cultivate a positive identity and image in order to boost local economic performance is Tallinn, Estonia. In making local place-based policy decisions after gaining autonomy following the fall of the Soviet Union, the governments of Tallinn and Estonia invested substantially in the infrastructure necessary to foster technological innovation and entrepreneurship (Venesaar et al., 2006). These investments included educational and community initiatives that helped a positive self-perception of an adaptable, agile, and creative city to develop (Venesaar et al., 2006). It can then be argued that this had, and continues to have, a reinforcing effect—that since the people living in Tallinn perceive it to be a modern and forward thinking hub of economic and technological innovation, it becomes one. Tallinn is a place where ideas can thrive because the local population believes that it is. This has had a knock-on effect as Tallinn has subsequently become renowned the

world over for its vibrant tech start-up scene. Because the city has a positive image as a place where ideas and new companies can thrive, Tallinn has become a magnet for new people, foreign investment, and international cooperations, further boosting the economic performance of the place (Venesaar et al., 2006).

Those researching the identity of a place would be well-served to investigate the demographics and spatial breakdown of the place, which helps to understand the different neighborhoods and groups of a place and to obtain a better idea of how they interact together, or rather, the amount of social capital therein (Audretsch, 2015a). This can be viewed alongside how the area projects and advertises themselves, which is revealed through the activities of local chambers of commerce and tourism bureaus. While these advertisements and communications might display an idealized version of a place, they also give an impression of how the local population perceives the best of what their place has to offer. The image of a place can often be found within the national news media of the country or supranational region where the place is located. Often written in an op-ed fashion, these articles deliver outside opinions about the current state of affairs within the place. These typically rely on statistical data and anecdotal reports in order to formulate an outside perception of a place, and when numerous articles arrive at similar opinions, a person can gain a solid understanding of a place's perceived image. Sources would include the *Economist*, *New York Times*, *Handelsblatt*, *International Affairs*, *Bloomberg*, etc.

#### 4.4 Leadership

Having thoroughly dissected many of the underlying forces and elements that contribute to and determine the performance of a place, one can see how crucial strategy is to maximize the factors of production, the spatial and organizational dimension, and the human dimension. However, strategy still requires a person or a group of people to visual it and enact it to realize a place's full potential (Audretsch, 2015a). There is a distinctly human element to the strategic management of places, in that it does not simply manifest itself and that it is not always straightforward—if it were easy, everyone would be successful in conducting it. This gets at the heart of a key question—why do places that have similar underlying forces in the three dimensions have different results in economic performance? What separates the winners and losers in these cases? Perhaps the answer to this is partially captured in the last subcomponent of the human dimension, leadership.

As noted by Audretsch (2015a), individual decision-makers are often central to cases where local economic development initiatives have proven successful in maximizing performance through the augmentation or efficient use of the three dimensions. Therefore, places with strong leadership within their communities are better positioned to realize a higher economic performance, and it is imperative that systems of equality are in place to empower more leaders to emerge within a place's local population. Cases of municipalities that have relied upon strong leadership to

boost performance are numerous, as are cases where poor leadership has resulted in local economic downturn. Nottingham, England, serves as a positive example where the leadership of the local economic development agency, local university presidents, and the CEO of a major, locally operated firm chose collaboration over competition in order to pool together resources that fostered the emergence of a thriving bioscience cluster in what was once a post-industrial economic underperformer (Rossiter & Smith, 2017). Many recent examples of leaders failing to take measures to mitigate the negative effects of the COVID-19 pandemic and safeguard both public health and the economy serve as negative cases (Peters, 2021).

For researchers interested in investigating the leadership elements within a particular place, they must simply dig deeper into the recent history of that place. By taking a closer look at economic development successes and failures, one can usually identify individuals and institutions that were instrumental in the outcome. After the initial determination of key figures, researchers should take the next step to assess which conditions enabled those leaders to breakthrough and succeed, or fail, and to analyze which systems may be improved or bolstered to encourage leadership triumphs in the future (Audretsch, 2015a).

## 5 Public Policy

Having detailed the overall concept for the strategic management of places and taken a closer look at all of the subcomponents within each of the three underlying forces of local/regional economies, it is now appropriate to shift focus toward the action-oriented portion of the theoretical framework—public policy. Understanding and investigating the three underlying forces for a place gives one great insight into the economic health of that place and even clarifies the areas that need to be maximized or improved, hinting at what must be included in strategic planning for the place moving forward. Without actionable public policy, however, an analysis of the three underlying forces serves only as an informative inventory of economic factors that doesn't do anything to actually change or improve the place's economic performance. Effective public policy then takes the insights garnered from the analysis of the underlying forces and acts upon it to enact real and positive economic change for the place and its people (Audretsch, 2015a; Audretsch & Lehmann, 2016a).

It is correctly assumed that local elected officials and public servants are heavily involved in crafting public policy to improve place-based economic performance, as was detailed in the "leadership" subcomponent of the "human element." As the executive and legislative functions of local governance, they are instrumental in creating and implementing the economic policy of a place (Peters, 2021). However, local economic development and the strategic management of places are interdisciplinary by nature, and their successful implementation therefore requires buy-in and participation from a range of stakeholders from all three sectors (public, private and non-profit) in the local population (Rossiter and Smith, 2017). As noted in the several case studies and examples throughout this chapter (and in further detail in

subsequent chapters), key actors in informing and implementing successful public policy are found not only in local government, but also in local private sector firms, non-profit and civil society organizations like community foundations, charity groups and chambers of commerce, and even quasi-non-governmental organizations such as economic development corporations. Further, every individual within a place also plays a crucial role. As we have seen throughout this paper, and noted by sociologists and economists, the economic health of a place hinge largely on a sense of community, identity, and solidarity, which everyone contributes to (Woolcock, 1998).

Public policy must not only be multifaceted in terms of who is involved, but the most effective and transformative policies are also nuanced in their design. In this regard, a well thought-out public policy brings together subcomponents from more than one underlying force, or even all underlying forces, and exploits their interconnected nature in order to maximize public benefit for the whole of a place (Audretsch, 2015a). For reference, readers can return to many of the examples explored throughout this chapter (and in those of subsequent chapters) and note how many of the strongest and most impactful results for local communities involved not only the subcomponent being directly discussed in that sub-heading, but also several other subcomponents from the same underlying force as well as the other underlying forces. These spillovers and connections between the different dimensions in the framework create ample opportunities for all stakeholders involved in public policy creation and implementation, as they evidence the prime areas for performance enhancement for the place in question (Audretsch & Lehmann, 2016a, b).

Researchers that are attempting to suggest public policy recommendations for a place should start by focusing on policy areas that are revealed through the examination of the underlying forces and trying to identify points of overlap which produce spillover benefits for public policy targeting—meaning where one policy or a package of policies can solve problems and create benefit for more than one subcomponent or even more than one of the underlying forces. After these policy areas are determined, researchers should then seek out success stories and positive examples from other places that have similar local economic inventories based upon an analysis their underlying forces as well. Being careful to accurately and thoroughly account for history, culture, equity, and sustainability within the local context, the policies from the successful example should be tweaked and modified so that they can be effectively implemented in the specific context of the place in question. Further, researchers will also want to account for potential areas of pushback to their policy recommendations; identifying where local politics and coalition building will be instrumental to creating adequate buy-in for successful policy implementation. Lastly, researchers should also work to identify local, national, and international granting opportunities to cover the financial costs of implementing a policy, especially in situations where tax increases or other revenue generation may prove infeasible or overly difficult.

## 6 Conclusion: Applying the Framework

It is one thing to have a framework depicting the conceptualization of the basic forces shaping the economic performance of place. It is quite another thing to be able to use or implement that framework with the goal of enhancing place performance. The gap between theory and application is formidable and requires translation to successfully implement the strategic management of place framework.

The translation and application of the framework revolve around five key W's—Who, Where, What, Which, and When. The first involves who is mandated with, involved with, or has a vital interest in the performance of their place. The most obvious actors mandated with the ensuring a strong performance is the public sector. It has been well established that the proclivity of voters to support and continue with incumbents in office, or instead prefer a change, is closely linked to the economic performance of the place, or at least whether the performance trend is positive or negative. In the context of the United States, this would include mayors, governors, city councils, and state legislators.

What is less visible is the involvement, and incentive to be involved, in the strategic management of place by both the private and non-profit sectors. Location is a key choice variable in the strategic management of private firms. The performance of a place can have both direct and indirect impacts on the performance of firms located at that place or deliberating moving to that place. A prolonged negative performance can adversely affect the quality or competencies of the local population comprising the workforce. Dissatisfied and disgruntled workers tend to move away to locations offering better opportunities. Most recently, places suffering such an exodus from their talented workforce have been characterized as suffering a brain drain. Such a brain drain poses a challenge to firms remaining at the place, since the supply of talent dries up as the workforce, and in particular the most talented segment, in response to fewer opportunities associated with a low performance.

To the degree that a private firm has sunk costs invested at a particular location, it therefore has a vested interest in participating in or at least ensuring a robust strategic management of their place. Sunk costs essentially bind the firm to a specific place. While switching locations always remains a possibility, the existence of costs which are sunk suggests that such a move will incur costs beyond those of simply transacting the change in location. In some cases, sunk costs emanate from specific relationships with complementary firms, albeit suppliers or even competitors, located at the place. Such relationships can extend into the broader ecosystem comprising a place and include people at every important node in the ecosystem, such as at a university or local government. While many of the firm's assets may be portable and can be moved at low costs across geographic space, such relationships tend to be place-specific and require frequent face-to-face interactions for the relationship to thrive. Distance can lead some relationships to wither, suggesting that the tacit knowledge embedded in place-specific relationships renders replicating or replacing such relationships required in a locational change expensive and costly.



To the extent that the firm's competitive advantage emanates from a particular firm cluster or entrepreneurial ecosystem, it will confront a loss of competitiveness by moving away. Thus, while locational investments in clusters and entrepreneurial ecosystems can enhance firm competitiveness, they also render the firm more dependent on a specific location. To avoid losing the sunk costs incurred at that particular place, legacy firms also have a strong incentive to contribute to the strategic management of that place to ensure a strong performance. For example, Eli Lilly and Company in Indianapolis were confronted with a potential loss in competitive advantage when it could not access the pipeline of new pharmaceutical products emanating from biotechnology start-ups, which its counterparts could in the Research Triangle in North Carolina and San Diego life science entrepreneurial ecosystems. The company considered moving its headquarters but realized that the sunk costs incurred were prohibitively expensive. Instead, the company actively set upon championing the strategic management of the region to create the life science entrepreneurial ecosystem requisite to its own competitive advantage. Thus, investing in the strategy of the place proved to be more economical than simply moving to an existing cluster or entrepreneurial ecosystem at a different location.

Non-profit organizations also participate, or at least have a strong incentive to participate, in the strategic management of place. Some non-profit organizations actually have a legal mandate to foster the performance of their place. For example, the Ewing Marion Foundation is mandated by its charter from its founder, Ewing Marion, to enhance the performance of Kansas City. Similarly, the Lilly Foundation has a mandate to enhance the performance of a particular place, Indiana, just as the Ameritech Foundation has a charter mandating it with a mission to enhance the performance of the Midwest in the United States. Similarly, the Georgia Research Alliance has a clear mandate to promote the performance of that state, as do the system of Fraunhofer Institutes in Germany. As Audretsch and Lehmann (2016a) point out,

the Center for European Economic Research (ZEW) in Mannheim, is financed in part by the *Land* of Baden-Wuerttemberg, which provides cities and the entire region with key economic and business insights and trends. In fact, the German landscape is littered with similar institutions, ranging from basic research and applied research, such as the Leibnitz Institutes and the Fraunhofer Institutes, to institutions providing a linkage and networking function, and institutions, such as the Social Science Center Berlin (Wissenschaftszentrum Berlin fuer Sozialforschung, WZB) or the Kiel Institute of Global Economics, which provide some of both. Membership in the prestigious Leibnitz *Gesellschaft*, or Society, ensures that such research institutes maintain a careful but delicate balance between local as well as national interests. These are just a few poignant examples of the rich mosaic of institutions, organizations, and agencies which are at least partially sponsored at the local level, but typically with considerably federal financial support, in order to enhance the economic performance of the particular *Standort*.

Colleges, universities, and technical institutes often have a vested interest in the strategic management of their place. For example, the University of Akron, in Ohio, was sufficiently concerned about the impact that the deteriorating conditions of its city would have on the performance of the university that it was drawn into engaging in the strategy to enhance the performance of Ohio. Many state universities,

especially the land grant universities, have an explicit mandate to contribute to and ensure the prosperity of their state. Similarly, the mandate of *Fachhochschule*, or technical colleges, in Germany, as well as their counterparts elsewhere, such as community colleges in the United States, is to generally provide training and education to prepare the local workforce to enhance the competitiveness of the place.

The “where” involves the specific geographic location defining the boundaries and context for the strategic management to enhance spatial economic performance. The geographic context typically reflects political boundaries, such as a city, province, state, county, or district, where there is a clear policy mandate. However, the interest and confluence of actors spanning the public, private, and non-profit sectors may also span political boundaries, so that their own performance is shaped by the performance of overlapping political regimes. Examples would include the border region between Windsor, Canada, and Detroit, USA, or between El Paso, Texas, and Juarez, Mexico. Participants engaged in the strategic management of a place may draw on multiple spatial levels, both within but also beyond the boundaries of the place. It is more the rule than the exception that the concerns for place performance involve participants and actors spanning multiple spatial dimensions and locations.

The “what” involves using the framework to identify which specific strategies would be most conducive to enhancing performance. The ancient Greek aphorism “know thyself” is a good starting point. An inventory of the attributes of the place in terms of the essential elements of the framework—factors and resources, spatial structure and organization, the human dimension and policy—and how they map onto generating the competitiveness of either existing industries or aspirational industries, provides a window into areas of strength and deficiency. The strategic management of the place can then prioritize those strategies which the framework identifies as being most conducive to the type of performance to which the place aspires and for which it has strengths. At the same time, it can address glaring deficiencies to the extent of requisite complementarities for an enhanced performance.

Still, the insight of Robert F. Kennedy, “Some men see things as they are and ask, ‘Why?’ ‘I dream things that never were and ask’, ‘Why not?’” also applies to the strategic management of place. While application of the framework starts with taking inventory of the elements and components comprising the framework, it should not be the end. Perhaps the greatest attribute of places able to implement a successful strategy is the ability to envision a future for the place that may go beyond simply replicating the present or returning to the past. Such a vision needs to articulate both a (type of) performance and a clear path prioritizing those elements of the framework that will ignite a trajectory to transform the place from its current and past reality to actualizing the envisioned future performance.

Such a vision was articulated when the leadership of the Basque region envisioned transforming Bilbao from a city devastated by a loss of competitiveness in the shipbuilding industry, along with the accompanying unemployment and social decay, to a thriving region based on design and culture. This vision was essential to prioritize a strategy to transform the image and identity of the city and region away from the grittiness of docks and blue-collar work to art, creativity, and ideas.

The “which” involves the instruments used to actually implement the strategies. In the case of the transformation of Bilbao and the Basque region, a main instrument involved convincing the Guggenheim Museum to locate its first location outside of North America in Bilbao. Opening the Guggenheim Museum in Bilbao triggered a cultural transformation of the region, which accelerated the success of the food and culinary industries, such as the famous Rioja wine. As the design and software industries have replaced the now idle docks and shipbuilding factories of yesteryear, the performance of Bilbao and the entire Basque region has soared. It all started, however, with the vision of leaders for a strategy that would dramatically change both the economic and social landscapes of Bilbao, and ultimately the performance as well.

Similarly, in transforming Berlin from a performance characterized by stagnant economic growth and growing unemployment, key instruments involved both human capital and knowledge, but also identity and image. The strategy prioritized investments in universities and research but also amenities to attract high human capital to the city. At the same time, the strategy prioritized changing the identity and image of the city from being overly bureaucratic and anti-business to being creative, open, and entrepreneurial. Berlin is now widely recognized as being the most entrepreneurial city in Europe and one of the entrepreneurial hot spots in the world.

The “when” involves the timing and lags between the implementation of the strategies through specific instruments and their actual impact on performance. Some strategies are longer term, while others have a more immediate impact. For example, it took decades for the investments which created the Research Triangle Park to actually pay off in terms of enhanced performance. By contrast, the Connect policy in San Diego, which was the catalyst for the emergence of the life sciences entrepreneurial ecosystem, resulted in an enhanced economic performance within just a few short years.

Thus, it is one thing to have a framework to enhance performance. It is quite another to be able to implement it successfully. Focusing on the five W’s—Who, Where, What, Which, and When—will go a long way in making the theory inherent in the framework remarkably tractable, enabling those places willing to do the work not just to enhance their economic performance but to ultimately thrive. The insight of George Eliot, the great British novelist observed, “it will never rain roses: when we want to have more roses, we must plant more roses.”

Perhaps a remaining question is, “how?” In order to show the manner in which the framework can be applied universally across geographic, historical, and cultural contexts, this book proceeds with a multitude of chapters exploring different cases of the framework’s practical application. This case study approach, while not exhaustive of all potential places, does serve as adequate evidence of how any place can benefit from the opportunity for self-reflection and creative problem-solving that the framework provides. The following chapters provide case studies from across the globe—specifically, four continents, 12 countries, and many localities (see Table 1 and Fig. 2). These cases span a variety of economic and social issues and clearly display the dynamic and interdisciplinary nature of economic and community development that are present within the strategic management of places framework.

**Table 1** Overview of book chapters

| Continent            | Country              | Chapter                                                                                       |
|----------------------|----------------------|-----------------------------------------------------------------------------------------------|
| <i>Europe</i>        | Italy                | Taranto—Revitalizing the Energy of a Mediterranean Port City                                  |
|                      |                      | Analyzing Youth Unemployment and Brain Drain in Southern Italy                                |
|                      |                      | An Analysis for Strategic Locational Management: The Case of Lombardy                         |
|                      | Austria              | The Past, the Present, and the Future in Vorarlberg and Tyrol                                 |
|                      | Spain                | Economic Development in an Autonomous Region within a State                                   |
|                      | Germany              | Skilled Labor Shortages—the Bavarian Case                                                     |
|                      |                      | Regional Differences in Unemployment—the German Case                                          |
|                      | Norway               | The Norwegian Paradox—Analyzing Overdependence on Oil Exports                                 |
| <i>North America</i> | USA                  | The Gender Pay Gap in France                                                                  |
|                      |                      | The Economic Performance of Las Vegas—Shaping Culture and Identity through Economic Policy    |
|                      |                      | Fracking in Texas—Effects on Economic Development and Future Outlook                          |
|                      |                      | Overdependence of Silicon Valley on the Technology Industry                                   |
|                      |                      | Population Decline—Detroit’s Exodus                                                           |
|                      |                      | New York City—The Challenges of the American Dream                                            |
| <i>Asia</i>          | United Arab Emirates | Dubai—A City of Contradictions                                                                |
|                      | Singapore            | Strategic Management of Places: The Case of Singapore                                         |
|                      | China                | The Economic Impact of Air Pollution in Beijing                                               |
|                      |                      | The Intersection of Environmental Policy, Public Health & Economic Performance in Shanghai    |
|                      | Qatar                | The Impact of Hosting the World Cup on the Economic Performance and Labor Conditions of Qatar |
| <i>Africa</i>        | South Africa         | Cape Town—Making Progress Possible. Together?                                                 |

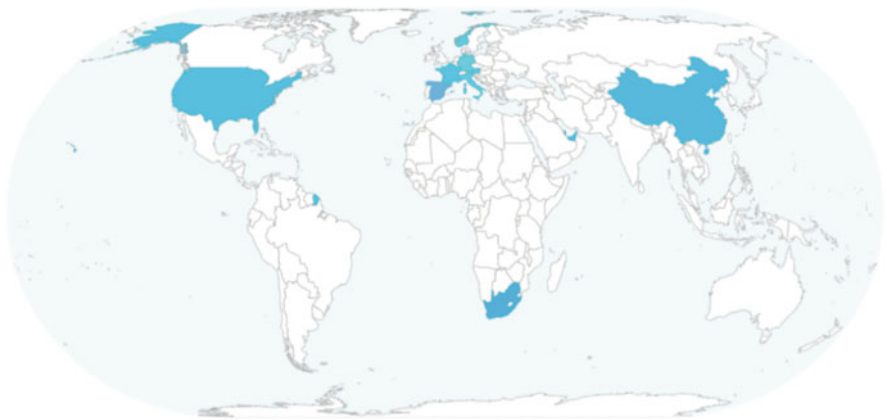


**Fig. 2** Geographic locations of the case studies created with [WorldMapCreator.com](https://www.worldmapcreator.com/)

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**Part I**  
**Strategic Management of Places**  
**and Economic Development**

# Economic Development in an Autonomous Region Within a State



Sarah Bömicke, Rawan Khalil, Dina Mertens, Madison Stewart,  
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**Abstract** Catalonia, located in Spain and home to Barcelona, contributes to Europe's import and export trade. While specializing in tourism and diverse industries, Catalonia hosts cruise lines, several local and international colleges, and over seven million inhabitants. We elaborate on the infrastructure and dynamics of this country. The main problems of Catalonia focus on unemployment and citizens' independence. To tackle these issues, we provide an in-depth analysis of the current initiatives and policy measures undertaken by the regional government, highlighting potential strategies such as targeted employability, addressing the independence movement, as well as enhancing resilience due to exogenous shocks.

## 1 Introduction

The Region of Catalonia is located northwest of the Kingdom of Spain and has a population of around 7.5 million inhabitants (2022). The three official languages are Spanish, Catalan, and Aranese, an accent of Occitan (Barcelona.de, [n.d.](#)). The capital and biggest city, Barcelona, has 1.6 million inhabitants, the second-most populated city in Spain, and tourists value its unique culture and architecture (Rodríguez, 2020). Geographically diversified, Catalonia is conditioned by the Mediterranean coast and the Pyrenees in the north (ibid). Historically, the Region of Catalonia experienced various wars and was ruled by changing sovereignties resulting in periods of suppression followed by autarky (ibid). Nevertheless, Spain's region is the most economically significant and dynamic, generating 20% of its GDP (European Commission, 2020; Feito Higuera et al., 2014). Since the end of Franco's dictatorship, Catalonia has been an autonomous community holding exclusive jurisdiction in numerous domains such as education, health, culture, commerce,

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safety, and local government anchored in the “Statute of Autonomy” (Rodríguez, 2020).

During the last decade, Catalonia caught international attention due to its request to be recognized as an independent nation and thus to form a new democracy in the south of Europe. The Separatists base their demand on historical, cultural, and economic arguments (Feito Higuera et al., 2014; Debating Europe, n.d.). The independent movement of the “historical autonomous community” (“Nacionalidades Históricas”) of Catalonia is more than 300 years old (Generalitat de Catalunya, n.d.). Nevertheless, in opinion polls published since 2010, 40% to 50% of the population would prefer Catalonia’s independence (Serrano, 2013, p. 525). Even before Spain had a parliamentary democracy, the kingdoms of Castile and Aragon were enemies, which some see as the origin of the conflict that still exists today (Generalitat de Catalunya, 2020). Moreover, Catalonia was controlled by the central government during the 39-year Franco dictatorship suppressing Catalan culture and language (ibid). In addition, the Catalans argue that they have an economic disadvantage as an autonomous state of Spain because they have to co-finance the poorer south of Spain (Feito Higuera et al., 2014, p. 11). In 2006, the Catalan government called for a new economic model in a referendum, which recognized Catalonia as a separate nation and thus used Catalan as its first official language (Generalitat de Catalunya, 2020). Although the power of attorney was initially granted, after 4 years of a legal battle against the right-winged, conservative Party Partido Popular (PP), the constitutional court struck down some amendments (ibid). In the subsequent years, full decisions were requested almost every year, but most of them were forbidden by the Spanish central government (ibid). Nevertheless, in 2017, in an illegal referendum, 90% of the voters (turnout was only 43%) voted for Catalonia’s independence (ibid). As a result, the regional president Carles Puigdemont proclaimed the autonomous region’s independence on October 27, 2017 (Generalitat de Catalunya, 2018; Valdivia, 2019). The Spanish central government reacted by dismissing the regional government and announcing new elections the same evening with the help of constitutional article §155 (ibid.). Consequently, a lawsuit was filed against the former regional president and other members of the deposed government. While they fled to other European countries, a new government was founded (Generalitat de Catalunya, 2020). Recently, Spain has been one of the countries in Europe highly infected by the COVID-19 pandemic. The first case was detected on January 31, 2020, on the island of La Gomera (Linde, 2020). Furthermore, the first positively tested case in Catalonia appeared about one month later, on February 27, 2020. In the following weeks, Spain faced a drastic exponential growth of patients, resulting in crowded hospitals. On April 02, due to the dramatically fast development of COVID-19, Spain became the country with the highest death rate within 24 h (ibid).

The government imposed a national lockdown, which endured a long and enforced confinement until May 02, 2020 (see ibid). Catalonia’s regional government decided to close public institutions, such as the Sagrada Família, airports, railways, and ports. Moreover, they suspended classes even before the national lockdown, valid for all regions equally, starting on March 12 (Faus, 2020). With

Catalonia being the second-most affected Region in Spain, they observe the same phenomena as in Italy, where the virus spread especially in Lombardy, the economically most significant part of the country. The New York Times (2020) identified the healthcare system that has been tarnished since the financial crisis in 2008 and an elderly population combined with the late governmental response as the main reasons why Spain became a center of the pandemic with one of the highest mortality rates in the world. As of June 20, nearly 300,000 cases are confirmed in Spain (Worldometer, 2020), while authorities expect the actual number to be significantly higher because a majority only suffered from mild symptoms. Moreover, Spain experienced a substantial decrease in its economy. Initially, the GDP was expected to grow by 1.6% in 2020 but is now forecasted by the International Monetary Fund (IMF) to fall by 8% due to this sanitary crisis (Shields, 2020).

## 2 Problem Analysis

The Spanish Region of Catalonia is highly valued worldwide for its economic development, cultural heritage, and strong identity. Therefore, examining the region's strategic management is interesting, considering all economic, historical, and social aspects. For that purpose, we leverage Audretsch's framework of the strategic management of places (2015).

### 2.1 *Factors of the Production Dimension*

Decisions of the government, firms, organizations, and individuals shape how well the economic performance of a place does (Audretsch, 2015). The following section exploits the role of natural resources, such as land, resources, and physical capital, can play in the Region of Catalonia.

#### 2.1.1 Physical Capital and Resources

It is essential to maintain a competitive advantage over other places by attaining and harnessing hard-to-mimic resources. In this matter, physical resources aid as a basis for competition. In 2019, the 7.5 million inhabitants of Catalonia contributed 242.3 billion euros to the overall GDP in Spain, which was, in total, 1.2 trillion euros. In addition, the average GDP in Catalonia was 32.1 thousand euros in 2018, significantly higher than the Spanish GDP per Capita of 25.7 thousand euros (Statista, 2020). For its impeccable tourism, Catalonia leverages its natural resources like weather and coastlines (Generalitat de Catalunya, n.d.). Businesses have easy access to transportation means and can benefit highly from its good infrastructure (see *ibid*). Audretsch (2015) stated in his book that there is a direct link between

infrastructure and the economic performance of places. The better the infrastructure, the higher the foreign investments in a place. The Catalan government expressed their distress regarding the low governmental spending of the Spanish government on Catalonia. They claim a “*decades-long deficit in public spending*” (ARA, 2018). In recent years, Spain has invested between 10% and 13% in Catalan infrastructure, even though Catalonia contributes 20% of Spain’s overall GDP (see *ibid*). Just three were completed by 2018, from a list of 100 strategic infrastructure projects released by Foment (Catalan employer’s association) in 2015 (see *ibid*). According to the official page of the Catalan government, a total of 8642 multinational companies operate from Catalonia, accounting for 50% of Catalan exports. A poor infrastructure could put that FDI in jeopardy. One of the greatest drivers of Catalonia’s economic stability is its independent government that supports and recognizes Catalonia’s opportunities from SME to global players. The Catalan government works hard to deepen, increase, and strengthen public and private ties (Castello, & Ozawa, 2014, p. 87). These ties attract new capital, skilled labor, and entrepreneurship, creating dynamic competitive advantages by developing new products and technologies (see *ibid*). The region possesses an unexploited wealth of natural and physical resources that work and aid its economic performance. Moreover, Catalonia’s geographical position is important to the region as it enables accessible communication with Mediterranean cities and central Europe.

### 2.1.2 Human Capital

Human capital generally refers to the stock of capacities, expertise, cognitive skills, and even personal attributes embodied in an individual that allow that person to create economic value (Audretsch, 2015). Even though Spain is one of the largest European countries by population, the country is facing negative demographic patterns, such as negative birth rates, like most developed European countries (Weresa, 2013). It has been proven that investments in human capital increase the return of firms and individuals (Barrett & O’Connell, 2001). Clusters are highly dependent on human capital upon exchanging knowledge in the production process. The better the quality of the human capital in a region, the higher the standard of living of the people living there. There has been a significant increase in average wages in Catalonia over the past few years (Council, 2017). As a region of high-technology businesses, Catalonia needs a stream of human capital supply (OECD, 2010). Companies try to keep their workforce, as replacing skilled workers in specific industries is challenging and costly.

Catalonia has a lot of regional policies promoting innovation, and Barcelona is a byword for innovation in medical care and technology (Generalitat de Catalunya, n.d.). Due to high funding programs, the region attracts lots of high-level researchers through ICREA and many other initiatives. The government spends more than 50% of its budget on education, social, and health welfare, thus providing for more even income distribution (Castello & Ozawa, 2014, p. 86). Unfortunately, a large proportion of the population has low skills, preventing firms in major Catalan industries from moving up

the chain value (see *ibid*). However, the quality of human capital should be increasing because more people are deciding to continue their education (see *ibid*).

Immigrants are one of the key drivers of economic growth in Catalonia. However, they account for the highest unemployment rate at an average of 42.5% in temporary jobs (OECD, 2010). Since 2007, Spain has been severely affected by the global economic crisis. It had the second highest unemployment rate within the EU at 20.4% in the third quarter of 2010 (see *ibid*). Youth unemployment reached 43.5% at the end of 2009 (see *ibid*). However, as of 2020, according to the statistical institute of Catalonia, Catalonia's unemployment rate has fallen to 10.7%. Unfortunately, there still seems to be a problem regarding youth unemployment. Catalonia's youth unemployment rate reached 28.3% in 2020. Compared to 2019, the unemployment rate remained stable, but the youth unemployment rate has increased by 2% (Catalonia—Unemployment rate 2020). Nonetheless, as of recent events, when the state of alarm was introduced on March 14, 2020, due to the spread of COVID-19, workers were laid off from non-essential workplaces (Shields, 2020). One month later, at the pandemic's peak, Catalonia had to register layoff requests from more than 90,000 companies; therefore, the number of temporarily unemployed people potentially surpassed the highest number since the financial crisis in 2008 (see *ibid*). Furthermore, the Catalan unemployment rate is expected to double due to the pandemic affecting jobs in tourism and construction (see *ibid*).

### 2.1.3 Education

Investing in university-based research has been an effective strategy not only for companies seeking new ideas and knowledge to be translated into innovative new products but also for places to generate a source of knowledge that drives their economic performance (Audretsch, 2015). It is an approach used to create and harness expertise and ideas as a source to create a competitive advantage. Austin, Texas (USA), shows a similar approach to investing in research. Today, places equipped with a university can turn to the university as a trigger for productivity and consequently as a source of knowledge that delivers strong and sustained economic performance. An additional aspect is Catalonia's effective school system with an international educational bid. A wide variety of educational programs are available from more than 725 top-quality public and private schools (Generalitat de Catalunya, *n.d.*). Catalonia is home to (175,000 students) 120 universities and 35 international schools that offer their respective countries of origin educational programs (Generalitat de Catalunya, *n.d.*, OECD, 2010). Barcelona is host to some of the most prestigious business schools in the world (OECD, 2010). One of the main goals for the region was to build a "*Barcelona higher education center*" to attract international master students (see *ibid*). Their marketing and study programs in English make it a hotspot for international students. IESE and ESADE are among the top MBAs in Europe (see *ibid*). While educational achievement levels in Catalonia have improved over the past two decades, a large percentage of the population has low skills, and 9.6% of the population is either illiterate or without education (Generalitat de



Catalunya, [n.d.](#)). The region lacks the institutional autonomy of universities to build effective accountability structures. There are still barriers to developing new university programs, including the regulated fee structure.

Finally, there seems to be scope for enhancing the interaction of universities with regional companies and industries to help increase their managerial capabilities, technical skills, and general market opportunities knowledge (OECD, [2010](#)). A possible cause of unemployment lays in the fact that educational institutes and sectors of the economy do not work together to address the market needs and thus allocate proper education toward it. Therefore, it is essential to acknowledge that universities are an important factor for development in Catalonia and to create a linkage between higher education institutes and the industry to better bridge the gap in the skills needed in the region.

## ***2.2 Spatial and Organizational Dimension***

The Economy in Catalonia is flourishing with the different sectors also seen worldwide. The Catalan environment is primed for fruit, livestock, and vineyards. Along with the right environment, Catalonia produces and researches highly innovative manufacturing policies. Against this background, the spatial and organizational dimension of the following section provides a lens through that primarily observable production factors are organized and implemented in a market.

In January 2020, Spain counted 2,888,317 companies in total (Instituto de Estadística de Cataluña, 2020). However, Catalonia has about 627,693 active companies, 18% of the national number (see *ibid*). In contrast, Madrid has only 483,327 registered companies, representing 14% of the national total. Individual entrepreneurs founded 46% of Catalan companies, 35% are limited companies, and public limited companies represent only 3% of Catalan companies. Between 2014 and 2017, the number of companies based in Catalonia increased by 5.6% (ElEconomista, [2014](#)). Especially Barcelona, as an economic center, offers a good business location for larger companies. For this reason, international companies like Amazon, Lidl, and Nestlé have their Spanish headquarters in Barcelona (Relosso, [2018](#)). According to the Catalan government, in 2016, there were 7086 foreign companies (Generalitat de Catalunya, [n.d.](#)). More specifically, Barcelona has long been an important European automobile manufacturing center, especially focusing on Spanish car brands. Today, Seat, the largest Spanish automobile manufacturer, is still producing in one of its suburbs. Moreover, Volkswagen Group Espana, Nissan Motor Iberica, and Vueling Airlines are the biggest Spanish companies with headquarters in Catalonia (Generalitat de Catalunya, [n.d.](#)).

Having one of the most diverse industries in Spain, Catalonia has large coastlines, mountains, and a growing economy that strives to connect with the rest of the world. Catalonia's business industry has seen an increase in tourism, food, chemicals, automobiles, energy, pharmacy, and importantly 3D printing. Among the tourists, college students chose to go to Catalonia due to the rich history of research that has

been around for generations. In detail, Catalonia's tourism counts for 12% of Catalonia's GDP (Generalitat de Catalunya, [n.d.](#)). In 2012, a tourist tax was introduced that varies between 0.75–2.50 € per night per person to promote tourism in Catalonia as it presents one of the most significant economies (White, 2020). Since the cruise liners bring in so many tourists, this added tax helps create extra money for Catalonia. According to European Commission, *"Catalonia has a long tradition of scientific research. It currently stands out in the bioscience field, although all fields of research are represented in Catalonia to some degree"* (2019). According to the European Commission (Gencat, 2020), there are two levels of regional policies, according to the EC, *"on the first level: industry and enterprise policies and research and innovation, on a second [level]: environment, education, and training"* ([n.d.](#)). Catalan stakeholders and leaders of different industries voluntarily take part in RIS3CAT, which is designed to help innovate the economy by doing different and never seen projects and services. EU states, *"RIS3CAT identifies two priorities related to industrial modernization that can be related to the thematic areas included in the Smart Specialization Platform for Industrial Modernization"* ([n.d.](#)). This system helps with taking specific problems in the industrial sector and the *"design-based industry."*

Furthermore, the EU mentions, "Catalonia is, in fact, a leading region in the thematic area regarding Efficient and Sustainable Manufacturing" ([n.d.](#)). Due to its open trade economy, the freight center in Catalonia hosts its international port and airport. This brings traffic to Catalonia, which increases their connections with bigger countries. According to the Catalan Government, *"Barcelona connects to 400 million consumers in Europe and North Africa in under 48 hours"* (2020). In addition, the Port of Barcelona and the Port of Tarragona, located in Catalonia, assist in increasing revenue. The Catalan Government has noted these ports bring in four million passengers and 95 million tons of goods.

Other transportation methods bring in increased revenue for Catalonia, including logistical hubs and cruise liners. The cruise liners that make stops in the Port of Barcelona bring in tourists. The revenue increase due to the high traffic of cruise passengers brings in high spending per customer. The Cruise Line International Association (CLIA) reported, *"on average cruise passengers visiting the Port of Barcelona generate €518 revenues per passenger in 2016, 20% more than in 2014"* (2018). Since Catalonia is known as a trading nation, the citizens who do not have a job should focus on the imports and exports of the state. Many logistical hubs in Catalonia contribute to their growing economy both in person and in online. The primary logistical hubs include DHL, FedEx, UPS, and Amazon. Most of the logistical hubs in Catalonia are based around importing and exporting goods due to the location (Government of Catalonia, [n.d.](#)).

Catalonia and its growing population have goals and key government priorities implemented into their healthcare system. The Catalanian government created the Catalan Health Services in 1991 to help implement a diverse range of health services (WHO, 2018). Catalonians have the option of opting into public health services, which cover the whole population (Government of Catalonia, [n.d.](#)). Furthermore, some residents chose to use private insurance or some variation of private and public

services. According to the World Health Organization (2018), in 2016 Catalanian government launched a health plan that started in 2016 and end in 2020; furthermore, the framework of their health system focused on the implementation of the Inter-ministerial Public Health Plan (2014). PINSAP helps the government focus on the problems of the people or “whole-of-society.” There are two stages of PINSAP. The first stage focuses on the living conditions of Catalonians. The second stage, according to the WHO, “*involved 1,266 activities of different departments of governments, local administration and other sectors of society to improve population health and address the health determinants*” (WHO, 2018). Moreover, looking at the innovation and entrepreneurship in Catalonia, it is to emphasize that over the last years, entrepreneurial activity in Catalonia rose significantly to 8% over the Spanish and European average (Rolandi, 2020). As Barcelona is ranked the fifth start-up region in Europe, Catalonia’s start-up scene is dynamic in different fields (see *ibid*). 13,820 Catalans work in Catalan start-ups making Barcelona a European benchmark when it comes down to creating new companies, particularly in the technological sector (Generalitat de Catalunya, 2020). The significant growth over the last years could be made thanks to private support programs, mentoring, and the presence of important trade fairs enabling networks and communication in 2018. Catalan start-ups were supported with 872,000,000 € coming from private investors (see *ibid*).

### 2.3 Human Dimension

As the key variable in any economy, the populace of a place is inextricably linked to the performance of its place (Audretsch, 2015). The following section provides an overview of the human dimension of Catalonia, i.e., leadership, social capital, and image and identity.

If we apply Hofstede’s model to Spain, it becomes clear that although there are steep hierarchies, teamwork is still possible due to the weak expression of individualism (Hofstede Insights, *n.d.*). This sense of “we” also explains the low masculinity, which is why there is less competition and more harmony than in other European countries (*ibid*). Spaniards prefer clear structures and simple long-term solutions. In addition, there is a deficient level of the dimension of indulgent (*ibid*). This means they tend to be pessimistic and are not restrained (*ibid*). The only dimension Spain scores particularly high is uncertainty avoidance (*ibid*). Clear rules and organizations are desirable, and it is easier not to decide on the wrong one (*ibid*). For this reason, an above-average number of Spaniards choose a job in the civil service (*ibid*).

Catalonia and especially its capital Barcelona have a worldwide reputation as a Mediterranean and international city with famous architecture and art, as well as a unique culture. Due to its pleasant climate and the good accessibility within Europe, Catalonia currently experiences a rush of tourists (Catalunya.de, 2018). In Barcelona, tourism increased from 27 million visitors in 2012 to more than 34 million in 2016 (Catalunya.de, 2018). That’s an increase of over 25% in 4 years. Of course, this

also attracts large investors, which increases property prices and drives gentrification (ibid). Moreover, the Region of Costa Brava experienced more than 30 Mio tourists in 2018 (Catalunya.de, 2018). While the image of Catalonia is mainly influenced by tourism, the Catalan identity is focused on the wish for independence due to historical, linguistic, and economic reasons (Alexander & Badcock, 2017; Jones, 2019; Debating Europe, n.d.). In other words, separatists aim *“to build ‘state structures’ in fields in which they do not have full autonomous powers, especially taxation, justice, and international relations, and to hold a referendum or plebiscite to declare independence unilaterally”* (Colomer, 2017, p. 3). Spain’s national feeling is strongly influenced by its geographical and political past, as well as a great historical heritage and cultural differences between the different regions (Gobierno de España, n.d.; Blakemore, 2019). While in many European countries, partly hostile kingdoms have joined together to find a nation, Catalonia instead sees the loss of independence 300 years ago (ibid). The dictatorship intensified this feeling under Franco, who ruled the country for 39 years as a conservative-authoritarian dictator (ibid). He pursued the goal of a unitary state, which is why he abolished all autonomous institutions of Catalonia and banned Catalan books, music, and symbols. For a long time, it was punishable to speak Catalan in the streets (ibid). After he died in 1975, the constitutional monarchy was proclaimed, and free elections were held for the first time (ibid). Since the suppression of the Catalan culture during the Franco-regime, Catalonia is striving for more autonomy or its democracy (ibid).

The period ultimately ended in a power struggle between the central government and Regional President Puigdemont in 2017 (Valdivia, 2019). Catalonia perceives itself as a cultural nation, meaning it derives its national feeling from its language, tradition, and history, not from its membership in the Spanish state (Debating Europe, n.d.). Currently, 7.3 million people in Catalonia speak Catalan as their first mother tongue (Gobierno de España, n.d.). In the Catalanian education system, the main language is Catalan. Spanish is mainly taught as a foreign language next to another modern language (Generalidad de Catalunya, Department d’Ensenyamen, n. d.). Nevertheless, many Catalans fear that their language is not sufficiently protected by the government, which threatens the extinction of their culture (BBC, 2019). Separatists also argue that Catalonia is economically disadvantaged by Spain, as they pay disproportionately into the state treasury (Debating Europe, n.d.; Feito Higuera et al., 2014, p. 11). In Spain’s financial system, the states have little freedom to decide on their taxes (Boylan, 2015, p. 765).

Therefore, Catalonia has to pay billions of dollars in taxes to the Spanish central government, which has plunged Catalonia into deep debt of 88.508 million USD in 2019. Since the central government refuses any fiscal autonomy, Catalonia is becoming increasingly dependent on Madrid. Therefore, according to the separatists, Catalonia must be granted independence in the sense of democracy they so strongly desire (Serrano, 2013, p. 524). They argue that regional politicians could better understand and solve the problems of Catalans, from which they derive a closed democracy (ibid). In contrast, Spain entirely relates to Catalonia’s economic power since it contributes about 20% of the overall GDP (Statista, 2020). Catalonia’s

independence would therefore reduce Spain's growth in prosperity and thus competition. Nevertheless, as a country, Catalonia could hardly pay off this mountain of debt on its own, but it could also no longer count on the liquidity of the Spanish government (Jofre-Bonet and Banal-Estanol, 2017). The separation would further reduce its creditworthiness and trigger a decrease in its GDP (Hopkins, 2019).

Consequently, many international companies would relocate their headquarters from Barcelona to Madrid (Garijo, 2017). This trend was already observed in November 2017 after the illegal referendum, when 3023 companies moved their headquarters from Barcelona to Madrid (ibid). Analyzing the conflict from a political side, an independent Catalonia would no longer be part of the European Union and thus needs to submit to the lengthy admission process again. Since a unanimous decision is required for accession, Spain alone could prevent Catalonia's accession (ibid). As a non-member, there would be no "*free movement of people, goods and capital*" with the rest of the European Union (Feito Higuera et al., 2014, p. 42). This could be an economic disaster for a country that exports 65% of goods in the EU (Hopkins, 2019).

### 3 Strategies and Recommendations

The following recommendations are meant for the regions of Catalonia and Spain. However, since Spain's policy, to a certain extent, falls under the European Union's umbrella, some policies we propose may be installed on different levels.

#### 3.1 Youth Unemployment

As Catalonia presents an entrepreneurial activity above the European and Spanish average (Rolandi, 2020), this domain becomes increasingly essential. It presents a great chance for the economically vital region. Especially, the dynamic start-up scene gains progressively more significance. These young companies are substantial employment and income creator. Young graduates in Catalonia who often favor low hierarchies and an agile structure within companies present a promising workforce for these companies. The Entrepreneurship Center in Barcelona is a great contact point to strengthen ties between institutions and companies contributing to business development (Eada Business School Barcelona, 2020). Such institutions are essential for successful entrepreneurial opportunities and should therefore be promoted at universities but also within job centers or other government facilities to be commonly known. As the engagement in innovation and the creation of new companies present a way to fight the high youth unemployment in Catalonia and the rest of Spain, financial investment is strongly recommended. Given that most financial supporters for start-ups are currently private institutions (Generalitat de Catalunya, 2020), the Catalan start-up scene would also be a good ground for public funding to

fight youth employment. As mentioned in the analysis, there is a gap between universities and institutions in the transfer of knowledge. A strategy by Catalan universities and key stakeholders from different industries to develop the regional human capital would benefit “*the under-served population*,” thus potentially decreasing youth unemployment (OECD, 2010). As mentioned in the OECD report (2010), the plan would concentrate on establishing pro-active strategies to ensure early years of social inclusion and equality. It would also address the following challenges; like means to create jobs and how to improve the flexibility of industries to absorb crises and fast-paced changes in the economy.

An apparent problem in Catalonia is the shortage of human supply, yet the percentage of skilled workers is not enough to meet the demand. Collaboration between stakeholders and tertiary education institutions is required to expand access to tertiary education (see *ibid*). Strengthening financial academic support would motivate the youth to continue their tertiary education. This strategy could surge the much-needed demand for skilled workers.

### 3.2 Unemployment

In link with previous recommendations, entrepreneurial activity is also an opportunity to fight against unemployment as the average entrepreneur is 39 years old (Rolandi, 2020). People with job experience that get laid off need to be supported when starting their own companies. Entrepreneurship is an excellent opportunity for economies to enhance and establish new market opportunities. As mentioned in the human dimension factor, the Spaniards are very risk-averse and have a strong obduracy against uncertainty. Entrepreneurship, however, could drive a region to economic development. Thus, training programs on all things related to entrepreneurial activities should be created to encourage and educate entrepreneurs. The government should also support science innovations, for example, entrepreneurial innovation. A vision for adequate market needs would aid in bridging the gap and creating a link between educational institutions, graduates, and the needed skills of the region. On that account, as identified, there is a tendency for companies to move from Barcelona to Madrid. To keep companies, it is essential to present a skilled labor force and highly qualified workers.

To satisfy Catalonia’s high need for skilled human capital and fight unemployment simultaneously, it is crucial to “foster human capital” (OECD, 2010). That means continuous education and job training are essential to ensure qualified staff, especially for new and changing jobs that keep emerging due to technological progress and a fast-developing economy worldwide. Companies provide on-the-job training, so it would be possible to implement bonuses for companies that support their employees’ lifelong learning. Favoring a qualified Catalan workforce might also help to prevent companies from moving to Madrid. Furthermore, as immigrants are identified as a major driver of economic growth, addressing the socioeconomic gaps, and integrating them into education and labor would be an

opportunity for a more skilled workforce and reduce (temporary) unemployment. However, integrating people from many countries with different cultural backgrounds remains a major challenge for many European countries.

### 3.3 *Independence Movement*

Spain's refusal to negotiate with the separatists has pushed the politics of the central government and the Catalan separatists into a diplomatic deadlock (Colomer, 2017). Nevertheless, finding a long-term and peaceful solution to Catalonia's quest for independence is valid. Accordingly, only a democratic path to which all parties agree is possible. Hence, Spain should not lose power within Europe, and Catalonia should be given the right to live freely in its language and culture and more economic autonomy. To implement these demands fairly, "*separation could be negotiated at the national level*". One possible solution could be autonomy along the lines of the self-government of the South Tyrol region in Italy. The autonomy aspirations of South Tyrol are derived from its linguistic minority (Peterlini, 1997). For example, South Tyrol has two other official languages besides Italian and German, which are recognized minority languages (ibid.). Through years of striving for independence and the support of Austria's protecting power, the Region Trentino-Alto Adige has extensive autonomy, which is firmly anchored in the Italian constitution (ibid. p. 19). Although the entire region has a particular statute, the competencies of the region are divided into the provinces of Trentino and South Tyrol (ibid.). This makes independent administration through legislation, administration, and finances possible (Peterlini, 2009). For example, South Tyrol receives 70%–90% of the taxes levied in the region. Trentino–South Tyrol is today considered one of the wealthiest regions in Europe, with a GDP of over 30,000 EUR (Peterlini, 2009, p. 23). Moreover, to establish comparable self-government in Catalonia, the first step would be the conversation between the Spanish central government and the regional government in Catalonia. Already today, Catalonia has the status of a "Comunidades Autónomas" (autonomous community) in Spain (Gobierno de España, n.d.). However, this only gives the right to decide freely on cultural, environmental, and transportation issues. Financial issues, as well as jurisdiction outside of civil law, are still controlled by the central government in Madrid (gencat.cat, 2018). Summing up, a first step would be allowing Catalonia to decide its taxes, such as South Tyrol freely. In this way, the region's inhabitants with the highest GDP would no longer have the feeling of financing the rest of the country on their own.

### 3.4 *Pandemics such as COVID-19*

With its fragile healthcare system with no room for errors and an elderly population, Spain was tough when confronted with the coronavirus. To be prepared for medical



crises in the future, Spain needs to enhance the efficiency of the medical system. Medical supplies need to be stocked up because the enormous lack of ventilators or medical clothing and an insufficient number of beds for intensive care led to overstrained doctors and nurses (The Local, 2020). One of the main reasons why the virus spread so rapidly all over the country in a short time is because the government did not take needed actions fast enough and missed to cancel big events, and the introduction of a lockdown came too late (The New Yorker, 2020).

Thus, crisis management of people from different fields, such as medical, financial, and humanitarian experts, must be recruited to make rapid and studied decisions in such cases. Regular simulation games with stakeholders, such as the one held in Germany in 2012 (Merlot 2020), are an excellent way to prepare for future crises. Another reason for the cause of this significant outbreak is the lack of awareness the people had regarding the dangers of the virus. Awareness programs from the government should be immediately implemented to educate people and avoid spreading false information. For example, it is possible to set up a warning application like the one successfully introduced in Germany, where at the beginning of July, over 14 million habitants had downloaded it already (Robert Koch Institut, 2020). Lastly, missing tests (The Local, 2020) accelerated the spread of the virus. Therefore, capacities also in research labs need to be created. However, major government financing is required to implement these healthcare system changes. Regarding healthcare financing, the Spanish government allocates the budget to the states (Thomson et al., 2009), so Catalonia cannot make decisions such as stocking up medical supplies or test capacities to be better-prepared pandemics such as the coronavirus.

## 4 Counterarguments

In the next section, we put our public policy recommendations under critical examination and address major counterarguments.

### 4.1 *Youth Unemployment and Unemployment*

Unemployment is a topic that has been highly relevant in Spain for decades and remains one of the significant challenges for the country in this matter. Nonetheless, they managed to decrease the unemployment rate intensely after the effects of the financial crisis in 2008. However, the results of COVID-19 on the unemployment rate are still not fully disclosed. Still, it is undoubtedly going to be a challenge to get the unemployment rates they had pre the pandemic. As Catalonia presents one of the lowest unemployment rates in Spain, pushing this number further down is challenging. There is only so much a region can do without adequate governmental support and spending from the government of Spain.



Taking into account the cultural dimension and Hofstede's model, one can argue that a high uncertainty avoidance of Catalans hinders engagement in entrepreneurial activity. Furthermore, due to Catalonia's strong concentration on tourism, it is difficult to lower the unemployment rate as this sector presents many seasonal employments. Especially with the current pandemic that severely hit tourism, it is difficult to enable economic growth in this industry. However, according to Catalan news, the Spanish and Catalan governments have put up a strategy to minimize the effects of the pandemic on unemployment as much as possible. The followings are examples of decisions that took place and are already in action since April 2020; free public transport for essential workers, up to 2000 euros provided to self-employed workers who might not have been able to work because of the pandemic, and temporary layoff contracts to more than half a million workers in Catalonia.

## ***4.2 Independence Movement***

To implement self-government, like in South Tyrol, a general change of the structure of the constitution and an agreement between governments would be necessary. That, in turn, requires a new referendum in Spain, including a lot of administrative work (Liñeira and Cetrà, 2015). Consequently, the costs of internal restructuring would be added to the costs of spin-offs, such as new governmental infrastructures and embassies (Jofre-Bonet & Banal-Estanol, 2017).

Taking the Brexit with its tremendous costs into consideration, the question arises, who will bear the costs in the event of financial autonomy in Catalonia (Fergal O'Brien, 2020). As Catalonia is the front runner, it is expected that the Spanish government would provide miniature financial support. However, the resulting costs could hardly be paid by the Catalanian government (Hopkins, 2019). In the short run, a high investment will be needed for the separation, which can only be acquired if the Catalanian government seeks funding from the financial market (Jofre-Bonet & Banal-Estanol, 2017). The Spanish tax system is divided so that the taxes with the highest value, such as Income Tax or Value Added Tax go to the Spanish government. Only taxes like Tourism or Wealth Taxes go to the government of Catalonia (Ajuntament de Barcelona, n.d.). Restructuring the tax debt would change the system and eliminate a large part of the central government's revenue (OECD, n.d.).

Lastly, other regions, like, the Basque Country or Galicia, could be motivated to aspire (partly) independence (Boylan, 2015). Poorer regions such as Andalusia, dependent on other regions' taxes, would thus receive less support (ibid). This would lead to a further economic downward spiral. An additional economic downturn in Central Europe would hardly be financially viable for the EU in the current global recession.

## 5 Conclusion

The analysis of Catalonia's Public and Private Sector interactions clearly showed Catalonia's unique position in the Kingdom of Spain. Located in the very north of the country, bordering the Mediterranean Sea, Catalonia benefits from its natural resources like weather and coastlines for its impeccable tourism (Generalitat de Catalunya, n.d.). The geographical position enables easy communication with the Mediterranean and central Europe; businesses have easy access for transportation means and can benefit highly from its good infrastructure (see *ibid*). Furthermore, the increase in transportation brings in more tourists and the need for locally owned businesses, increasing revenue and potentially lowering unemployment. Consequently, Catalonia has about 627,693 active companies, representing 18% of the total national number. 50% of all exports are traded by multinational companies (Generalitat de Catalunya, n.d.).

Due to its beneficial location, export trade belongs to Catalonia's prime economy. In addition, there is a dynamic start-up scene, which is why Barcelona is ranked as the fifth start-up region in Europe (Rolandi, 2020). In the right environment, Catalonia produces and researches highly innovative manufacturing policies. However, the government claims a "*decades-long deficit in public spending*" (ARA, 2018). A distinct quality of the independent government of Catalonia is its highly supportive government that links strong public and private ties (OECD, 2010). However, for further economic growth in Catalonia, there is a much-needed demand of skilled worker's supply. However, immigrants are one of the key drivers of economic growth in Catalonia, accounting for the highest unemployment rate (OECD, 2010). If they incorporate and involve them in the labor market, this could potentially fill this demand that has always been an issue Spain had to deal with.

Nonetheless, since the financial crisis in 2008, its effects have burdened the whole country. Since then, they have been able to lower their unemployment rate, but special attention needs to be directed at youth unemployment rates since its still one of the highest in Europe (OECD, 2010). While educational institutions offer remarkable quality, they lack institutional autonomy (ARA, 2018). The primary industries in Catalonia reflect the need for employment and trust in the youth that schooling, training will be effective, and independence will gain control again. The health system in Catalonia brings forth a diverse way to care for all citizens but lacks in the containment of COVID-19. Finally, there seems to be scope for enhancing the interaction of universities with regional companies and industries to help increase their managerial capabilities, technical skills, and general market opportunities knowledge (OECD, 2010).

Having identified youth unemployment and unemployment in general as one of the main challenges Catalonia faces, this paper focuses on giving justified recommendations on how this issue could be addressed in the Spanish Region. On that account, cooperation between universities and companies is highly encouraged to lower youth employment and fulfill the high demand for a skilled workforce. The

good evolution of entrepreneurial activity with a growth rate of 8% per year (Rolandi, 2020) might be fascinating to young graduates looking for a job but also for experienced employees facing unemployment due to sudden job loss. In terms of temporary jobs, the unemployment rate is 42.5%, alarmingly high (OECD, 2010). It needs to be strongly considered in the future by addressing socioeconomic gaps and integrating the high number of immigrants that are often concerned in this matter into (tertiary) education. Once more, that would also help concerning the lack of qualified labor. It is also crucial to increase the number of skilled workers to prevent companies from moving from Barcelona to Madrid or other Spanish cities like it had already happened after the illegal referendum in 2017 (Garijo, 2017).

Moving on with the following issue of Catalonia's desire for independence and subsequent challenges for society and economy, their demand is deeply rooted in the inhabitants and has attracted much media attention in recent years. The inhabitants of Catalonia base their request on their cultural and linguistic uniqueness, which distinguishes them from the Spanish (Feito Higuera et al. 2014; Debating Europe, n.d.). Moreover, we have been able to argue mainly on economic aspects, representing the separatists' strongest arguments (ibid). As described above, Barcelona is one of the regions in Europe with the highest GDP due to its flourishing economy (European Commission, 2020). In contrast, Catalonia is paying high taxes to the central government, which leads to a tax debt to the Spanish state (Ajuntament de Barcelona, n.d.).

In our policy recommendation, we could exclude the foundation of a separate independent state, as it would not only be impossible according to the Spanish constitution but would also mean that the new country of Catalonia would no longer be part of the EU. As only countries with an absolute majority of the other member states may join, it is expected that Catalonia will not be able to join despite having gone through the admission procedure for many years (ibid) As a consequence, trade restrictions and taxes could isolate the country in the center of Europe (Feito Higuera et al., 2014; Hopkins, 2019).

As the desire for secession is a severe political and diplomatic crisis, we have followed the successful example of another European country. In our policy recommendation, we have presented the self-government of the South Tyrol region in Italy. These two regions, Catalonia and South Tyrol, not only have economic commonalities but also represent a linguistic minority in the country (Peterlini, 1997, p. 169). As we have elaborated in our policy recommendation, South Tyrol has a constitutionally anchored statute that makes independent administration through legislation, administration, and finances possible (Peterlini, 2009, p. 17). Therefore, we propose to let Catalonia decide independently on its taxes and thus to get the financial freedom that the inhabitants have wanted for years. Against this is the high administrative and financial effort needed to change the constitution and the financial part of the Kingdom of Spain (Liñeira and Cetrà, 2015, p. 264). Furthermore, it should not be forgotten that poorer regions in Spain depend on Catalonia's support (OECD, 2010) and that there could also be an imitation effect from other regions in Spain or Europe-wide (Boylan, 2015, p. 785). This could plunge Spain or Europe into a deep crisis.

Taking all the above into consideration, one can see the high demand for long-term solutions, especially in the field of crisis management, such as the COVID-19 pandemic, national independence, or issues related to unemployment. To give a final summary of the main recommendations for the strategic management of Catalonia, we conclude and propose the following:

In terms of the separatist movements, we strongly recommend fiscal autonomy using the example of South Tyrol. Concerning (youth) unemployment, it is essential to place enormous value on educational measures to decrease the lack of skilled labor and integrate immigrants to fight temporary unemployment. Lastly, we suggest establishing an interdisciplinary crisis management team to implement fast actions on a governmental level as a reaction to pandemics such as COVID-19. To prevent health crises in the future, this team of experts would be responsible for ensuring an overall improvement of the healthcare system regarding a sufficient supply of medical equipment and available testing capacities.

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# An Analysis for Strategic Locational Management: The Case of Lombardy



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**Abstract** In this work an analysis of the Italian region is presented using the Prof. Audretsch's framework, to identify its strengths and weaknesses and to suggest policies aimed at addressing eventual issues detected. Lombardy has been severely impacted by the recent Coronavirus crisis and therefore is an interesting case to study. The most evident criticalities were found to be (1) the coverage of the Internet and the lack of correspondence between the skills of the Lombard workers and the skills required by the labor market—as regards the factors of production; (2) the cultural factors inherent in the most widespread structure of the Lombard industry, i.e. the small and medium enterprises—as regards spaces and organization; and lastly (3) the development of SMEs and their internationalization—as regards the human dimension. The German region Bavaria was taken into consideration as a comparison term, in order to reveal areas of improvements and create more general recommendations. Data for the development of this research have been retrieved from the OECD and Istat databases and are conjugated with previous theoretical studies.

## 1 Introduction

As the World Health Organization (WHO) issued their first situation report on the novel Coronavirus (2019-nCoV) on January 21, 2020, the impact of the rapid distribution and contagion of this disease was yet unpredictable as it was finally declared a global pandemic on March 11 (World Health Organization, 2020). Simultaneously, on March 10, the Italian government has expanded its countermeasures such as travel restrictions and bans on gatherings, plugging Italian stock markets, and its economy to a critically low level (Amante & Balmer, 2020).

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According to an economic forecast of REF Ricerche (2020), a consulting agency in Milan (Italy), since April 2020 Italian GDP will drop by 8.3% in 2020 compared to the prior 2019 period, with its worst impact in the second quarter of 2020. The proclaimed epicenter of the Coronavirus in Italy has been the Lombardy region, with 86.825 confirmed cases and 15.840 deaths, accounting for 48.4% of all Coronavirus-related deaths in Italy. This is a crucial piece of information, as the Lombardy region is an economic powerhouse to Italy. The region accounted for 22% of the overall Italian GDP in 2018 according to the Italian National Institute of Statistics (Istat, 2020b). This work is thus dedicated to elaborating and identifying economic development drivers and challenges and to explore the dimensions of these challenges using Prof. Audretsch's Strategic Management of Places framework. Throughout this work, items of concern will be pointed out via publicly accessible data applied in accordance with the framework. A key concept to be amplified will be the comparison to an outside region such as Bavaria in Germany, as it represents a peer example of a region of similar economic performance and importance within its domestic borders. The comparison is further useful in identifying how policy solutions and approaches affect regions differently. As the Coronavirus is forecasted to have a critical impact on the Lombardy region, a further discussion of recommendations of how safeguarding the local economy of the region in crises as well as policy leads which could create a stronghold, reinducing and enhancing growth to the economy.

## 2 Problem Analysis

In developing the following analysis, we utilize Audretsch's framework (2015) for the strategic management of place.

### 2.1 *Factors of Production*

The paragraphs describe Lombardy's situation in terms of how the physical and human factors of production are used to pursue its growth. When the context for a specific factor is comparable in Lombardy and Bavaria, the differences or similarities between the two regions are analyzed in order to understand whereby Lombardy can improve its performance.

#### 2.1.1 Physical Resources

Lombardy's economy is mainly focused on industry and services, which represent almost the entire GVA of the region. Nevertheless, natural resources available (e.g., agricultural land and water resources) are fully exploited.

The agricultural sector represents only 1.1% of the total GVA of the region although the 51.5% of Lombardy's territory is destined for these activities (ISTAT, 2020a), generating a significant share of different Italian agricultural products like milk and rice (37% and 42%, respectively) and producing high-quality wines and foods recognized worldwide such as Franciacorta, Oltrepò Pavese, and Grana Padano.

Water resources are an important asset for the production of electricity (i.e., the main share of energy from renewable sources (26.5%) derived from hydropower). Moreover, they are related to the tourism industry as Garda Lake and Como Lake are two of the most visited places in Lombardy. Yet, Lombardy offers other touristic attractions, ranging from the mountains for skiing (Bergamo and Ortler Alps) to the cities to visit.

### 2.1.2 Physical Capital

For what concerns physical capital, Lombardy takes advantage of its geographical location with regard to both Northern Italy and Southern Europe, with a well-developed transport infrastructure hub: four major airports (three are in the Italian top ten for the number of passengers), a rail network of more than 2000 km of tracks, a road network of more than 700 km of motorways, a 10,000 km of provincial road, and a 58,000 km of municipal road (Regione Lombardia, 2020b).

In the last few decades, Internet has become an essential infrastructure for social and economic development and the provision of services. For this reason, the European Commission (2014), underlining the importance of investments in ICT networks in the Digital Agenda for Europe, has defined targets regarding the development of the broadband infrastructure for 2020: 30 Mbps coverage for 100% of the territory and coverage at 100 Mbps for 50% of the European territory.

In order to measure the digital performance of the various European countries, in 2014, the European Commission introduced the digital economy and society index (DESI), which summarizes five different indicators through a value between 0 and 100: connectivity, digital skills, use of Internet services by citizens, integration of digital technology by businesses, and digital public services. In the DESI 2019 Country Report (European Commission, 2019), Italy was ranked 24th out of 28 European countries with a total score of 43.9, performing below the European average of 52.5. Osservatorio Agenda Digitale of the Politecnico di Milano has recreated the DESI index at a regional level, maintaining the approach taken by the European Commission. Lombardy is the first region in Italy (49.7), but in an international comparison its performance remains below the European average by 10 points (49.7 vs. 59.3).

By focusing on the physical infrastructure, Lombardy does not respect European targets for broadband coverage, as a 30 Mbps connection is available only to 69.9% of households while a 100 Mbps connection is available only to 29.3% of households (Infratel Italia, 2019). Thus, according to ISTAT (2019) data, only 44.2% of companies with more than 10 employees have an Internet connection speed over

30 Mbps. The lockdown caused by the COVID-19 pandemic has further worsened the performance of the Internet infrastructure. In Italy, the Internet traffic has doubled (mainly due to smart working, online lessons, streaming services, and video games) and the download speed has reduced by 35% (Bergman & Iyengar, 2020).

This analysis leads to the identification of two main problems related to the internet infrastructure: the lack of broadband coverage and consequently a low connection speed for both households and businesses.

### 2.1.3 Universities

Lombardy can praise a total number of 17 public and private universities and a university high school with more than 255,000 students enrolled. The university system is well structured, covering every field of studies. Some institutions belong to the great tradition, like the University of Pavia, founded in 1361, whereas others belong to the category of internationally acclaimed institutions, such as the Bocconi University, the Polytechnic of Milan, and the Catholic University of Milan, which are ranked in the top 500 universities in the Shanghai Ranking. Alongside, innovation and development centers are present on the territory: there are six science and technology parks (Kilometro Rosso, Parco Tecnologico Padano), 182 innovative business, 11 National Research Councils, and 267 in-house research institutes.

By contrast, in Bavaria, the university system is more complex, with 9 art academies and 17 public universities of applied sciences as well as 11 non-public universities of applied sciences. Moreover, there is a stronger presence of non-university research centers, like several institutes of the Max Planck Society, Fraunhofer Society, Helmholtz Association. In addition to the institutes of the major German public research societies, there are several independent institutes closely connected with, but legally independent from, universities (so-called An-Institute) as well as different research centers at the universities of applied sciences. Bavaria also hosts many knowledge and technology transfer units (e.g., Castel).

Universities can generate knowledge through education. Therefore, important parameters to consider are the number of students in bachelor's and master's programs as well as in doctoral programs. The figures for the academic year 2017/2018 report a total number of 267,520 enrolled students, which means that 51% of all Lombardy student population enters the "type A tertiary education"—a lower value when compared to the OECD average of 56%. Moreover, Lombardy region has a dropout rate of 11.2% that is, however, below the national average of 17.6%. Concerning graduate students, their amount for the year 2017/2018 was equal to 57,451.

Given the numerous institutions located in Lombardy, the region has a great impact also in terms of research: as a matter of fact, the ratio between the number of citations per scientific paper in 2007 was 5.13% (compared to the 4.02% European average). Collaboration between universities and companies in European projects

**Table 1** Number of spin-off enterprises generated by Universities of the Lombardy

| University                           | Number of spin-offs |
|--------------------------------------|---------------------|
| Politecnico di Milano                | 33                  |
| Università degli studi di Milano     | 24                  |
| Università degli studi di Pavia      | 23                  |
| Università degli studi di Brescia    | 8                   |
| Università degli studi di Bergamo    | 7                   |
| Università degli studi dell'Insubria | 3                   |
| Total in Lombardy                    | 107                 |
| Total in Italy                       | 1199                |

was quite good; 2.12% of projects assigned to the region in the 1986–2008 period involved at least one public research center or university and one company.

University may contribute to the production of new knowledge and human capital through spin-offs, i.e., new firms established through the collaboration of students and the faculty and are based on the intellectual property generated by the university's research. They are beneficial for the society as well as for the parent university that is perceived as important to society when is able to commercialize its innovations. This is the case of the Politecnico di Milano, which, as represented in Table 1, is the Lombardian university with the greatest number of spin-offs.

Regarding research and technology transfer, Lombardy presents a fragmented network of intermediate institutions. It is considered a crucial point of disconnection between the needs in the demand and supply market. *The weak interaction between the higher education sector and the business sector* is an issue that needs for consideration. In Italy and Lombardy, the absorption capability of the business sector with regard to hiring tertiary education graduates is limited.

### 2.1.4 Research and Development

The productive system in Lombardy is characterized by the presence of mainly small and medium enterprises operating in traditional industries and specialized in custom-made products and fashion items. This peculiar structure does not allow the firm to have a dedicated R&D department yet, innovation is rather the result of informal learning by doing and by interacting with customers. Before analyzing the situation in Lombardy is crucial to point out that in Italy R&D activities were rarely addressed to specific policies: local policies were implemented as a series of experiments, which local government agencies and collective actors undertook to solve local needs. So, innovation policy emerged at the local level within intermediary institutions that were neither business enterprises nor government agencies, but which formed an integral part of the local/regional system of innovation. Nowadays Lombardy outperforms the other Italian regions in terms of R&D (21% of Italian investments are concentrated in Lombardy) but compared with the European scenario it remains below average. The R&D expenditure for Lombardy and Bavaria is shown in Table 2. Lombardy spends 1.3% of the GDP in R&D activities against a

**Table 2** R&D Expenditure by source

|          | Business sector | Government | Higher education | Non-profit |
|----------|-----------------|------------|------------------|------------|
| Bavaria  | 77%             | 10%        | 13%              | 0%         |
| Lombardy | 71%             | 6%         | 16%              | 7%         |

**Table 3** R&D indicators

|          | No. Patent<br>R&D expenditure | No. Patent<br>Employees in R&D |
|----------|-------------------------------|--------------------------------|
| Bavaria  | 0.36                          | 37.71                          |
| Lombardy | 0.26                          | 15.27                          |

European average of 2% and the situation is worse if we compare the investments in Bavaria (1.3% vs. 3.15%). The difference in the R&D sector between Lombardy and Bavaria can be seen also in the personnel involved in R&D activities. In terms of R&D as % of total employment, Bavaria has 36% more R&D personnel than Lombardy (2.47% vs. 1.82%).

Another interesting parameter to discuss is the patent applications. In 2017, the total was 1344, showing a growing trend over the years (OECD.Stat, 2020). By considering the ratio between the number of patents and the total expenditure and the ratio between the number of patents and the number of employees involved in Table 3, Bavaria has better performance in both the indicators: to carry the same number of patents, Lombardy must spend 38.71% more than Bavaria and involve the 46% more resources. This may show a lack in the creativity or ability to identify new needs to tackle and how to simplify or come up with new and better solutions.

### 2.1.5 Skilled and Unskilled Labor

Lombardy has one of the higher percentages of employment rate equal to 68.4% that is lower than Trentino Alto Adige and Emilia Romagna only. In 2017, the number of enterprises in Lombardy was 815,956, which represent 15.8% of total national level. Workforce composition is reported in Fig. 1.

According to the framework, skills and qualification owned by the people are crucial. Defined as the ability to act with determined results, skills can be classified into hard or technical skills, relating to specific task or situation, involving methods, processes, or techniques and soft skills, which are a combination of interpersonal skills, involving communication, character traits, and so on.

Figure 2 shows that in Lombardy there is a discrepancy between the skills required and those owned by the job candidates as reported by the 2017 OCED survey.

When compared with other Italian regions, Lombardy can be said to have low skill mismatch, but it becomes extremely high when compared with other regions or other countries. Moreover, if we consider the skill requirement in Italian jobs (OECD, 2019), labor demand in Italy is indeed less skill-intensive than in other countries, especially among highly skilled white-collar occupations.

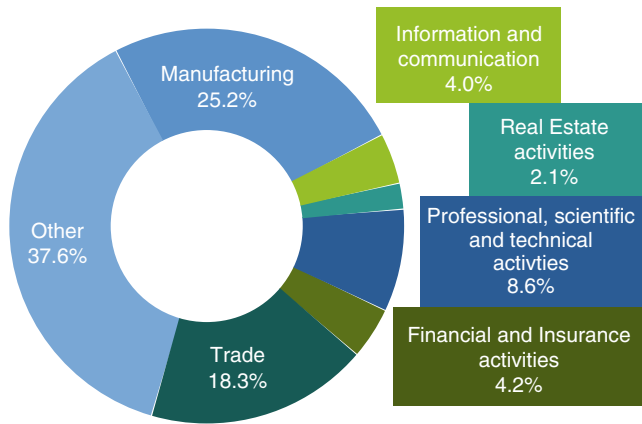


Fig. 1 Workforce composition per business sector

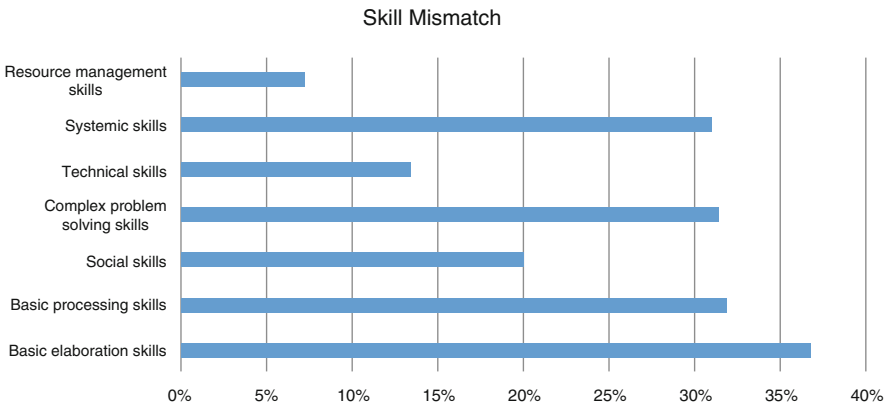


Fig. 2 Discrepancy between the skill required and presented

To deepen the analysis, data regarding low-skilled people, their age, and their labor situation have been collected. Population with a low qualification in Lombardy represented 41.7% of the population. It is possible to note in Fig. 3 that the greater low-skilled class is the one regarding students, aged between 15 and 24. This is due to the low ability of the Italian high school system to prepare pupils to the labor market, even if many high schools are centered around technical knowledge. This gap has been carried over in the employed aged from 25 to 54.

2.1.6 Human Capital

Human capital generally refers to the stock of capabilities, knowledge, cognitive abilities, and even personal attributes embodied in an individual that enables to

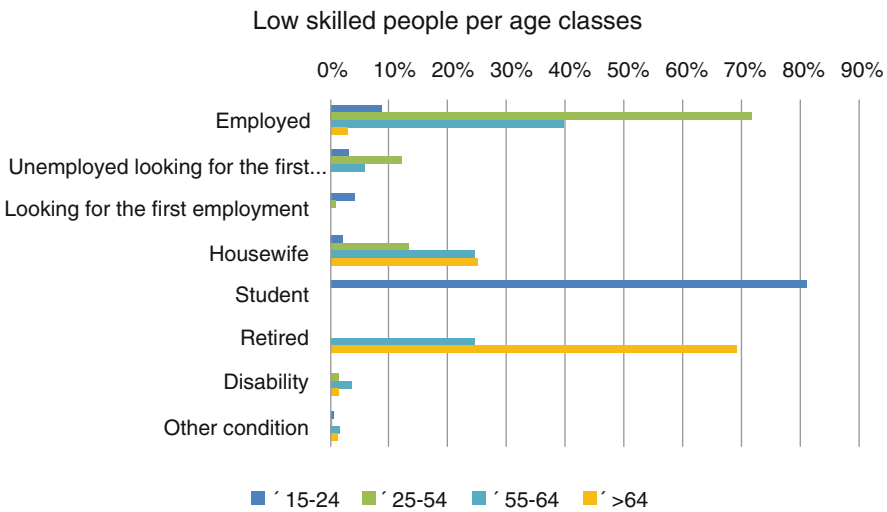


**Fig. 3** Number of low-skilled employees per age classes

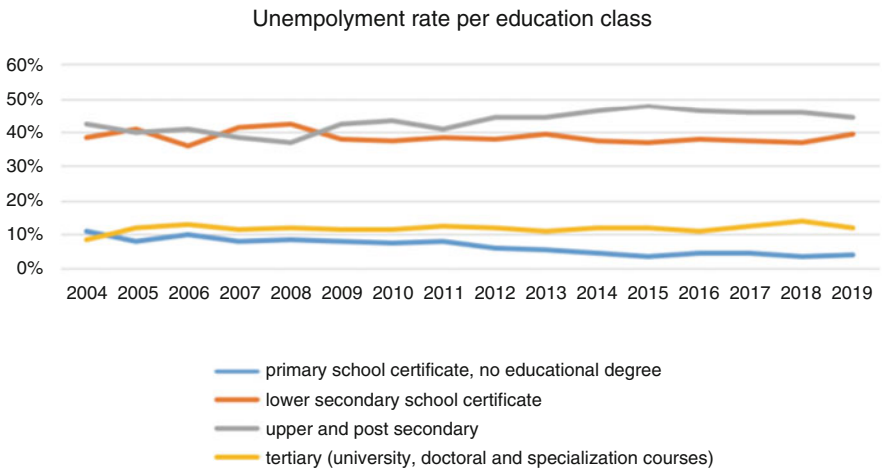


**Fig. 4** Unemployment rate per education class

create economic value. To measure the human capital, it can be useful to analyze the unemployment rate in relation to the level of education attainment, as shown in Fig. 4.

Population with low secondary, upper, and post-secondary education is the most affected by unemployment. It is necessary to say that the majority of Lombardy's population belongs to that category. Graduate unemployment is a structural problem, which the economic recession has aggravated. Higher education graduates account

for 15.9% of the total population aged 25–64, which is below the European average (25.9%).

## ***2.2 Spatial and Organizational Dimension***

### **2.2.1 Clusters in the Lombardy Region**

Clusters may be identified as a source of competitive advantage to the region. Seventeen out of 40 corporations registered with the FTSE MIB in Italy are based in the Lombardy region (Borsa Italiana, 2020). Industry sectors vary from financial services, such as banks to energy, automotive, and consumer goods. According to the Report of the European Commission on clusters and drivers of the European economy, there are currently 2,950 clusters in the European Union (European Commission, 2020a). The Lombardy region hosts in 2020 16 industrial clusters, compared to the 156 overall clusters in Italy (European Commission, 2020a, b). The main specialization areas are widely spread on 7 focus areas, such as aerospace, agri-food, eco-industry, creative and cultural industries, health industry, advanced manufacturing, sustainable mobility (European Commission, 2020b). In general, clusters are prone to attracting Foreign-Direct-Investments (FDI) from Multinational Enterprises (MNEs) (Feser, 2009; Yehoue, 2009). One benefit for cluster hosting economies and FDI would be the acquisition of yet not available modern technology and skills to the economy as a consequence of the operation of companies and value-adding activities by foreign firms within host country boundaries (Blomström et al., 2000). Obtainable technology includes product, process, and distribution as well as skills connected to management and marketing. Technology is a public good to a certain extent and host economy firms would be able to acquire it if present in the market (Blomström et al., 2000). Spillover effects are generated when the entry or presence of MNEs increases the overall productivity of host economy enterprises but MNEs fail to fully internalize the value and benefits for themselves (Blomström et al., 2000; Smarzynska Javorcik, 2004). It is therefore interesting that the Lombardy region accounts for 46% of FDI inflow to Italy and 49% from Italy to other countries between 2013 and 2015 (Bank of Italy, 2018). By industry, the gross fixed investments in the Lombardy region are equal to 31% in the industry sector, to 66% in services, and to 2% in agriculture, forestry, and fishing (Istat, 2019). This shows a clear bias toward the service sector and a proposed specialization in foreign investments. Further, the largest stake of foreign owners originates from Switzerland, Piemonte, and the USA, whilst simultaneously venture capital in-flows are more international than outflows related to a closer regional periphery (EASME, 2018). Outflows on the other hand have been proven to be limited, concerning a strong local supply chain that provides the potential to capture and retain value in the region of Lombardy (OECD, 2012).

The question is whether the impact of clusters is given in terms of dynamic effects of knowledge, resulting in highly technological industries and patents. Bavaria has a



similar structure when coming to economic development and is highly reliant on small- and medium-sized enterprises (SME) (Audretsch & Lehmann, 2016; OECD, 2014). Similarly, Bavaria hosts 17 clusters in its initiative compared to the 16 in Lombardy (Bavarian Ministry of Economic Affairs - Regional Development and Energy, 2018). In terms of innovation both showed an increase of innovative power from the year 2000 to 2015, resulting in 338.5 patent applications per million inhabitants in Bavaria (398.3 in 2015) competing to 90.6 patent applications in the Lombardy (95.9 in 2015) with an overall upwards trend in 2019 of 6.2% (European Patents Office [EPO], 2020). It is significant, how the Lombardy falls short in terms of innovation while showing comparative clustering. Furthermore, according to the OECD, in terms of share of employment in high-technology manufacturing (in % of total employment), the region of Bavaria shows an average of 2.21% between 2008 and 2017 (2.28% in 2017) whereas the Lombardy again falls short with 1.72% during the same period (1.59% in 2017).

Although clusters offer a relatively high capacity for innovation, the Lombardy region seems to not transfer this potential into high-technology clusters and technology, as insufficient governmental spending on R&D also suggests (ESPON, 2018, p. 61). As to this point, we have identified the Lombardy as a region of a strong SME-based economy, which fails to internalize spillover effects of FDI and clusters due to cultural and administrative barriers, as well as a lack of innovation and highly developed industry coming from spillover effects, compared to similar experiences from Bavaria, due to insufficient R&D funds and practices. This analysis has yet identified relevant factors of vulnerabilities, which will further be briefly investigated with the help of David B. Audretsch's model of market power, competition, entrepreneurship, specialization, and diversity.

## 2.2.2 Entrepreneurship and Specialization

As Prof. Audretsch (2015) pointed out toward Joseph Schumpeter (1911) in his work, not only clusters ignite innovation, but entrepreneurs and newly build competition and companies impose creative destruction as they displace enterprises of lesser innovative capacity, followed by economic enhancement. Audretsch et al. (2016) precisely found that cluster policies are prone to spur entrepreneurship, entrepreneurial activity responds to clusters only if several key conditions exist, such as regional wealth and the presence of universities. Considerable evidence has been outlined that entrepreneurship may in fact be a key to regional economic development, but that these policies may in fact be more effective in the context of regional clusters.

The European Commission (2020b) has identified the Lombardy as one of the regions with the highest rates of entrepreneurship with 74 enterprises per 1000 inhabitants at the end of 2016. As prior analysis of incoming FDI regarded, the service sector has been identified as the strongest and ranks third in terms of the cultural industry, just behind Ile-de-France and London, exposing great potential for attracting a large creative class in terms of human capital (Audretsch, 2015;

European Commission, 2020b). This is accompanied with one of the highest economic performances in Italy and in overall Europe. The total number of enterprises registered in the region is 954.672 out of the 6.0 91.971 Italian corporations (15%) (InfoCamere, 2019). An example of creative industry are those companies in the Municipality of Milan with its aspirations for supporting creative industries and social innovations through entrepreneurial incubators for fashion and design (European Commission, 2020b). Efforts have been made for enhancing the entrepreneurial spirit and capturing the prior discussed benefits of regional clusters through building heterogeneous working groups, consolidating the “entrepreneurial process of discovery” (European Commission, 2020b; EASME, 2018).

Worryingly, the business demography in the Lombardy region ranks amongst the lowest in terms of balance (birth to death) rates. Between 2007 and 2019, the average balance has been  $-5750.23$  ( $-7095$  in 2019). The Lombardy region itself thus accounted for 77% of Italy’s business rate of negative growth. The strong SME structure is leading to a downturn as strong cultural barriers are limiting knowledge spillovers from FDI as owners refuse to give away a stake of their business and control but also tend to cease business as family members decide to not inherit the position within the SME (OECD, 2012; ESPON, 2018). A study of the Chamber of Commerce in Milan between 2002 and 2009 found that especially FDI in the region is small in terms of employees, capital, and revenue, as SME account for a large portion of made investments, whilst overperforming in return on equity (ROE) and Earnings Before Interest and Taxation (EBIT). As a downturn, this structural problem in entrepreneurship arises from the fragility of these enterprises since the dependency on capital and market exposure (Altomonte et al., 2012; ESPON, 2018).

In the Lombardy region, faster capital accumulation will directly translate into a higher marginal return, and productivity increase for one additional unit of capital (Altomonte et al., 2012). This is namely due to specialization, as FDI has a large stake in the service sector. It is to conclude that the ongoing spread of COVID-19 in Lombardy will work as a catalyst to this effect as many businesses will die or, in addition to economic reasons, will not be forwarded. This may be due to ceased family businesses and critical developments in the family, as well as the fragile financing structure and the thus prone vulnerability to crisis, as seen in 2008 (OECD, 2012, 2014). According to the General Confederation of Italian Industry, in April 2020, 72% of companies in Lombardy already felt a critical impact on their businesses (Confindustria, 2020).

## **2.3 Human Dimension**

### **2.3.1 Networks and Linkages**

Along with good infrastructures, Lombardy’s superior economic performance derives also from its partnership in the international network of the Four Motors for Europe, together with Baden-Wurttemberg, Rhone Alpes, and Catalonia, which

**Table 4** Foreign affiliate participation per region

| Description                                               | Lombardy | Italy     | Percent |
|-----------------------------------------------------------|----------|-----------|---------|
| Foreign affiliates of Italian enterprises                 | 5904     | 12,768    | 32      |
| Employees of Italian companies with foreign participation | 572,458  | 1,211,872 | 47      |
| Italian companies with foreign participation              | 5904     | 12,768    | 46      |
| Employees of foreign companies owned by Italian companies | 550,164  | 1,659,983 | 33      |

has been sharing the experience of joining the Vanguard Regions. It is a political network of European regions that have committed themselves to promote the application of the Smart Specialization Strategy as a strategic coordination principle for innovation and industrial policy, to provide new opportunities for collaboration and growth (Agenzia per la Coesione Territoriale, 2014; Staatsministerium Baden-Württemberg, 2020). Moreover, Lombardy is part of the so-called economic heart of the Old Continent—in whose development it has been recognized as a driving force—and Milan is, together with London, Hamburg, Frankfurt, Munich, and Paris, one of the six European economic capitals.

Thanks to its strategic position, the characteristics of the territory and the connection with Italy and the rest of the world, Lombardy has become the first region of Italy for economic importance, contributing to about one-fifth of the national gross domestic product. It is also home to many of the country's major industrial, commercial, and financial activities, and its per capita income is 35% higher than the European average (L'Eco della Stampa, 2019). According to the theory of agglomerating economies, the competitive advantage of proximity followed by an efficient transfer of physical assets, labor, and ideas is highly reliant on factors of infrastructure, communications, and input to home enterprises (Fujita & Krugman, 1995; Krugman, 1991; Krugman & Venables, 1996; Porter, 1990, 2000; Venables, 1994).

When analyzing Table 4, it becomes evident that foreign participation in Italian companies is quite high with a 47%, on the other hand low for internationalization of Italian companies (Istituto Commercio Estero, 2019). This testifies the inefficiencies of the spatial organization and connection of Italian SMEs to the international market.

### 2.3.2 Social Capital

Political scientists measure social capital with a combination of variables (Putnam et al., 1994). Participation in associations, electoral turnout, newspaper readership, and other measures of civicness (such as non-littering, charity giving) (Guiso et al., 2000). All these variables have a common aspect: they indicate a level of caring about the social community, which leads to the formation of those social networks that at the very core of the concept of social capital. Lombardy can be analyzed accordingly.

Lombardy accounts for the highest crime rates in Italy, 19%, while Bavaria in Germany accounts for the lowest on a federal level (Bundeskriminalamt, 2018). Concerning turnout of participation in the regional elections in Lombardy in 2018, 73.10% of eligible voters participated, which is an excellent result even if 3.64% less than in previous elections (GEDI Gruppo Editoriale S.p.A., 2018).

The pandemic played an important role as social capital catalyzer. A huge amount of donations came not only from companies and individuals but also from other countries: €106,036,096.19 have been donated along with goods, medicines, services, even medical personnel (Regione Lombardia, 2020a). The social capital has thus compensated some of the economic loss of the region. Over 344,000 families in Lombardy saw their monthly income fall by over 50% (R.A., 2020). About 180,000 families lost 100% of their income. These data disclose the vulnerability of the economic stability of the region.

### 2.3.3 Identity and Image

Lombardy is also constituted by its intangible cultural heritage, which includes practices, representations, expressions, knowledge, and techniques that the communities recognize as part of their culture. An intangible treasure that is preserved and enriched by the traditions handed down from generation to generation and constantly recreated by the communities, about their environment and history, and their interaction with nature. This is a heritage that lives in communities, groups, and individuals and creates a sense of identity and continuity, stimulating creativity and respect for cultural diversity. In recent decades, Cremonese violin making has been able to benefit from the increasingly intense exchange with other countries. In this way, a centuries-old artisan tradition based on the creativity of the great master violinmakers of the past, conveyed by immaterial skills and practices, has become such a cultural wealth that it has been recognized as an intangible asset of humanity. The UNESCO Intergovernmental Committee for the Safeguarding of the Intangible Heritage, on December 5, 2012, has enrolled the Cremona Violinmaker in the Representative List of the Intangible Heritage of Humanity (Sacchi, 2017). This, like other excellences in the tradition not only of violin making but of craftsmanship in general, has been passed down from generation to generation and constantly recreated by local craftsmen and masters over the centuries, guaranteeing the maintenance of a strong cultural identity. According to Audretsch (2015), Audretsch et al. (2016), it explains the strong cultural identity in the region and the aversion to foreign investments, due to insecurities of losing control over that tradition and its ultimate loss.

### 2.3.4 Leadership

The region of Lombardy holds an economic leadership position. However, the role of the region within Italy has been disputed. Due to the regional disparities, in 2017

the region held a referendum for its autonomy (Regione Lombardia, 2017). Reasons were, among others, socio-economic disparities between the northern areas of Italy and their southern counterparts. Albertazzi et al. (2018) identify a mentality in the north, which is distinct from the south, as there is a strong work ethic and “almost Calvinistic,” whereas the south is being described as a “Mediterranean” work ethic, based “on corruption, a reliance on state transfers and a more relaxed attitude towards work” (Giordano, 2000, p. 459). The north, on the other hand, enjoys the privileges of one of the wealthiest regions in Europe, despite “the high levels of taxation and the burden of the South.” As well as for entrepreneurship, Giordano (2001) comes to the conclusion, that the main problem is a slow and inefficient state bureaucracy which is generally poor—the enormous tax burden imposed upon northern business reduces the economic dynamism and restrains a driving force of the Italian economy. The increased feeling of discontent due to these political and economic problems leads to the public opinion of failing political management (Albertazzi et al., 2018; Giordano, 2000, 2001, 2003; Morini, 2018).

### 3 Problem Solution

#### 3.1 *Policy Recommendations and Justifications*

##### 3.1.1 **Extend Broadband Coverage**

In order to assess market failure areas and the different degree of State intervention, the has defined three different types of areas: white areas are those in which there is no broadband infrastructure, and it is unlikely to be developed soon, gray areas are those in which there is only one network operator, and black areas are the ones with two or more operators. For gray areas, a possible solution to speed up broadband coverage is a collaboration between public and private through incentives to reduce costs for infrastructure deployment and grants for facilitating access to economic resources. For white areas, instead, direct government intervention is needed. Moreover, considering the difficulty in allocating funds to cover the whole Lombardy, priority can be given to areas with a high density of companies. This solution is also adopted by Bavaria; the European Commission (2019) has approved State aids for investing in gray areas already supplied with 30 Mbps connectivity to bring a connection speed of 1 Gbps to households, companies, and public institutions.

The effects of greater broadband coverage are difficult to measure considering that many of them are indirect effects on the economy: increase in the employment, increase in the productivity. For example, if the employees have access to a fast internet connection, smart working can be more effective, possibly resulting in an increased competitiveness of companies and thus an overall increase in the GDP. Accordingly, Rohman and Bohlin (2012) have shown that doubling the broadband network speed increases the overall GDP by 0.3%. Considering solutions of smart technology and industry 4.0 and Internet of Things (IoT) are current developments,

and improved network coverage is thus crucial for the competitiveness of SMEs and future developments of supply chain optimization (Tjahjono et al., 2017).

### 3.1.2 Reduce Skill Mismatch

As a possible solution, an enhancement of interactions between privately owned enterprises and universities in terms of financial programs and cost sharing may be beneficial. A probable design of this process would be to supply mean-tested scholarships, income contingent loans, or other funding packages in order to provide universities with increased funding in research and development, while maintaining their main educational tasks. This strategy finds support in the literature, such as shown by Colombo et al. (2004). It will increase the participation of businesses into the academic world with the positive spillover effect of increasing alignment with skills and developing competencies required by the labor market.

As a major concern of skilled and unskilled labor and the overall human capital is the fast aging of the population. Policies and priorities, aiming at developing a mechanism to support an inclusive education in labor for an aging population, but also an increased involvement of immigrants and women, must be designed and implemented for knowledge generation and business creation. An approach of lifelong learning as well as a flexible delivery mode addresses a diversification of knowledge within the population and could further be incentivized through part-time learning programs (Severiens & Schmidt, 2009). A comparison of the approaches in Italy and Germany is, once again, crucial as the Italian chamber of commerce addresses and presents its opportunities in a less effectively than the German chamber of commerce (IHK), giving room for improvement of enabling educational spillovers among generations through an improved website and distribution of services.

### 3.1.3 Human Factors

The main challenge to this factor is the cultural dimension. This research has identified bureaucracy as a limiting factor for MNEs as these work as a trade barrier for investing into the Lombardy region (Basile et al., 2005; OECD, 2012). As proposed in the ESPON (2018), the problem of bureaucracy remains critical in the region, and proposals such as Invest in Lombardy were first attempts in systemizing the support to MNEs interested in investing into regional SMEs. The centralization of this service through an agency would be beneficial, as prior research has identified (EASME, 2018; OECD, 2012, 2014). Naturally, these services would have to be available through an English website.

Italian SMEs are hostile toward FDI, as family businesses do not seek to give away control of their business (ESPON, 2018; OECD, 2012, 2014). As a proposal, a Chinese role model could apply to the Lombardy region: entering the country to establish a joint venture with Chinese counterparts (Vanhonacker, 1997). A

centralized process through a public agency for the creation of new ventures as a result of an obligation for building joint ventures would ensure Italian firms to be “untouched,” whilst investment and thus return on capital would flow to the original SME as a shareholder.

## 4 Counterarguments

All proposed solutions need to be considered as if Lombardy could act without having to refer to a central government. Some of those, in fact, require further developments in this case, to be more organic and to be used not only for the improvement of Lombard performance, but for the general improvement of the Italian economy.

An example is the suggestion of a stronger interrelationship between public universities and private corporations, for a stronger development of technological advances and results in R&D. In Germany, the involvement of privately funded studies as well as universities as a whole have been vividly discussed (Daum, 2013). Universities are thus public intuitions, whose purpose is to create knowledge and distribute said knowledge to university students instead of commercializing it through university spin-offs. The close connection between privately owned enterprises as well as to publicly funded enterprises would not only jeopardize the European competition but ultimately the quality of the supplied education.

Another example is the internationalization of SMEs by creating joint ventures, while maintaining control over the business. Internationalization in Lombardy is limited due to the resilience to foreign investors and the potential loss of the long ongoing family tradition. The strong identity and image of the region encourage this aversion. During the analysis, this research has shortly addressed the complex political situation and the dispersion between the north and the south, as well as the role of politics, which have been accounted for mismanagement. Although arguments of further investments for a stronger economic development are naturally in favor of the region, this research has merely addressed the complex political relationship to the south and past governmental spending patterns for investments.

It is important to mention that many suggested solution proposals act on a local level—such as creating agencies, better accessible websites, or processes for reducing bureaucracy for investors and company owners. Others directly account to whole regional level, such as heavy investments into infrastructure and Internet connectivity. Due to the economic disparities, it is questionable, if the government would further invest large sums into the north, or rather focus on the development of the south in order to create more socio-economic peace.

## 5 Conclusion

The goal of this research is to propose improvements to the Lombardy region in order to create stronger economic resilience to a crisis, such as the coronavirus. With the help of David Audretsch's framework, many potential improvements have been identified and proposed as a solution. This work has acknowledged complex relationships at country and European level. The strong structure of SMEs in the region has been addressed as a key strength, as well as a vulnerability to the economic performance. As a result of this work, a main recommendation to a local policymaker would be investing into adult education in terms of finance and technology. On a larger scale, the Italian government may analyze the role of the Lombardy as an economic powerhouse and whether further investments for creating agencies, infrastructure, and a reduces bureaucracy could benefit the overall socio-economic development of the country or increase the political disparities and economic development. Limitation of this work is mainly due to the variety of factors, which all have been only partially addressed. Future research should focus on the transition of traditional SMEs as manufacturers after the latest impact of the coronavirus and how these responded in terms of business development and digital transition in supply chains.

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# The Economic Performance of Las Vegas: Shaping Culture and Identity Through Economic Policy



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**Abstract** The broad economic issues that Las Vegas currently faces pose an interesting and complex situation. The main economic businesses are unable to sustainably support the rest of the local economy. A lack of diversity in industries in Las Vegas has led to a singular focused strategy followed by local policy initiatives. This main issue is also its major draw point and focus of the city's tourism. Las Vegas focuses heavily on gambling and the entertainment industry. This creates a difficult situation to solve. The framework for creating a more diverse and effective local economy focuses primarily on how to manage the already existing factors of production, and the organization of how those factors impact the human dimension. Our research reflects the fact that the factors of production, primarily the existing infrastructure involved in the entertainment industry, provide a beginning of the ability to change policies. To solve these issues, we recommend two main policies. The first policy is to connect universities and research to regional growth. The second policy is to invest in a cultural economy initiative, supporting the creative class within Las Vegas. These policies will be effective and specifically catered to the people of Las Vegas, who will keep their identity and create a space of growth in their community.

## 1 Introduction

As of today, Las Vegas is known for being one of the biggest tourist magnets worldwide with a huge entertainment industry and more than 2.2 million inhabitants. The city's unemployment rate is slightly higher than the national average at 6.7%. Its

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hospitality industry is the biggest driver in employment (The Las Vegas Luxury Home Pro, n.d.). Originally founded as a small railroad service center in the middle of the desert in the twentieth century, Las Vegas had turned into one of the fastest-growing cities in the USA by the end of the century. Some key factors that enabled this fast development were individual entrepreneurs, the use of water in the area, transportation infrastructure, and attractive laws for gambling (McNamee, n.d.-b).

One thing that encouraged settlement early on was the railroad running from Salt Lake City to Los Angeles via Las Vegas, built by US Senator Clark. But what really made the city flourish was the construction of the Hoover Dam. It controlled the Colorado River and brought thousands of workers to the area. In the next decades, the dam would provide a stable source of water and electricity for the growing city. Around the same time, casino gambling was legalized in Nevada which encouraged the dam workers to spend their wages. In the mid-twentieth century, several new casinos were being built. Some being funded by organized crime connections, drawing more and more criminals to the city. Moving from this questionable reputation to large corporate investments was mainly made possible by investor Howard Hughes. He acquired numerous hotels and casinos in Las Vegas, benefitting from low taxes. After the Nevada Corporate Gaming Act was passed, publicly traded companies were now able to invest in casinos. Over the next years, many luxury resorts and casinos were added. At the end of the twentieth century, Las Vegas attempted a strategy to appeal to the mass market, namely families with children, by adding more family-friendly attractions. However, the number of families visiting barely increased. These visitors were spending relatively little money compared to adults without children, making Las Vegas ultimately return to its image of an adult destination (Richard, 2018).

In the Great Recession, Las Vegas was even more impacted than the rest of the United States. As the city was relying heavily on consumption activities and building of new houses financed by debt, the economic crisis caused huge problems and revealed some deeper social issues (Coolican, 2012). Concerning the stiff industry, economists are already warning that without more diversification, Las Vegas might ultimately fail after its boom period. Similar happenings occurred in other cities in Nevada that ultimately became ghost towns (Strow, 2000).

One very recent challenge for Las Vegas is the COVID-19 pandemic. Its global consequences were especially devastating for the traveling and leisure industry (Abbas et al., 2021). The collapse in the global travel industry led to a 55% drop in visitor volume, convention attendance being affected as well. The city's reliance on tourism made it especially vulnerable to travel restrictions. As a result, the region's gross economic output dropped by more than half in 2020, directly affecting the unemployment rate that increased by 44.5% (Las Vegas Convention and Visitors Authority, 2021).

## **2 Problem Analysis**

In the following chapter, we will focus on the problem analysis of the city of Las Vegas. We will introduce the used framework by Audretsch (2015) and apply it to its different sectors.

### ***2.1 Introduction of the Strategic Management of Places Framework***

While economic downturn is a part of the business cycle, strategic management and planning are necessary to regenerate a strong economy after hardships hit. There is not one simple solution, outline, or plan that will work in every place in the world. Each place has its own issues, people, resources, demographics, and relationship with the global economy. However, four main elements and approaches should be utilized to provide a basic understanding of how to approach public policy and private business interaction. Resources or factors of production, spatial structure and organization, the human dimension, and public policy all interact to create specific instances that when analyzed show where government and businesses can intervene (Audretsch, 2015).

#### **2.1.1 How Las Vegas Fits the Framework**

Las Vegas needs a strategic management framework to improve the economic situation in the city. After 2008, the city never regained the economic growth it had before the recession. Public policy in Las Vegas had followed the old strategy: the strategy of firms. In this case, the hospitality and tourism corporations should coincide with the strategy of a place. These large industries wanted to be the most productive businesses that had the most gambling opportunities, showplaces, and sales. To achieve this, it meant investing in mass production. These industries and the tasks by the workers became more specialized. In that, they were mostly simplified skills with low levels of growth available (Audretsch, 2015). There was room for only a handful of successful hospitality businesses, but there was more than just a handful competing. Las Vegas was successful in attracting large-scale businesses, but when the recession hit, the one-dimensional economy that consisted almost entirely of hospitality did not sustain. And when the COVID-19 pandemic happened, people were forced to stay away from the city. That made the lack of economic diversity show even more.

### **2.1.2 Framework of Factors of Production in Las Vegas**

The first element of strategic management focuses on factors of production and resources within a place. Around Las Vegas, physical resources would include minerals. These are not as relevant to the arguments made in this discussion on economic policy. The physical capital that is relevant pertains more to the infrastructure that exists in Las Vegas. This includes tourism-related infrastructure, including hotels and casinos. Furthermore, the airport allows visitors a direct line to the city. Due to the lack of diversity in the physical capital, it does not allow for large growth in other areas of economic growth than tourism. The most promising aspect of the physical capital includes research institutions like the Desert Research Institute and the Nevada Institute for Autonomous Systems. There is very little crossover between these institutions and the nearest University. This does not allow for positive knowledge externalities that also do not spill over into the local economy. The most important aspect of the factors of production within Las Vegas is the emphasis on recent developments of the creative class. An economic theory and practice that has shown to be effective in Berlin is the “Kreativwirtschaft” or the creative economy. This focuses on supporting the creative class, which consists of industries such as music, broadcasting, film, design, books, print media, art, advertising, but also architecture, software development, and gaming.

### **2.1.3 Framework of Spatial and Organizational Dimension in Las Vegas**

The second element of strategic management discusses the spatial and organizational dimension of a place. Leisure and hospitality account for a large majority of the categories of economic aspects within Las Vegas. There was high competition between the firms within the leisure field, which led to high levels of economic growth. However, the coinciding large number of unskilled workers resulted in an organizational dimension that includes generally one or two levels of jobs within a company that a person can transfer to with their skillset. Another dimension within Las Vegas is the recent development of entrepreneurial businesses. But again, due to the low skill set of workers, it is hard to achieve a crossover between businesses, universities, and creative entrepreneurs.

### **2.1.4 Framework of Human Dimension in Las Vegas**

The final aspect of strategic management that needs to be considered is the human dimension. It is especially important in a place like Las Vegas. Cities centered around tourism and hospitality must have a strong public image and strong sense of community. But Las Vegas lacks both. The networks within the city’s economy focus on ending unemployment and connecting companies and universities together. However, the network of companies that partner with the University of Nevada Las

Vegas is small and disconnected. There are also many other social issues within the city. High levels of unemployment and an emphasis on a party culture connect with high levels of drug use that leads to mistrust in society and government intervention. The identity and social image of Las Vegas are currently not a positive one, which contributes to the economic disparities within the city.

## ***2.2 Factors of Production***

A physical resource is something only found in a particular area that can be used as an economic advantage and cannot be easily replicated (Audretsch, 2015). Being located in the state of Nevada, the area around Las Vegas is rich in minerals. Today, gold is the most commercially valuable one. By-products of gold mining, silver, and copper also play a major role in the industry. Additionally, petroleum resources can be found in the region. While coal and gas are dominating electricity production, there are also some solar plants and wind turbines that make use of the natural source of heat and wind in the desert. Furthermore, hydroelectric power is being produced at Hoover and Davis. (McNamee, n.d.-c) The Colorado River is the primary water source for Las Vegas. The city uses 100% renewable energy, mainly from a solar facility near Boulder, Nevada, and other solar panels on various private and public buildings. (Las Vegas Nevada Government, n.d.) Physical capital can take the form of infrastructure, factories, and plants of an area. There is empirical evidence that a large stock of these will help economic development of companies and regions (Audretsch, 2015). In the case of Las Vegas, the most important physical capital would be tourism-related infrastructure, considering that the sector generates more income than mining, agriculture, and manufacturing combined. This infrastructure consists of casinos, high-end hotels, restaurants, golf courses, and nightclubs (McNamee, n.d.-c). Extravagant hotels featuring different themes like Paris or Venice make the city almost like a gigantic theme park. All ten of the world's largest hotels are in Las Vegas. The city is home to some of the tallest buildings in the United States. A very unique feature is the rollercoaster atop the Stratosphere Tower (STR Germany GmbH, 2022). Other physical capital includes the airport of Las Vegas which plays a crucial role in bringing in visitors because of the city's remote location. Las Vegas also functions as a major transportation and trade center featuring warehousing and trucking industry, mainly because of the free port tax for goods that continue in transit. The state of Nevada offers two railroads and a number of highways (McNamee, n.d.-b). The city itself has a monorail infrastructure that enables visitors to navigate the Las Vegas Strip with a speed of up to 50 miles per hour (Las Vegas Conventions and Visitors Authority, n.d.). Additionally, there are three different tram railways along the Strip that can be used free of charge (Pacini, 2018).

Another significant structure in the Las Vegas area is the Nellis Air Force Base, one of the largest ones in the states (The Las Vegas Luxury Home Pro, n.d.). In the globalized economy, the relevance of knowledge capital has rapidly increased.



While information can usually be transferred over large distances at a low cost. Knowledge as a vague value mainly spills over in the area (Audretsch, 2015). This is what makes it crucial to have research and development facilities in the area.

The Las Vegas area features research institutions in various fields. Since Nevada is home to some of the largest air force bases in the country and plays a major role in national security, there is also a lot of research and development for defense technologies taking place. For example, the Desert Research Institute is creating innovations for desert combat settings while the Nevada Institute for Autonomous Systems is leading in the field of unmanned aerial systems (Nevada Governor's Office of Economic Development, n.d.-a). Nevada is also a prime location for health research. Institutions carrying out research on oncology and neurology are in the area. One very prominent research facility is the Cleveland Clinic Lou Ruvo Center for Brain Health that is investigating diseases like dementia and Alzheimer's (Nevada Governor's Office of Economic Development, n.d.-c). It is a nonprofit academic medical center that combines a hospital with research and education (Cleveland Clinic, n.d.). Research results achieved at universities can often be commercialized, benefitting both companies and places in general. The key is accessing and leveraging the ideas emerging from universities in the region. The strong link between a region's economic performance and the quality of its university can be especially seen in Austin, Texas (Audretsch, 2015).

Las Vegas currently features the University of Nevada, Las Vegas (UNLV). The university offers 16 academic units that offer degrees, including colleges of business, law, education, engineering, fine arts, hospitality, sciences, and various programs in the health field. Teaching methods range from traditional face-to-face classes to hybrid and fully online programs (University of Nevada—Las Vegas, n.d.-a). As (Audretsch, 2015) points out, the Bayh-Dole act has contributed hugely to the transfer of intellectual property from universities to companies. This spillover is being facilitated by Technology Transfer Offices (TTOs) at the universities, which are responsible for overseeing commercialization efforts. UNLV states that their TTO is responsible for administering inventions and other intellectual property created at the university (University of Nevada—Las Vegas, n.d.-a). This can potentially help the local economy benefit from new innovative ideas. According to U.S. News' college ranking, UNLV ranks 249th in national universities. The university's reputation is solid, but still shows room for improvement (U.S. News, n. d.). The creative class consists of the super-creative core meaning scientists, academics, and artists, as well as the creative professionals that can have backgrounds in for example law, management, finance, or healthcare (Florida, 2002). The city's number of inhabitants belonging to the creative class seems to have a considerable impact on its economic performance (Audretsch, 2015). This means the goal of a city's economic policy should be to attract the creative class which will at the same time attract industries seeking creative employees. Members of the creative class are usually attracted by a city's cultural amenities which can be architecture, art, or knowledge institutions (Florida, 2002).

While Las Vegas is mainly known for its glamorous and spectacular casinos and hotels, the city has recently developed some features with the potential to spark the

interest of the creative class. In recent years, the city has become an arts hotspot that is globally known for its diversity and free-spirited art (Virgin Atlantic, n.d.). Compared to other art cities like New York or Los Angeles, the style is grittier and more industrial (Diamond, 2019). Most of the art scene is centered around the Arts District on the southwest end of Downtown where one can find the highest number of galleries (Villano, 2019). Many famous Las Vegas Strip hotels including Bellagio, The Venetian, and Caesars Palace have opened their own high-end galleries (Pietroni, 2021).

### ***2.3 Spatial and Organizational Dimension***

As we have seen in the previous chapter, taking factors of production into account is important when talking about the strategic management of places. Another important aspect of analysis that needs to be discussed is the spatial and organizational dimension and therefore the economic structure of the city of Las Vegas. The economic organization in Las Vegas can be divided into different categories, with leisure and hospitality accounting for 34% of the city's economic top industries (The Las Vegas Luxury Home Pro, n.d.). Essentially, the city can be called a one-company town, with that one company being tourism and gambling. This poses as the first part of the examined economic problem. As this economic field is not dominated by large corporations, it leaves room for a competitive environment. The competition among service providers in the tourism industry has led to astonishing growth in the past (El Nasser, 2010). Another factor that led to further development of the industry was the city's efforts to promote itself as a family-oriented destination since the 1990s (McNamee, n.d.-a). Even though there has been a high level of economic performance due to the mentioned factors, the dominating sectors in the Las Vegas economy are traditionally occupied by a large unskilled workforce. In turn, this substitutes to a very low-income level of the population. The average income of a Las Vegas resident is about \$25,555 a year. The United States average is slightly higher, with \$28,555 a year (Best Places, n.d.). Because of the city's large dependency on the hospitality industry, the COVID-19 pandemic had a large impact on the city. This includes layoffs which generated high unemployment rates during the peak of the pandemic in 2020. In the first year of the pandemic, there were under 200,000 people employed resulting in an unemployment rate of about 31%. This number is considerably higher than the United States average with about 14% during that time (City of Las Vegas, n.d.).

Because of the public awareness on the dependency of the industry related to gambling and the significant impact of the recent pandemic, the city has tried making efforts to diversify the portfolio of industries operating in Las Vegas. One measure was by incentivizing the attraction of new businesses and ideas. Entrepreneurial start-ups and new firms play a role in generating new ideas and therefore enhancing a region's economic performance (Jurgens, 2022). In order to do so, projects, like The New Markets Tax Credits program, which assists with financing a job-generating

project located in a low-income community census tract, were initiated (U.S. Department of the Treasury, n.d.). However, this measure was not tied the development of new idea or the strict funding of entrepreneurial start-ups. With Nevada's business climate ranking seventh best state in the Tax Foundation's 2020 State Business Tax Climate Index, it provides a perfect environment for further incentive measures by the city of Las Vegas (Nevada Governor's Office of Economic Development, n.d.-b). For example, one of the measures the city took in to increase entrepreneurial start-up activity is providing local facilities, that help with questions regarding starting or maintaining a new business. One of them is the economic development home in Clark County (Clark County Economic Development, n.d.) or LinkUp, which is a monthly meetup with the opportunity for local start-up founders to collaborate, using a workspace setting in the city (Startup Vegas, n.d.). The surrounding conditions given in the state of Nevada provide a good starting point, to start and maintain a business, as there is for example no business income tax.

Imposed measures combined with the governmental, state-given circumstances have led to the establishment of a small tech and start-up ecosystem in Las Vegas. It has resulted in an increase in jobs in the business information technology sector (The Las Vegas Luxury Home Pro, n.d.). Nevertheless, the share of entrepreneurial start-ups and tech companies that could provide innovative ideas remains small. This poses as the second part of the city's economic problem.

The degree of diversity of the economic activity in the city of Las Vegas is considerably low. That makes it difficult to generate knowledge spillovers from other industries across diverse firms, like it is the case in Silicon Valley. Since the gambling and tourism industry accounts for a major share of the economic activity, yielding in a largely unskilled workforce, knowledge externalities and ultimately innovative activity generated from inside the city are low. With few entrepreneurial start-ups coming from outside the city and less possibilities for generating knowledge inside of the city by industry and company spillovers, developing a diversified economic portfolio provides a big challenge for the city of Las Vegas (Acs et al., 2013). As it can be seen at the example of Silicon Valley, a highly competitive, but nevertheless complementary cluster of high-technology companies that are bundled in a specific region provides a great base for knowledge spillovers and possibilities to escape the knowledge filter (Audretsch, 2015). This, in turn, leads to a broad spectrum of innovative ideas that are easily accepted and pursued, because of the given factors in that environment. Such an atmosphere would be desirable for the existing, yet small technology and start-up cluster in Las Vegas, to prevent a stagnating economy that only relies on a particular industry, namely tourism, gambling, hospitality, and the associated businesses like food service industries. However, Silicon Valley may face similar difficulties regarding a restricted industry portfolio in the future (Armstrong et al., 2023).

As Audretsch (2015) argues, the degree of diversity reflected by a region's population has a huge impact on the acceptance of new ideas and innovative activity. This makes the environment in Las Vegas difficult for generating and pursuing new ideas, taking the large, unskilled workforce from the hospitality and gambling sector

into account when thinking about the acceptance of innovation and new ideas among the population in the city. Therefore, different imposed policies should also help people identify what's right or best for the community and additionally aid in forming new and better life/reality for the population in Las Vegas, providing other opportunities especially for the younger people in the workforce. Another dimension contributing to the problem of a non-diversified, one-town culture in Las Vegas is the lack of presence of renowned universities that could generate knowledge spillovers or help form high-technology clusters, complimented by research and partnerships coming from such a university (Audretsch & Lehmann, 2005). Without a solid research base, it will be difficult for the city of Las Vegas to generate innovative ideas and chances for future development since there is no room for cooperation.

The University of Las Vegas, Nevada, is ranked 249th in the United States (University of Nevada—Las Vegas, n.d.-a). That makes them one of the national universities on the lower end of the spectrum. Even though it is argued that world-class universities and therefore spillover mechanisms might not be enough to guarantee technology transfer from a university (Audretsch, 2015), it would help the economy and especially the technology and start-up ecosystem in the city of Las Vegas to gain insights and growth if the solid research base from a renowned university was given.

It can be said that the environment for generating a higher level of economic performance in Las Vegas is difficult. On the one hand, there is the dependency on the tourism and gambling industry, which can easily be impacted, as it could be observed over the past two years during the COVID-19 pandemic. As the city is revolving around that industry and its corresponding sectors, it is a difficult environment for long-term and sustainable economic growth and a high level of economic performance, without the help of public policy and therefore adequate measures and incentives, that support the generation and acceptance of new ideas, innovation, and entrepreneurship.

First steps have been made and concomitant with this a first small ecosystem of technology and start-up companies have been established. However, this has not led to a sustainable and significant change of the economic portfolio, which opens the door for further steps that need to be taken by public policymakers. Examples, recommendations, and justifications for such policies, measures, and incentives will be discussed later in this paper. However, this paragraph made it clear that there is room for improvements to be made by public policymakers, because the economic environment that is present in the city right now does not provide a solid base for a high level of long-term, sustainable economic performance.

## **2.4 *Human Dimension***

As described in the previous section, unemployment rates in Las Vegas due to the recent pandemic disrupted the economy. The city faced difficulties trying to recover

due to their focus on the tourism and gambling industry. This section will analyze the human dimension of the Las Vegas economy and the working of its networks, social capital, image, and leadership.

The first thing to talk about is how Las Vegas utilizes networks and linkages in its economy. After the pandemic had disrupted unemployment rates and brought them to an all-time record high rate, Las Vegas unemployment is now getting better with the current rates coming down to 5.2% in March of 2022 (Y Charts.com, 2022). The state of Nevada has set up programs for inhabitants to find jobs and resources to help them, but the city of Las Vegas has not been able to set them up for its citizens. Nevada has a service called Nevada “JobConnect,” which is a website where one can find job postings or post jobs as an employer. The program also has many resources for people to find a job throughout Nevada (JobConnect, n.d.). But as the Las Vegas unemployment office does not have any of those services through their own office, it is important with networks and linkages to create a service that can help people looking for jobs find employment. This service could help bring the unemployment rate back to what it was before the pandemic. Linkages and networks are not just about employment, they can also be based within different companies or with companies and universities. People value the networks they can gain from colleges (Audretsch, 2015; Audretsch et al., 2019). Creating a good network is essential for every university to attract students. Creating a reliable network of reliable companies within the city of Las Vegas will attract more people to join the university. The university has a career service that lets employers find recent graduates and post internships, yet the university does not have specific companies they partner with (University of Nevada—Las Vegas, n.d.-b). Universities often find companies to link their recent graduates with for future employment opportunities. Because they do not have any concrete connections and linkages, it incentivizes people to choose another university which has strong connections and linkages. Changing this will help grow the economy. If more people are drawn to come to the University of Las Vegas, then the students will be able to help strengthen the economy in the city by consuming and paying taxes in the area. More students will be able to help the area by supporting smaller businesses and paying tuition to the university. They will be able to grow in the community and help grow industries other than the tourism and gambling industry. This will also affect social capital since the university does not have any relationships with any of the surrounding companies in the city. With the unemployment rate high, the university could communicate with their students about opportunities they have within the city. But right now, the university does not have a certain section for just preferred companies that they are partnering with, lowering their social capital with the city of Las Vegas.

Another issue that we are seeing within the city is that its unemployment is high since it has taken the described hit from the pandemic. With the pandemic, the government restricted these industries which caused companies to lose relationships with the residents of Las Vegas. They were forced to lay off their employees because they could not afford to pay salaries. MGM Resorts had to lay off about 18,000 people in the pandemic (O’Connor, 2020). This caused a loss of trust within the industry as companies still have not picked up to what they used to be before the

pandemic and have caused a lot of people to be unemployed. This was the beginning of an issue with the economy because policymakers were focused on creating relationships with that one industry. They need to create connections with other industries like mining or health care. If policymakers can fix the unemployment issues in Las Vegas, then this can assist the economy in its recovery so that people have a steady income to spend their money in the city. This can help drive the economy back to what it was like before the pandemic. With the unemployment growing during covid, that caused the already concerning opioid crisis in Las Vegas to get worse. A study at UCLA was conducted and showed that unemployment plays a significant role in opioid misuse (UCLA, 2022). In Las Vegas, there has been a total of 760 deaths because of overdoses in 2020 which was increased by about 30% based on 2019 numbers (Torres-Cortez, 2021). It just continues to get worse and will continue to get worse as the unemployment is stagnating. The city of Las Vegas is not really doing anything to try and combat these issues. The government tries to create laws and equip emergency personnel with Narcan, but the issue still increases at a rapid rate. This is creating mistrust among the citizens because they see this issue happening every day to people on the street, relatives, friends, and even themselves. They observe that the government is not making any strides to fix this problem. They see this and it creates a negative social capital because it is cueing mistrust when social capital is about trusting the government and creating those connections between them.

This is creating apprehension in leadership as well because the government is not helping to fix a problem that is striking the city daily. The government is losing money because of the opioid crisis. In 2017, the entire United States spent a total of \$1021 billion trying to combat the issue (Luo et al., 2021). This has a negative effect on the overall mood of the population, as changes seem to be non-existent. The leadership is trying to create policies, but the rates keep going up. The United States and the taxpayers expect to spend more money to try and fix this issue. This will bring money away from fixing issues like unemployment causing people to become more frustrated.

The opioid problem also plays into the image and identity of Las Vegas. When people think of Las Vegas, their usual thoughts levitate toward casinos and gambling, drugs, and area 51. People see that Las Vegas is a place with a serious drug-related issue and will not want to start a job and move their families here because they are concerned for their family's safety. The drug problem can also keep people from coming to visit their families. Las Vegas is not known to bring families but adults without children. A majority of the Las Vegas' economy relies on this portion of its image. The problem is that that is the only industry the city is known for. It needs to start building on another industry. It needs to grow from its current identity to be prepared for future unforeseen events.

### 3 Problem Solution

After analyzing the problems of Las Vegas, the following chapter focuses on the problem solution of the observed difficulties of the city.

#### 3.1 *Policy Recommendations and Justifications*

Here, we will work out policy recommendations and justifications in the context of the problem solution chapter of this paper.

##### 3.1.1 **Connect Universities and Research to Regional Growth**

As it was demonstrated in the previous paragraphs, there are a lot of different issues regarding the economy in the city of Las Vegas. This leaves room for certain improvement. The first issue identified was the lack of knowledge spillover effects, as there is no renowned university present in the city of Las Vegas. It is important for the university of Las Vegas to better their performance in a sustainable way and therefore to generate more scientific knowledge that can then lead to better innovation within the university-start-up ecosystem. A possible policy recommendation would be setting certain incentives for universities to partner up with different start-ups, research centers of campuses through the state and country. This would create a start-up friendly environment by generating knowledge across different industries and therefore providing the city with new ideas.

To attract more students to the university, a certain effective policy could be local municipal funding for housings and tuitions, or certain campus improvements. To generate a budget for this, the policymakers in Las Vegas should think about raising a certain tax, for example a “sin tax” on alcohol and cigarettes or taxation on the gambling and hotel industries. The economic sector of gambling and tourism is locally bound. If this policy is successfully implemented, even a slight raise in taxes may result in a significant outcome. This still leaves the attractiveness of no corporate income taxes in Las Vegas, so entrepreneurial start-ups have an incentive to gather in the already existing yet small start-up ecosystem present in the city. A key factor that also relates to the educational level in the city of Las Vegas and that needs to be addressed is the climate of the economy regarding the acceptance of new ideas and entrepreneurial activity. As we previously showed, the largely unskilled workforce related to the reliance on the tourism and gambling sector creates a bad climate for the acceptance of new ideas. For start-ups to emerge and a start-up ecosystem to perform well, there needs to be a certain acceptance of new ideas and business models among the community and inhabitants of Las Vegas. Therefore, it is important for policymakers to set incentives for people to be creative and reward them for being so. An example for this would be a certain kind of start-up challenge

or prize. The most creative founders are rewarded for innovative ideas, like in the “German Startup Awards,” that are being held annually (German Startup Awards, n. d.). The organizers are partnering with large and famous companies across the whole country of Germany. They find and award the best new business models and ideas created every year. This causes a wide publicity for founders and helps them find acceptance and funding for their ideas, since entrepreneurs and investors are brought together (German Startup Awards, n.d.). The organizer is the “German Startup Association,” which currently represents over 12,000 members of the start-up community across the country. They play a great role in the dynamic and well-performing start-up ecosystem in Germany as of today.

There are further examples of start-up and entrepreneurial awards in Germany, where large prize funds will be given to the winners, which sets even more incentives for people to be creative and develop new ideas. To enhance their own start-up performance, the city of Las Vegas could provide funding for creating such awards or even create such an entrepreneurial organization themselves. This would then help with the emergence of awards like the one in Germany, offering a great opportunity for the city to create an environment that is more mentally open and in favor of accepting entrepreneurial activities. Further outcomes of a more entrepreneurial focused mindset, established by the city of Las Vegas, could be the establishment of cross innovation, which may be important for the further development of the start-up ecosystem and therefore a better economic performance in the city. After creating an accepting space for entrepreneurial ideas, the focus should lie on the advancement of cross innovation, which means the transfer of innovative approaches and expertise across industries. This implies that the local government in Las Vegas should focus on providing networks that generate information across industries, as the cross innovation emerges through different actors across various industries.

The challenge can be compared to the same issue in Berlin, where different stakeholders need to be encouraged to leave their old routines and approaches to solving common problems. A policy recommendation for Las Vegas is the active creation of networks that enable creative thinking, as it was mentioned before. Start-up awards or governmental entrepreneurial organizations will be essential for this, so a governmentally organized and aided program will assist with network creation. An example for a successful implementation is the case of the “Hybrid Platform,” whose funding members include the “Technische Universität Berlin,” the Berlin University of the Arts and a range of companies. The project provides a platform that helps with “facilitating transdisciplinary cooperation.” Key abilities of the platform are providing support for cooperation projects, but also fostering debates across specialty disciplines at the different universities. This creates room and environment for free exchange of ideas, which led to the establishment of the Berlin Competence Center for Usability Measures (Wowereit et al., 2014). The local government in Las Vegas can create such a platform to help with scientific exchange with universities across the country, to foster growth and creation of new business models and ideas.

If there are then more start-ups and creative minds in the city of Las Vegas, this would generally also lead to better connections and synergies with the university, providing new bases for different research areas. In line with this, the policymakers’



focus should also lie on the establishment and further development of different research centers, like for example the Lou Ruvo center for brain health, which would then complement the information transfer platform by providing important research information. The focus should therefore be directed toward supporting and diversifying the city's portfolio of research centers and using the existing connections it has (e.g., Cleveland, Ohio) to generate more information. Moreover, this will help with the formation of new ideas and innovation, as can be seen at the example of Berlin.

If the city of Las Vegas can establish well-coordinated synergies among different industrial sectors and research fields and aid with further development, the possibilities for the economy, start-ups, and companies will be great. What also needs to be discussed for the successful establishment of an entrepreneur-friendly climate in the city, is the image of the city itself, which would involve a certain reorientation, to create an environment where everyone feels welcomed and accepted, like it is the case in Berlin. This will be discussed extensively in the next paragraph.

### **3.1.2 Invest in a Cultural Economy Initiative**

The first thing we did when coming up with an economic policy was to find an area with a similar image and culture that has made the change from a party area to an area that enhances the creative class. Berlin was the perfect place to compare Las Vegas to as both cities were an area for people to go and party and both were isolated from the areas around them. This is a good comparison because Berlin created a successful initiative to help bring in more members of the creative class, like artists, scientists, and researchers. Berlin created this initiative and gave these creative class members a place to thrive and be able to grow. Berlin created an environment in the city that allowed these members to be able to thrive and have the research and help that they might need to be able to build their business there. Berlin created this system to give people money and networks to be able to connect and help each other grow in this new economy. Therefore, Berlin is a great option for comparison because Berlin has created these systems to help grow the creative class and it has these systems in place to bring people into the city. Classes and programs were created to help build these systems in place so that the city will function as a creative hub (State of Berlin, 2015).

The COVID-19 pandemic impacted the United States immensely, especially the entertainment industry. It is important for Las Vegas to come up with a way to be able to build the economy so that in case of another massive economy downturn, the city will not only be relying on its entertainment industry. Therefore, we chose to build on the creative class because these industries were the ones to thrive during the pandemic, they were on the front lines helping people combat covid and coming up with solutions to help. We have looked to Berlin and its initiatives when coming up with the recommendations for Las Vegas. These cities are very similar as we listed before, so they can create a similar structure to transition into the new image. We first recommend granting greater public financial aid to creative class start-ups. This will

allow companies to be able to come into Las Vegas and be able to build their business there rather than somewhere else. If entrepreneurs are seeing that the city is trying to help them grow and thrive, then they are going to choose Las Vegas to start. This leads to the next recommendation to have Las Vegas create a system with the university and the unemployment office to connect people to these creative class jobs. With today's economy, businesses are looking for areas where they are going to be able to attract people to their job. There are many employers wanting to hire employees, but there are not enough people wanting or able to get the jobs. This will bring in these employers because employees mandatory for success, and this program will allow them to have those connections which Las Vegas has been missing. The last recommendation is to create a crowdfunding and nonprofit platform to help educate and bring awareness to these companies. Crowdfunding has become an important part of entrepreneurship and has been a huge drive to help start-up businesses grow and develop. These will allow the companies to have the support that they need from their community and their local government because they will have the resources they need to succeed.

### **3.2 *Counterarguments***

The first policy recommendation to connect universities and research to regional growth relies primarily on the creation of incentives for relationships. However, these relationships are not simple or easy to develop in their actuality and function. Cities must provide incentives for universities to continue their development. But when cities are in the middle of economic downturn and lack growth, universities, and the young people who attend them, will not want to put their faith in an unpromised future. The biggest counterargument against this proposed policy solution is the lack of structure in how the universities and city of Las Vegas would be able to implement it.

First, the government must be willing and able to allocate money for housing, which is generally unlikely in Las Vegas and the surrounding city. The city in recent years attempted to create family housing, but those housing developments sit empty on plots of land. This failed housing policy has left the city with little desire to attempt to change it again when there is little hope the culture could shift again to allow for affordable housing. Furthermore, it would be hard for universities to attract young people to the city of Las Vegas because of the lack of affordable housing. And the young people would be the ones who would start to make up the creative class that is proposed in the second main policy recommendation.

The second policy recommendation also relies on the ability of a city to be open to cultural change. The cultural history of Las Vegas is much different than that of Berlin, which was used as an example of a way a city has changed its creative class for the better. Berlin had a specific instance of a place that had the ability to change its image and at a time when the city was open and willing to do so. Berlin is rich in history and economic change and so is Las Vegas, but in much different ways. Las

Vegas does not contain the same rich culture and sense of pride within its citizens as places like Berlin do. However, Las Vegas does have a very specific culture to it and would be able to lean into that concept going forward.

Another issue that is related to both policy propositions is the physical location of Las Vegas. In the middle of the desert, the city is isolated both physically and economically. The lack of infrastructure in Nevada that does not connect Las Vegas to other cities does not make it easy to bring new young people to a city. Similarly, this can also mean that businesses and corporations who want to have a widespread economy would not want to house their centers in Las Vegas because it would be isolated from other booming cities in the West.

While the public image will be hard to change, and the city would have to take a gamble on investing in housing and university development, the personal image people have who currently live in the city will also be hard to change. But these policy recommendations, if implemented correctly and with consideration for the people of Las Vegas, would ultimately allow the city to grow in new and interesting ways.

## 4 Conclusion

During this paper, we have seen that Las Vegas is a city with a very specific history and public image. While the city's reliance on the gambling and tourism industry has led to great economic growth and success in the past, recent crises like the Great Recession and the COVID-19 pandemic have shown that this singular focus does not provide enough economic resilience for Las Vegas and makes the city and its employment situation too vulnerable to crises.

It is apparent that the city needs other economic sectors to rely on. By analyzing the already existing factors of production as well as the spatial and organizational and human dimension, we identified some great potential outside the hospitality industry that our policy recommendations can build on. For example, the Las Vegas area has some valuable research institutions mainly in the defense and health fields as well as a large university, even though it is not very renowned. In addition, the city is currently building a new image as an art hotspot. Regarding the entrepreneurial scene, a few programs have been launched to incentivize start-ups which were so far not successful. Since Las Vegas already provides an attractive business environment because of the lack of business income tax, this is something policymakers should build on. Developing a flourishing start-up scene requires a population that is accepting of new ideas. That is currently not the case and needs to be worked on by changing the city's image. To start the process, there needs to be more networks and linkages between companies and the university.

In line with these circumstances, our first policy recommendation was to create more spillover effects. This can be achieved by strengthening the university by incentivizing cooperation with start-ups and research centers. A role model for this could be the "StartHub" at the University of Augsburg. Other measures to attract

more students to the city could be funding for housing and tuition which could be financed by raising certain taxes. In addition, entrepreneurial activity and creativity in general should be increased by introducing start-up-related competitions and prizes as can be seen in Germany. Another factor would be the further development of research centers to attract more scientists for example by providing free public transport or housing.

To make all these positive changes happen, the image of the city itself needs to change from a party city to a more diverse place. Since there are already many different ethnic groups living in the city, that could potentially create a culture like Berlin, with both a creative atmosphere and great nightlife. To achieve this, measures like tax breaks to attract new creative class companies to the area should be taken. All in all, it can be said that Las Vegas is already on its way to changing its image and becoming a more diverse city that does not only rely on gambling and hospitality. Certain policies will make this development must faster and more successful so that Las Vegas will be ready for the next crisis to come.

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# Strategic Management of Places: The Case of Singapore



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**Abstract** This paper analyses the strategic place Singapore. It provides a structured answer to the question of how Singapore is currently positioned and uses best practices to show how the city-state should develop in order to maintain its strong position in the world. Although Singapore has developed into one of the most influential countries in the world, there is an acute need for action in some areas. For the analysis, this paper strictly follows the framework “the strategic management of places” by David B. Audretsch (2015).

## 1 Introduction

A nation is great not by its size alone. It is the will, the cohesion, the stamina, the discipline of its people and the quality of their leaders which ensure it an honorable place in history. (Lee Kuan Yew, 1963)

Lee Kuan Yew, also known as the father of Singapore, shows in this quote why he thinks that Singapore is a great nation. And in fact, he was the man largely responsible for making Singapore the place it is today. Originally founded as a British colony, Singapore gained its independence in 1962. Since then, Singapore grew to one of the most impressive nations in the world. Singapore is a small city-state with less than 719 km<sup>2</sup> (WorldData, 2020). With 50 km from east to west and 27 km from north to south it is easy to get everywhere within 40 min. Today it has 5,369,000 people living there what leads to a population of 7842 per km<sup>2</sup>.

Most of the people who live in Singapore are Chinese (74.3%), while the rest are Malay (13.4%), Indian (9%), and other nationalities (3.3%). The big Chinese population is the reason why most of the people in Singapore speaks Chinese. But especially in the business environment, it is common to speak English. That led to its

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own Singapore dialect in the last century: the so-called “Singlish.” This cultural mix is one of the reasons why Singapore is one of the most visited cities in the world.

Singapore is also well known for its conservatism and its very strict laws. \$500 fines for eating in a metro station and a ban for chewing gum helped Singapore to become one of the cleanest cities in the world.

The People’s Action Party (PAP) influences society and politics since Singapore received their independence from Malaysia in 1965. This paper analyses the economic strengths and weaknesses of Singapore as a city-state. Of course, it seems at a first glance that everything is going very well in Singapore. But under the surface, Singapore, like any other nation, has its own issues.

## **2 Problem Analysis**

For the analysis, the book “Everything in its place” by David B. Audretsch (2015) is adopted as theoretical framework. This book provides a good overview of the prevailing theories of economic development and supports this with some examples so that they become much more useful when applied. The book helps to get a structure into the complex evaluation of an economic location. The aim of this research is to gain a better understanding of Singapore as a location and thus to provide the city-state with advice that will ensure sustainable growth.

In his framework for the strategic management of places, Audretsch (2015, p. 24) describes three categories with big impact on a place. This research will take these three elements into consideration and apply the framework to the city-state of Singapore. The three elements include: (1) the factors of production, (2) the spatial and organizational dimension, and (3) the human dimension. After finding the strengths and weaknesses of Singapore, some solutions to overcome the difficulties of the city-state are proposed. For a better understanding, Singapore is compared from time to time with Hong Kong to have some benchmarks.

### ***2.1 Factors of Production***

#### **2.1.1 Physical Resources and Physical Capital**

Singapore is a very small state, and this directly affects the availability of physical resources. The absence of lands as well as raw materials has driven the government in adopting a pro-business, pro-foreign investments, and export-oriented policy strategy. These policies, the strategic location of the city and the advanced infrastructure have ensured the economic performance of the place until today.

Strategic investments in physical capital allowed the city to offset the lack of physical resources and to thrive over the years. Today the port of Singapore is the second port in the world for volume of containers (World Shipping Council, 2020)



and the extended entrepot traded is one of the main pillars of the highly developed market economy. Another element which plays a central role in the economy of the place are refineries: Singapore is the third global exporter of refined petroleum 3 (Observatory of Economic Complexity, 2018) despite it does not have any crude oil deposit. Finally, it is important to underline the role of the city as financial hub: The Global Financial Centers Index ranks Singapore as the fifth most competitive financial center in the world. Audretsch (2015, p. 30) points out that “places have supplemented their natural resources endowments with significant investments in physical capital in order to improve performance” and Singapore perfectly fits this analysis.

However, while some physical resources are important elements for the economic performance of a place, others are fundamental for the survival of the place itself and they cannot be replaced with any physical assets. This is the case of water supply in Singapore: one of the main problems the city faces is the inability to have a supply of water which can fulfill the demand. Since the independence in 1965, when the city was almost completely dependent on outside sources, water has remained a big issue for the city. Limited land area to catch and store the rainfall, absence of natural aquifers and lakes, population growth, high-living standards, heightened urbanization, and industrialization make the water supply a big challenge, now and in future. The Public Utility Board (PUB) regulates and manages the country water supply system. Singapore relies on four water resources, known as the National Four Taps: local catchment, imported water, reclaimed water, and desalinated water (PUB—Singapore’s National Water Agency). The international agreement for water supply signed with Malaysia will expire in 2061. Singapore has developed a new plan for increasing water security and self-sufficiency, with increasingly more efficient water management, including the formulation and implementation of new water-related policies, heavy investments in desalination and extensive reuse of wastewater, catchment management, and other similar actions (Tortajada, 2006). The objective set by the PUB is meeting up before 2060 Singapore’s water demand only through reclaimed water and desalination. Since 2002, the PUB has invested 724 M (PUB—Singapore’s National Water Agency) in R&D projects to improve the water management and increase the resources of water. This is one of the biggest challenges for the city: water supply is fundamental for the future survival of the place.

### 2.1.2 Universities and Research and Development

Two factors of production related to the generation of knowledge: Universities and Research & Development are analyzed here. Knowledge is another primary element for the analysis of a place: it is the main input for the technology progress, which is accounted by the neoclassical theory as a key element for the economic growth of a place (Solow, 1956). Table 1 shows the comparison between Singapore and Hong Kong in terms of expenditures on education. These two places present many similarities: location (Asia), size, entrepot, financial center, and others. Singapore spends more on education, in particular on tertiary education (data from 2013, last

**Table 1** Comparison between Singapore and Hong Kong in terms of expenditure on education (Source: World Bank, 2020)

|                                                                        | Singapore | Hong Kong |
|------------------------------------------------------------------------|-----------|-----------|
| Expenditure on education as % of total government expenditure          | 28.8      | 20.3      |
| Expenditure on tertiary education as % of total government expenditure | 10.2      | 7.9       |

**Table 2** Comparison between Singapore, Hong Kong, and South Korea in terms of expenditure in R&D (Source: World Bank, 2020)

|             | R&D expenditure (% of GDP) |
|-------------|----------------------------|
| Singapore   | 2.2                        |
| Hong Kong   | 0.8                        |
| South Korea | 4.2                        |

data available). Moreover, Singapore spends much more on education (in terms of percentage of total government expenditure) than the average of the OECD countries, which is equal to 12.5% (World Bank, 2020). The analysis is based on the expenditure on education as percentage of total government expenditure and does not consider it in terms of percentage of GDP (which is another indicator typically used in this type of analysis). This is due the fact that total government expenditure of Singapore as percentage of GDP is much lower than the ones of the OECD members. Hence, the indicators presented are more useful for a better understanding of how much the government focuses on education in proportion to its total expenditure.

Concerning Research & Development investments, Table 2 shows data regarding also South Korea, which is, together with Singapore, Hong Kong, and Taiwan, one of the so-called “Four Asian Tigers.”

Singapore invests much more than Hong Kong but less than South Korea (which actually is the second country in the world after Israel for investments in R&D). Anyway, Singapore is aligned with the most developed countries in terms of expenditure in Research & Development (OECD average = 2.3%). The data obtained analyzing the investments on “knowledge generation” seem to confirm the policy applied by the government in the last years, which aimed to find innovative ways of overcoming the comparative weaknesses of the place (physical resources) and develop competitive strengths. On this purpose, they made great investments both in R&D and universities because “whether knowledge is created by R&D at private companies, from research undertaken at universities, or a combination of both, it represents a very different resource from physical capital, thus giving places without tangible assets an alternative potential path to success” (Audretsch, 2015, p. 41).

### 2.1.3 Skilled and Unskilled Labor

Many rankings see Singapore as one of the wealthiest nations worldwide. For instance, Singapore is ranked first worldwide for the ease of doing business and starting a new business in 2019 (Wong Teck Soon, 1993). Furthermore, it is considered the most competitive country worldwide in 2019 according to the Global Competitiveness Index (Department of Statistic Singapore, 2019). In particular, the country ranks first in terms of infrastructure, health, labor market functioning, and financial system. Today Singapore is thus one the best countries in the world, but it was not always like this. As shown in Fig. 1, in the 60s, the city-state was an undeveloped country with an exceptionally low-GDP per capita, approximately US \$320; extremely different compared to the actual one (US\$64,681.94).

The reasons for this incredible growth must be found in the actions that the government has implemented over the years. After having obtained the independence from the United Kingdom in 1963 and passing 2 years merged with Malaysia, it became an independent nation. In those years, Singapore had many problems: first, the unemployment. To alleviate it, the government, led by the PAP, decided to invest into a policy of rapid industrialization granting low levels of taxation, high levels of safe, and zero corruption. Alongside the import-substitution strategy, the government recognized that continued industrialization would have required improvements in the skill- and education-level of the workforce. By 1965, there was a steep increase in enrollments at primary and secondary schools and universities, respectively, by 33%, 94%, and 70% (Wong Teck Soon, 1993). The industrialization plan was implemented successfully also thanks to the important harbor that helped Singapore in the trading of goods. In the next 20 years, indeed, other economic choices were implemented, such as strengthening the role of the harbor and, consequently, the increasing importance of the export.

In the early 80s, however, the GDP growth slowed at 5% a year, while the worldwide economy was running at +8%. To maintain high growth and improve performance in manufacturing, attempts were made to find new sectors where

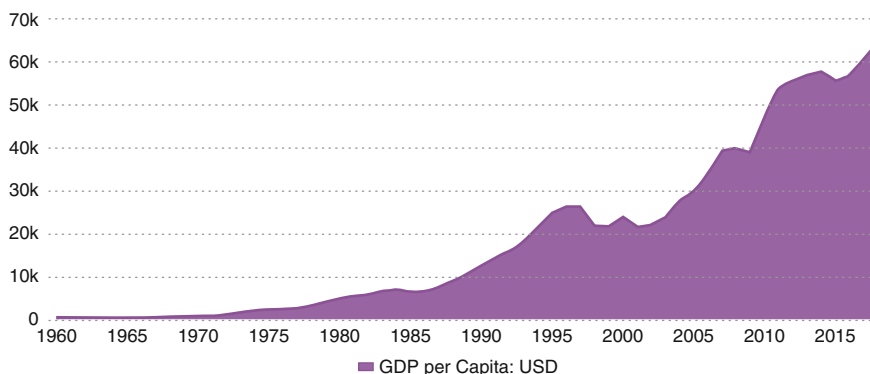


**Fig. 1** GDP per capita (USD) of Singapore 1960–2016

technology gaps could profitably be exploited. Biotechnology, computer peripherals, and aerospace were identified as potential high-growth sectors and were actively promoted by the government with pioneer and expansion incentives. Among these choices, the government decided to invest into diversifying the production and export, especially (but not exclusively) outside-manufacturing and into business and financial services.

This incredible growth has been possible because of the manpower that allowed to maintain competitiveness and the growth of the Singaporean economy. As in every country, the manpower can be divided between skilled and unskilled workers and, furthermore, between residents and foreign workers. Foreign manpower, indeed, both skilled and unskilled, is extremely important for Singapore: they are necessary to fill the manpower shortage and generate more economic activity. Nowadays, its economy is based on the tertiary sector (70% of total contribution of GDP) (Department of Statistic Singapore, 2019) and foreign workers allow to face the lack of domestic resources.

Skilled foreign workers expect to maintain the competitiveness of local firms' exports of high-end products and increase the role of financial hubs worldwide. On the other hand, low-skilled foreign workers are essential for the productivity growth. The ability to produce goods desired by higher income countries benefited Singapore's lower paid workers that were attracted by moving to Singapore. Foreign labor is allowed into the country under two schemes—employment passes for professionals and managers, and work permits for semi-skilled and low-skilled workers in manufacturing, construction, and services. The first ones come from developed countries such as USA, western Europe, and Japan. They are paid expatriate salaries which reflect their remuneration in their home countries. At the lower end, the low-skilled and semi-skilled foreign workers come from developing nations like India, Bangladesh, Philippines, Malaysia, and Indonesia. They receive lower wages than their counterpart in Singapore, although much higher than the wage levels of their less developed home countries. Thus, the large pool of foreign semi-skilled and unskilled workers has kept the salaries of this income segment low. The government goal would be balancing the appropriate level of skilled and unskilled foreign workers in the economy that will generate the maximum growth rate in the domestic economy. However, as we can imagine, the wages of these two types of workers are hugely different: high-skilled workers are paid better than the low-skilled ones. The problem concerns the income inequalities between the foreign high-skilled workers and low-skilled workers, both Singaporeans and foreign. It registered consistent GDP growth of 6–7% over most of 1990s and 2000s. At the same time, its Gini coefficient, which indicates the income inequalities ratio, rose from 0.43 to 0.47 (Asher & Nandy, 2008). Generally, this disparity has increased during the years. This is not limited to a short period of time, but it can be seen throughout the history of the city-state. The average income of the top 10% income level was roughly less than 30% for 20 years and then, it climbed reaching historical record levels as 45% in 2002. The income disparity between the top 10% and the bottom 90% has also widened, reflecting the rising share of the top 10%.

This problem has been faced only for Singapore citizens implementing the Progressive Wage Model for just three types of workers belonging to the cleaning sector, in 2015, and to the security and landscape sector, in 2016. The model specifies how much these workers should be paid more as they upgrade their skills. Moreover, it benefits workers by mapping out a clearer pathway for their wages to enhance with training and improving in productivity. For example, a cleaner could start out with a salary of \$1120, but if he learns how to do outdoor cleaning or cleaning in healthcare establishments, he could earn at least \$1320. Cleaners who can operate machinery can earn even more, at least \$1520, and those who move further up the ladder to become supervisors can expect a pay of at least \$1720. However, the introduction of this solution helped only a few workers—leaving the other types of them without any care from the government.

2.2 *Spatial and Organizational Dimension*

2.2.1 **Diversity and Specialization**

As a result of the last economy choices implemented by the government, Singapore is one of the most competitive countries despite its small dimension. During the years, it has re-evaluated its longer-term economic strategies and policies to perform better every new challenge it will face. Singapore has a market-based economy: this means that the government policy directions, the investments in infrastructure, the providing of housing, education, and health services ensure a conducive business environment for the private sector to expand and upgrade (Stevens, 1999).

Table 3 shows that services are the most important sector which contributes 70.4% and employs 83% of the total worker population. In particular, they are dominated by trade, business services, transportation, communications, and financial services. Singapore is worldwide known for its harbor and because it is one on the most important financial hubs.

The port of Singapore is one of the major sources of economic strength for the city state of Singapore. This is due to the specific location it has and for the enlightened choices made by the PAP in the 70s: the government chose to consolidate and further develop the importance of the 11 harbors, which attracts freight and many allied activities (storage, distribution, processing, etc.). It was and is the prime government instrument to help Singapore become an international power. As a regional commercial hub, the harbor of Singapore is one of the most important

**Table 3** Importance of each sector in Singapore

| Breakdown of economic activity by sector        | Agriculture | Industry | Services |
|-------------------------------------------------|-------------|----------|----------|
| Employment by sector (in % of total employment) | 0.1         | 16.2     | 83.6     |
| Value added (in % of GDP)                       | 0.0         | 23.2     | 70.4     |
| Value added (Annual % change)                   | −8.4        | 5.7      | 1.2      |

port in the world. The port handled more than 37 million of TEUs (20-foot equivalent units) of containers and 626.2 million of cargo in 2019. There are currently more than 5000 maritime companies operating in Singapore, including over 130 international shipping groups, which constitute an important pillar for the international maritime transport hub.

Singapore's current success is also due to the presence of several financial operators. Singapore plays a global protagonist as a major bank hub. According to what Monetary Authority of Singapore (MAS) affirmed (Monetary Authority of Singapore, 2016), banks in Singapore held a total of two trillion in asset in 2016. Singapore's banking sector therefore played a crucial role, not simply as a growth sector, but in facilitating other financial and economic activities as well. Singapore's position as a major financial hub depends upon its deep and liquid capital markets: in particular, the use of financial instruments such as bonds, equity capital, foreign exchange, and over the counter (OTC) derivatives is particularly prominent (Monetary authority of Singapore, 2016). In 2015, the total amount of selling reached S \$174 billion, comprising both SGD and non-SGD debt, issued by a diverse pool of local and foreign issuers. This diverse range of debt issuances and issuers reflected Singapore's position as an international fixed income hub.

For what concerns the manufacturing that represents 21.3% of the total contribution to the GDP, key industry clusters in Singapore's manufacturing include electronics, chemicals, biomedical sciences, logistics, and transport engineering. Therefore, we can affirm how the economy of Singapore is diversified but it is also specialized in the sectors that allow to be competitive. Comparing with Hong Kong, it is interesting to notice that the level of diversification is actually much higher in Singapore than in Hong Kong. This is because the two cities economies have different economic structures (Table 4).

The explanations for Singapore's economy outperformance lie in its economic structure, exchange rate system, and foreign workers' policy. According to the Department of Statistics Singapore, goods producing industries including manufacturing, construction, and utilities accounted for 25.8% of Singapore's gross domestic product in 2019, amongst which manufacturing's proportion was 17.5%, covering electronics, medicines, biotech, and petrol chemistry. Meanwhile, services producing industries accounted for 70.3% of GDP, with the rest being ownerships of dwellings and taxes on products. In Hong Kong's case manufacturing, construction, utilities, and agricultural industries combined accounted for only 5.5% of GDP, amongst which manufacturing was tiny at 1%. On the other hand, services accounted for 91.9% of GDP. On one hand, it seems that Singapore's more balanced industrial structure helped it achieve faster growth over longer periods. On the other hand, Hong Kong can be leverage different solutions provided by China and its power. The section "others" describes other components of the economy such as ownership of premises and dwelling, public administration or accommodation, and food services.

Clusters are important elements in the Spatial and Organizational Dimension. This analysis focuses on high-technology clusters. They "typically include institutions that focus chiefly on networks and linkages, which include research

**Table 4** Comparison of the economy of Singapore and Hong Kong

|                                                            | Finance and insurance | Real estate, professional and business services | Construction | Import/Export, wholesale and retail trades | Manufacturing | Others |
|------------------------------------------------------------|-----------------------|-------------------------------------------------|--------------|--------------------------------------------|---------------|--------|
| Singapore (Department of statistics of Singapore, 2019)    | 13.8%                 | 25.3%                                           | 3.7%         | 19.3%                                      | 20.9%         | 19%    |
| Hong Kong (Census and department of statistic of HK, 2019) | 19%                   | 10%                                             | 4.5%         | 21%                                        | 1%            | 45%    |

universities, technology parks, plus non-traditional sources of early-stage capital, such as angel capital and venture capital” (Audretsch, 2015, p. 83). One of the main function of clusters is fostering the knowledge spillover and helping to link the theoretical knowledge with its market application. There are no quantitative indicators to measure the level of clusters development in a specific place. In Table 5, the result of the survey conducted by the World Economic Forum is exhibited, in which Singapore ranks after Hong Kong and before South Korea. More generally, it is among the best countries in the world for clusters development (World Economic Forum, 2018).

About this topic, it is worth mentioning the Block 71. It is an initiative by NUS Enterprise in collaborative and strategic partnerships with established corporates and government agencies, a technology-focused ecosystem builder and global connector which catalyzes and aggregates the start-up community. The Economist (2014) dubbed the Block 71 as “the world’s most tightly packed entrepreneurial ecosystem,” We can also mention the government initiative called “Innovation & Enterprise Cluster Funds,” which aims to strengthen partnerships across companies, universities, research institutes, and government to bring ideas quickly to market, raise productivity, create jobs, and grow the sector.

## 2.2.2 Entrepreneurship

Entrepreneurship is closely linked to the cluster as a mean to transfer the knowledge generated in R&D and universities to market applications. In the last years, Singapore has focused on fostering entrepreneurship. Many initiatives have been taken in this field, among which the Early-Stage Venture Fund (ESVF), an initiative under the National Framework for Innovation and Enterprise. ESVF seeds funds with selected venture capital firms to invest in Singapore-based early-stage technology start-ups. The results obtained are tangible. The World Bank (Table 6) ranks Singapore as the second-best place in the world for ease of doing business. This

**Table 5** Comparison between Singapore, Hong Kong, and South Korea in terms of state of cluster development based on World Economic Forum, 2018

|             | State of cluster development |
|-------------|------------------------------|
| Singapore   | 68.9                         |
| Hong Kong   | 72.6                         |
| South Korea | 59.6                         |

**Table 6** Comparison between Singapore, Hong Kong, and South Korea in terms of ease of doing business based on World Bank, 2018

|             | Ease of Doing Business—Ranking Position |
|-------------|-----------------------------------------|
| Singapore   | 2                                       |
| Hong Kong   | 3                                       |
| South Korea | 5                                       |



ranking includes many measures such as taxes, ease of getting credit, procedures to start a business, time required to start a business, and others. Furthermore, it is worth mentioning that the number of startups in Singapore doubled from 22,000 in 2003 to 43,000 in 2016.

Entrepreneurship is to some extent the last step of the path that starts with the generation of knowledge (Universities and R&D), continues with the knowledge spillover and through the link between research results and market (Clusters) and finally reaches the market through the entrepreneurial activity (Entrepreneurship). These four elements of the framework constitute the main inputs for the technology transfer, which is “the process of conveying results stemming from scientific and technological research to the marketplace and to wider society, along with associated skills and procedures, and is as such an intrinsic part of the technological innovation process” (European Commission, n.d.). About this topic, technology progress plays a central role in the neoclassical theory for the economic performance of a place (Solow model). Furthermore, innovation and its “creative disruption” is considered the key for the economic growth also by Schumpeter (1942).

Innovation is the output of the technology transfer process above mentioned. It is the main result related to the four inputs: Universities, R&D, Clusters, and Entrepreneurship. One of the main indicators to measure innovation is the number of patents (Hall & Jaffe, 2018). Table 7 presents the comparison between South Korea and Singapore in terms of innovation outputs (it also presents the “creative outputs”: trademarks and industrial designs). The data indicate that Singapore is low performing in this field. By looking at the number of patent applications in South Korea, it is more than 10 times higher than the number in Singapore. Considering well positioning in the four main innovation inputs, one would have expected good results also in terms of innovation. This fact can be interpreted as a problem in terms of creativity. Individuals’ creativity is a fundamental factor for innovation because “innovation is built on creative ideas as the basic elements” (Amabile, 1988, p. 126). Therefore, lack of creativity directly affects the results in terms of innovation.

**Table 7** Comparison between Singapore and South Korea for number of patent applications, trademark applications, and industrial design applications based on WIPO, 2018

|             | Patent application (per 1000 people)             |
|-------------|--------------------------------------------------|
| Singapore   | 0.28                                             |
| South Korea | 3.15                                             |
|             | Trademark applications (per 1000 people)         |
| Singapore   | 2.04                                             |
| South Korea | 4.02                                             |
|             | Industrial design applications (per 1000 people) |
| Singapore   | 0.06                                             |
| South Korea | 1.16                                             |

## 2.3 *Human Dimension*

### 2.3.1 Leadership

Leadership was very important for the development of Singapore. Especially the governance of Singapore had a great influence on the economy. The People's Action Party (PAP) is a center-right political party that governs Singapore since their independence from Britain in 1959. The conservative party is mainly responsible for the fast development of Singapore. In average, the economic growth increased 8.5% per year since the party got elected (Sikorski, 1996, p. 818). It is one of the world's longest governing elected political parties in the world since they rule Singapore for more than 60 years now. Thomas J. Bellows (2009, p. 25) explains Singapore's success with two different factors:

1. The geographical location between South Asia and East Asia. Singapore is directly in the center with a big harbor which enables a lot of countries to transport their goods.
2. The "efficient and effective government [...] and implementation of which have been largely successful" (Bellows, 2009, p. 25).

The vision and the leadership of the PAP took great influence on the city-state of Singapore. After being a British colony and the destruction of the second world war, Singapore was a very poor and exploited place. In this time, the gross domestic product (GDP) of Singapore with 705 million USD was even lower than the GDP of Kenya with 791 million USD (World Bank, 2020). But the government of Singapore developed the city-state with an extremely strict plan: they created equitable prosperity and jobs and did all of this with a focus on the multiracialism. Bellows (2009, p. 28) describes the challenge of multiracialism with "allowing room for ethnic identity yet nurturing a sufficient common space for national identity to emerge." And it was this national identity that led to wealth and economic growth.

### 2.3.2 Identity and Image

80 of the world's top 100 technology companies have presences in Singapore, and they account for approximately 6.5 percent of the country's GDP. (Singapore' Economic Development Board, 2018)

With 18 free trade agreements with 24 partners, Singapore shows its willingness to contribute with the world's economy. This also shows the ranking of influential cities in the world, where Singapore ranks number six (according to Business Insider Inc, 2019a, b). It is also ranked as the most competitive country (IMD, 2019) and as the freest economy in the whole world (Index of Economic Freedom, 2020). So, the city-state of Singapore is well known in the world for being free, open, and very connected. But there are several other records that Singapore holds: the small country is known for having the best quality of life among all Asian cities according

to Quality of Living Ranking (Mercer, 2019). And Singapore is the city with the world's highest costs of living (Economist Intelligence Unit, 2020). With its strict laws, the city-state achieved the eighth place for personal safety in the world (Global Finance Safety Index by Global Finance Magazine, 2019). According to the Sustainable Cities Index (SCI), it is number 4 worldwide (2018) for being sustainable. The city is known for being one of the cleanest cities in the world, is environmentally friendly, and maintains natural and heritage conservation programs. And since 2015, Singapore was voted number 1 maritime city with its big harbor and the strategic position in the middle of Asia (Menon, 2019). So, it is no big surprise that Singapore with its image is remarkably interesting for companies. There are currently several political uncertainties in the world that complicate world trade. Examples include pandemics such as Covid-19 or the China-US rivalry. In these times, it is good to have a stable trading partner you can rely on.

But there is also a dark side that damages the image of Singapore: to maintain order the PAP created extremely strict laws for nearly every daily situation. Singapore is well known as a place with drastic punishment like very high fines, corporal punishment, and death penalty. In recent years, the party has repeatedly come under criticism for the way it deals with the freedom of speech. For example, the government has the authority to limit the distribution of local and foreign media in Singapore under the "Broadcasting Act" and the "Newspaper and Printing Presses Act" (Heng, 2003, p. 173 ff). The "Anti-Fake-News-law" which was decided in 2019 gives the government the power to decide what is right and what is wrong. An online media platform must carry out the corrections the government supposes or remove the content. Otherwise, they will be punished with prison terms of up to 10 years or fines up to one million Singapore Dollars (The Guardian, 2019). Therefore, Singapore ranks 158th out of 180 countries in the renowned "World Press Freedom Index 2020," not far from China, which ranked 177th (Reporters without Borders, 2020). Of course, this influences Singapore's economy since the rest of their trading partners, especially the ones in the west, stick close to democracy. Because the law was recently passed, it is not possible yet to observe the direct effects on the economy. But one can monitor the world's reactions. The Asia internet coalition (2019) writes about the "significant implications it could have for diverse stakeholders, including industry, media and civil society, in Singapore, the region and internationally". Since the Anti-Fake-News law was published, the freedom of speech ranking of reporters without borders (2020) worsened by seven places. And also, the Human Rights Watch (2019) posted a lot of content with large range. Especially in a time when some uncertainties already exist, trust among trading partners is of crucial importance. The government of Singapore must be careful to not lose its reputation as a free and democratic country by trying to control everything.

3 Problem Solution

3.1 Policy Recommendations and Justifications

3.1.1 Lack of Creativity

One possible solution to the problem of lack of creativity identified in the analysis could be a change in the education system since the primary school. At first sight, this solution may not seem the best option, specially looking at the results of the Program for International Student Assessment (PISA, 2018). In fact, according to this evaluation conducted by OECD, Singaporean students’ performance is the second-best in the world in all the three subjects analyzed: reading, mathematics, and science. Then why there should be the need of changing this optimal education system which churns out such talents? The reason is related to the creativity. Singapore education system, in fact, is very good in preparing students for competition but it is not adequate to foster the creative thinking in the students. Strong focus on tests, high number of school hours, a lot of homework, and rigid teaching standards make Singaporean students facing high pressure and stress and this clearly affects the creativity. For this reason, a solution for the lack of creativity can be the application of a different type of education system, such as the Finnish one. Finland education system is less focus on competition, it has less school hours and less homework (OECD), and no standardized tests. The focus is on the human dimension of the student, fostering collaboration, and nurturing creativity since the primary school. This is totally on the opposite direction of the Singaporean model.

Table 8 shows the comparison between Singapore and Finland in terms of number of patents. As we discussed in the previous part of the paper, innovation is the result of many factors in the technology transfer process, therefore measuring the goodness of the Finnish education system only considering innovation output indicators can be misleading.

For this reason, data about the four inputs are also compared. Table 9 indicates that Finland performs worse than Singapore in three of the four inputs (Clusters development, Expenditure in education and Entrepreneurship), with the only exception for R&D investments, in which data about Finland are a little bit higher. Conversely, Table 8 shows that the number of patents in Finland is two times higher than in Singapore: the difference between the two performances is relevant. This seems to confirm the impact of the education system on innovation outputs.

**Table 8** Comparison between Singapore and Finland for number of patent applications based on WIPO, 2018

|           | Patent applications (per 1000 people) |
|-----------|---------------------------------------|
| Singapore | 0.28                                  |
| Finland   | 0.56                                  |

**Table 9** Comparison between Singapore and Finland in terms of expenditure on education, expenditure in R&D, state of cluster development, ease of doing business based on World Bank and World Economic Forum, 2018

|           | Expenditure on education as % of total government expenditure |
|-----------|---------------------------------------------------------------|
| Singapore | 28.8%                                                         |
| Finland   | 12.4%                                                         |
|           | R&D expenditure (% of GDP)                                    |
| Singapore | 2.2%                                                          |
| Finland   | 2.7%                                                          |
|           | State of cluster development                                  |
| Singapore | 68.6                                                          |
| Finland   | 64.9                                                          |
|           | Ease of doing business—ranking position                       |
| Singapore | 2                                                             |
| Finland   | 20                                                            |

### 3.1.2 Income Inequalities

Singapore has already introduced a possible solution for the income inequality problem only for strict categories of workers. Two alternative possible solutions have been, however, identified: an extension of the progressive wage model or the implementation of a minimum wage for the unskilled workers.

The minimum wage is one of the lowest remunerations a worker can receive legally from its employer. This model has been introduced in many countries across the world: Australia, Belgium, France, and a lot of other countries. Nowadays, there is a huge debate if this model may match with the market demand and an efficient use of resources. The supporters of this model explain that it would increase the salaries of the low-paid workers, that, usually are the unskilled or semi-skilled workers. Furthermore, since the workers are more motivated because they have a solid base for their life, their productivity could increase and so, firms are more incentivized to invest in labor productivity. On the other hand, if labor markets are competitive, a minimum wage could make the demand of labor reduce. Another point of weakness is that firms may become uncompetitive because they may not afford the competitiveness of firms which have their facilities in low-wage countries. Moreover, a minimum wage model falls short of flexibility because it is not always updated with the trend of the economy, especially in recession time (for instance in some countries after COVID-19). The Ministry of Manpower of Singapore is not a supporter of the minimum wage model. As a matter of fact, the ministerial website declares: “As a matter of national policy, MOM does not prescribe minimum wages for all workers in Singapore, whether local or foreign. Whether wages should increase or decrease is best determined by market demand and supply for labor. Employers should pay their employees (whether local or foreign), based on their skills, capabilities, and competencies. A competitive pay structure can help a company motivate their staff and retain valuable employees” (Ministry of Manpower, Singapore, 2020).

This leads to the definition of the second strategy: the extension of the Progressive Wage Model. According to what the minister of Manpower, Zaqu Mohamad, explained at the MOM committee of Supply 2020, the PWM has benefitted over 78,000 workers in the sector increasing their wages. In particular, he showed how the real median monthly gross wages of full-time cleaners, security officers, and landscape workers grew cumulatively by around 30%, 31%, and 32% respectively. In 2019, out of Singapore's total population of 5.7 million, some 1.4 million (24.5%) were foreign workers. Of those, no less than 981,000 were present under the Work Permit scheme for low- or semi-skilled workers. The PWM specifies starting wages according to skills and experience levels so workers can get higher pay as they upgrade their skills and may be applied for workers at all levels, for all sizes of companies, across all industries and sectors. The extension of this model to both foreign and Singaporean low-skilled workers can be very useful because in this way the country can avoid the stagnation of the labor market that could hurt both the workers and the company, as workers will not be motivated at work and companies are less driven to be innovative. Acquiring the skills required set enables the workers to put more effort aiming career advancements. From the firm point of view, PWM requires clarity in skill competencies for workers to do the job well and transparency on promotion criteria to meet the aspirations of the workers.

### **3.1.3 Lack of Freedom**

Singapore must take care that the city does not harm itself in the long run with its freedom restricting laws. The city's reputation has come under heavy criticism, especially because of the Anti-Fake News Act. For most companies in the western world, it is extremely important that they can rely on their trading partners. Singapore damages this reputation through laws that restrict freedom. To remain competitive in an increasingly liberal and freer world, it is important that the city-state focuses more on democratic laws. A possible recommendation to improve this reputation in the world would be to abolish the Anti Fake News Law. This would lead to an improvement in the relationship of trust between Singapore and its trading partners.

### **3.1.4 COVID-19**

To put the point of freedom into a real context once again, one can take another quick look at China. The whole world has doubted the publications of the Chinese government on the official numbers of people infected with COVID-19. Singapore should be careful that they do not lose credibility with their opinion-controlling strategy just like China. The COVID-19 had great impact on Singapore's economy. Moody's analytics argued that "within Asia, the Japanese, and Singaporean economies could struggle the most in the coronavirus 23 pandemic" (CNBC, 2020). Singapore's weakening economy had already been on the road to recession for

several months. The strict lockdown regulations only accelerated the process and caused the economy to collapse significantly. Therefore, the Ministry of Trade and Industry of Singapore published a press release on 26 May 2020 with a warning that the economy could shrink around 4–7% (Ministry of Trade and Industry Singapore, 2020). Since then, the government has been trying to cushion the greatest damage with four support packages worth over 100 billion Singapore dollars (The financial times, 2020). The reason for this sharp downturn in the economy could be due, among other things, to the points and problems we have outlined.

## **3.2 Counterarguments**

### **3.2.1 Lack of Creativity**

At a first sight, one might think that an education system such as the Finnish one does not churn out high-skilled students (as the Singaporean model does). This “more relaxed” education system, less focused on performances, could affect the students’ competences. However, the PISA results remove any doubt about the efficiency of the Finland’s model: Finnish students rank seventh in reading, sixth in science, and 14th in mathematics. This means that even such a different education system is able to forge high-skilled students, whose results are among the best in the world. Therefore, after having analyzed the data, one can suppose that a change in the education system would boost students’ creativity without impacting on their performances.

### **3.2.2 Income Inequalities**

The progressive wage model is a very powerful tool that, if applied properly, can have many positive effects. One of the risks that the government may introduce involuntarily is the increasing of the income inequality between the foreign and Singapore low-skilled workers. Helping only a small part of the total low-skilled workers can increase the difference of incomes creating a battle of have-nots. This can cause many social and economic consequences such as strikes, reduction of productivity and increase of poverty, and, indeed, worsening what they aimed to improve.

### **3.2.3 Lack of Freedom**

Although credibility is becoming increasingly important and trust in trade partnerships plays an important role, it cannot be denied that Singapore currently enjoys an extremely high reputation in the world. It is not for nothing that otherwise, Singapore would have been elected last year as the sixth most influential city of the world

(according to Business Insider Inc, 2019a, b). And that Singapore is still considered very free in the world is proven by the Index of Economic Freedom, in which Singapore ranked first in 2020 (Index of Economic Freedom, 2020).

## 4 Conclusion

The city-state of Singapore is facing some tough challenges. The impending recession, which was further aggravated by COVID-19, also confronts Singapore with some difficult decisions. Due to its location in the middle of Asia and a strong and proactive government, Singapore has become a strong player in the economy. However, in order to remain at the forefront, Singapore must address a number of issues. Among other things, the lack of creativity was addressed. Here it would be conceivable to use the Finnish school model, which encourages students to be more creative. This paper also dealt with the problem of income inequality. To address this problem, Singapore could extend the progressive wage model to other categories of low-salary workers. Finally, in order to secure global trust and remain a secure trading partner, Singapore should focus more on democratic laws. One possible step would be, for example, to take back the anti-fake news law. The success story of Singapore is particularly impressive due to its small size. But with a forward-looking and flexible way of thinking, Singapore will continue to play an important part in the world.

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**Part II**  
**Employment, Labor Force and Equality**

# Regional Differences in Unemployment: The German Case



Caitlin Helmus, Maira Huizar, David Strobel, Bastian Grossmann, and Katharine Wirsching

**Abstract** This paper examines the high unemployment rates in East Germany after almost 30 years since reunification. Since 1990, East Germany has struggled to decrease the unemployment rate due to several factors, like low investments in Research and Development (R&D), low entrepreneurial activity or factors of the human dimension. This paper analyzes the reason behind former East Germany's failures in economic performance through factors of production, structure and organization, and human dimension.

## 1 Introduction

Economic performances are not fixed. Not too long ago, the United Kingdom was the most powerful economy in Europe, however, that has changed. According to The Guardian, Germany is expanding at the fastest rate in the last 5 years showing growth of 1.9% in 2016 (Monaghan & Wearden, 2017). It is currently Europe's most powerful economy, yet the growth seems to be solely occurring in Western Germany. After the reunification of West and East Germany in 1990, the country has been working towards reconstructing Eastern Germany, which includes Brandenburg, Mecklenburg-Vorpommern, Saxony, Saxony-Anhalt, and Thuringia; yet this reconstruction has proven to take longer than once foreseen.

After the Second World War, the German Reich was divided by the victorious powers in occupation zones—United States, France, Great Britain, and Soviet Union. At the beginning, the victorious powers sought for a common policy, but quickly there was disagreement over the country's future form of government. The ideas of the socialist Soviet Union and the Western countries diverged. This ultimately led to the inner German division. In May 1949, the Federal Republic of

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Germany (FRG) and 5 months later the German Democratic Republic (GDR) were founded. The separation of the country was finally completed with the constitution of the GDR on October 7, 1949. Both German states were characterized by the conflict between capitalism and communism at that time. While the FRG introduced a capitalist society, the GDR aligned itself with a Communist Regime.

The economic performance in the two German states after the end of the war drastically diverged. The FRG experienced, especially in the 50s and 60s, the so-called “economic miracle”; almost the opposite was true for the GDR. The boom in West Germany was the result of joint purposeful development work, but above all foreign aid. On the contrary, East Germany had to make high-reparation payments to the Soviet Union. As a result of the Soviet dismantling, industrial structural damage arose which had a negative impact on the later competitiveness of the GDR.

Due to the poor economic situation and the better standard of living in West Germany, many citizens from East Germany tried to flee in the years of the separation. On August 13, 1961, the Communist government of the GDR began to build a barbed wire wall between East and West Berlin. The official purpose of this Berlin Wall was to keep Western “fascists” from entering East Germany and undermining the socialist state. However, it served more to prevent mass emigration to West Germany. The wall that divided the two German states was often referred to as the Iron Curtain and symbolized the separation of the two competing world powers and economic systems during this time. During the 28 years that the Wall stood, up to 200 people were reported to have died trying to escape the GDR.

Even if the GDR was not bankrupt in 1989, for years it had lived beyond its own means. The economic collapse was foreseeable. Under the pressure of the peaceful civic movement in Eastern Germany, the ruling party SED had to retreat ever further. The wall, the symbol of the division of Germany, fell on November 9, 1989. With this event the Iron Curtain was broken, and the Cold War came to an end. One year later, on October 3, 1990, Germany was officially reunited after 41 years of separation.

Despite almost 30 years of reunification, it is still possible to find deep economic differences between the territories of the former GDR and the former FRG. This paper will focus on explaining the issues East Germany is facing and how it is affecting its unemployment rate. By analyzing the issue at hand, policy considerations will be made to boost economic performance and lower unemployment rates in the East German states.

## 2 Problem Analysis

Like already stated, there are still deep economic differences between West and East Germany. Differences can be found in many key indicators like wealth, productivity, or unemployment. In terms of wealth, the people in East Germany earn noticeably less than people in the West earn (Connolly, 2015). Despite wages are rising, the

difference remains. As of 2016, people in the West earned on average 3230 € a month, whereas people in Eastern Germany earned only 2640 € (Statista, 2017). In addition, the East German states lack also in terms of productivity. Of the 30 largest companies on the German stock market, none is based in East Germany (Connolly, 2015). Focusing on the main topic of this paper, the unemployment rate, there is also a remarkable difference. The unemployment rate in East Germany is with 7.4% currently 2.3% higher than in West Germany (Nier & Brandt, 2018). To analyze the reasons for this difference, the authors will first start by introducing a general framework to analyze the economic performance of a place.

## ***2.1 Introducing the Framework***

In order to fully analyze unemployment in East Germany, the issue at hand will be analyzed through the framework presented by Audretsch (2015). The book focuses on combining actual experiences from individuals in the field and the ideas of policy makers. In order to influence and enhance economic performance in businesses, governments, non-profit organizations, etc., the author has explained the “underlying economic and social factors and the broad spectrum of policies and instruments” (Audretsch, 2015) to strategize the management of such constituents. The framework is made up of four main elements that include: resources or factors of production, spatial structure and organization, the human dimension, and public policy. The factors of production and resources include all the inputs that are used in the production of goods or services. By analyzing unemployment in East Germany through Audretsch’s framework, the authors of this paper will introduce policy considerations that might aid in the reconstruction of East Germany.

## ***2.2 Factors of Production***

### **2.2.1 Impact and Differences of R&D Activity**

To analyze the significant difference in unemployment in detail, it is necessary to have a look at the factors of production in East Germany. The Factors of Production can be compared to the inputs necessary for an increased economic performance. Like Audretsch (2015) indicates in his book, there are nine crucial production factors that can help boost economic performance in a region, state, or city. These range from physical resources to intangible factors. By looking at crucial production factors in developed economies in the last decades, the importance of more traditional factors like physical capital or access to physical resources has diminished. The four most valuable companies in the world—Apple, Google, Microsoft and Amazon—do not stand out because of huge production sites and mammoth factories. Their success can be explained through knowledge, innovation, and

technological progress; therefore, the analysis of the factors of production focuses on the R&D differences between the former regions of West and East Germany.

Investment in R&D leads to new innovations and new knowledge. Innovations increase the competitiveness of companies. This in turn helps to secure or improve their market position in a more and more increasingly high-technology world with shorter product life cycles and increased cost pressure (Gehrke et al., 2011). R&D is therefore considered to be a key determinant for international competitiveness and productivity in developed economies (Belitz et al., 2015). Increased competitiveness leads to successful companies, which in turn lead to a lower unemployment rate in the particular region.

Stuttgart and Munich are two great examples for the above-stated thesis. These two metropolitan areas clearly differentiate in terms of industrial research and development from the rest of Germany. The share of R&D employees averaged 5.3% in Germany in 2007. However, in Munich it was 13.8% and in Stuttgart it was 10.1%. Both metropolitan areas have an outstanding economic performance and the respective unemployment rates are always among the lowest in the country (Audretsch, 2015).

The new growth theory developed by Paul Romer strongly supports the primacy of knowledge and innovation. Over time the importance of traditional factors of production like capital, cheap labor, and physical resources has diminished. The theory implies that knowledge can basically spill over from a firm or organization free of charge. In order to soak up the knowledge, the receiving party only needs to be present. This points out that if a company heavily invests in knowledge, other companies in the region can benefit through the effect of knowledge spill-over and therefore the whole economic region can benefit (Romer, 1994). However, not all innovations come from the corporate sector, universities play a significant role in generating new knowledge and new ideas. A famous example is Facebook. Mark Zuckerberg and his co-founders met and developed the idea for Facebook while they were students at the University of Stanford. Facebook with a yearly 40 billion turnover and 2 billion regular users has a huge impact on the region where they are located. The possibility that companies that have emerged from ideas derived in universities settle in this particular region is high. Investment in academic research and education will lead to an increased economic performance of the region (Audretsch, 2015).

When examining the R&D spending in Germany, it is clearly recognizable that a significant difference between the former East German regions and the former West German territories exists. The overall expenses for R&D in Germany are 92.2 billion euros. Of these, only 7.2 billion Euros account to the former Eastern states. This significant difference between the two regions can be considered as a factor for the increased unemployment rate in East Germany.

### 2.2.2 Reasons for the Differences

There are many reasons for this observed phenomenon. The majority of R&D employees in the corporate sector work in large companies. Companies with 500 or more employees accounted for just over three quarters of all R&D employees in 2011 (75.3%). At the same time, these companies accounted for 83.8% of corporate R&D spending (Bundeszentrale für politische Bildung, 2014). As stated in the problem analysis, none of the 30 largest companies listed on the German stock market are based in the East; therefore, a shortcoming can be seen in the corporate structure in the East. This corporate structure consists mainly of small- and medium-sized enterprises. With only 12 employees on average, the small size of these businesses hinders ambition to increase industrial research activity. This firm structure arose from the fact that most companies were founded after 1990 and therefore have to be regarded as relatively young companies. Additionally, most West German companies who have relocated their production to the East due to lower wages, left the more productive parts of the value-added chain, like, for example, R&D and marketing, located at headquarters in West Germany (Ragnitz, 2005).

Another issue is that the company-oriented research and development funding given by the government steadily declined over the past 20 years. On the other hand, other countries are increasing state funding for R&D in the economy. A lack of R&D could lead to fewer innovative companies in Germany which in the long run could lead to a poorer economic performance (Bundesverband der Deutschen Industrie e. V., 2009).

## 2.3 *Spatial Structure and Organization*

### 2.3.1 Differences in Entrepreneurship

When analyzing the economic performance of a place from the standpoint of “Spatial Structure and Organization,” it gets clear that entrepreneurship can be considered as an increasingly important source for economic growth and employment creation (Thurik et al., 2008) and can be seen as a key driver of development (Fritsch & Wyrwich, 2016). Entrepreneurship does not only benefit the individuals starting the new venture or its employees, in fact it also benefits the place where entrepreneurship occurs (Audretsch, 2015). In addition, entrepreneurship plays an important role when it comes to innovation and creation of jobs for new tasks by devoting time, knowledge effort and money (Audretsch & Lehmann, 2017). Entrepreneurial start-ups can serve as a transmitter for knowledge-spillovers, by taking the knowledge created in one company to promote knowledge in a different organizational context. This entrepreneurial behavior can lead to growth, create jobs, and increases the competitiveness of the entire place (Audretsch, 2015). Entrepreneurs self-select into places where they think they benefit the most when they create their venture. Or they simply create a place which makes other market participants to

follow them (Audretsch & Lehmann, 2017). So, it can be said that “entrepreneurship transforms regions towards places” (Audretsch & Lehmann, 2017).

Seeing entrepreneurship as a primary source for economic growth, it can be considered as a reason why the East German states perform worse than their West German counterparts. When looking at the entrepreneurial activity in East Germany, it is identifiable that there is lower entrepreneurial intensity than in the West. Indeed, five of the six main founder areas are placed in Western Germany. Overall, only 11% of German start-ups come from the East German states (Berlin excluded) (KPMG, 2017).

Literature suggests that there is a dynamic relationship between entrepreneurship and unemployment rates. Two different relationships are described. One view suggests that high-unemployment rates may lead to increased entrepreneurial activity. This so-called “refugee effect” implies a positive relationship, meaning that a higher rate of unemployment leads to an increased foundation of start-ups. The other view, which is more relevant to explain why a low level of entrepreneurship implies higher unemployment rates, points out that higher rates of entrepreneurial activity led to a reduction in unemployment. Therefore, this “entrepreneurial” effect implies a negative relation between entrepreneurship and unemployment (Thurik et al., 2008). The “entrepreneurial” effect can be used to explain the higher unemployment rates in East Germany. Like already shown above, entrepreneurial activity is lower in the East German states, implying that less jobs can be created through entrepreneurship than in West Germany. But what are the reasons for this low rates of entrepreneurship? One reason might be the lower managerial know-how of East Germans compared to West Germans, due to a missing tradition of entrepreneurship. People in the former GDR lived under a communist regime which led to the fact that in 1990, a generation of individuals did not possess parental background in entrepreneurship. Parental background has a positive effect on individuals to become an entrepreneur (Kuehn, 2014).

Another possible explanation, which is related to the missing managerial knowledge, is the low investment in R&D. Like already stated, R&D is a source of knowledge (Audretsch, 2015). Therefore, the low R&D investments in the former East German states lead to less knowledge and know-how and consequently to lower entrepreneurial activities. This statement can be based on the assertions of Audretsch and Lehmann (2017). In their paper, they explain the knowledge spillover theory of entrepreneurship and claim that one source of “entrepreneurial opportunity involves knowledge spillovers.”

### 2.3.2 Germanys’ Hidden Champions

One secret of Germany’s high-economic performance can be found in the small- and medium-sized enterprises (SMEs), the German “Mittelstand.” These firms produce high-quality products, often in the B2B market and for specific applications, which makes them kind of unique (Audretsch & Lehmann, 2016; Lehmann et al., 2019). Hidden champions can be characterized as a subgroup of SMEs and are defined with



the following criteria: they are ranked among the top three leaders in their product market or have the highest market share on the continent of their home country; they do not exceed revenues of \$4 billion and there is a low-brand awareness of the company and its products. They specialize in highly knowledge intensive products that are closely linked to R&D (Audretsch et al., 2018). When looking at the numbers, the hidden champions invest 6% of their total revenue in R&D, twice as much as other German industrial companies (Simon, 2014). Another important factor of the hidden champions is the low-employee turnover rate of around 2.7%, compared to the average of 7.3% for German companies. This indicates that the hidden champions are good in retaining their highly skilled employees (Audretsch et al., 2018).

There are approximately 1300 hidden champions all over Germany (Federal Ministry for Economic Affairs and Energy, 2016). Most of the hidden champions are located in West Germany, quite similar to the region where many German start-ups are founded. Hidden champions are centered where the main founder areas are placed. This can be seen as a factor which contributes to the higher unemployment rates in the East German states. Since only a few hidden champions are based in the Eastern states, they are not able to create that many employment opportunities. A reason why East German companies often not emerge as hidden champions can be seen in their low investments in R&D, as mentioned above.

## ***2.4 The Human Dimension***

### **2.4.1 Perceptions and Attractability**

Effective leadership is important in changing perceptions of a place, both for the people at the place and for the perceptions of others everywhere else (Audretsch, 2015). Perceptions can make or break the attractability to a future employee or company, as it has done for former East Germany shown by their high-unemployment rates. The ability to change these perceptions and establish an attractive environment can be analyzed through the human dimension.

The human dimension can be described as “the propensity for people to interact, network, and link with others, as well as the stereotypes, and capacity for leadership” (Audretsch, 2015). This is one of the most important factors of successful economic performances, but at the same time the most ignored and forgotten factor. Additional things that affect the human dimension are emotional attachment to a place, leadership, and social capital. In East Germany, the problem within the human dimension stems from the lack of emotional attachment for many young people. East Germany consistently loses young people to the West or to other countries, which have better universities or better employment and entrepreneurial opportunities. When young people are being recruited for jobs, East Germany is almost always out of the running before the race even starts. There are few things in East Germany that encourage

young people to study there or return to work after university, which causes a substantial brain drain.

#### **2.4.2 Social Capital**

Social capital is defined as “norms and networks that enable collective action; institutions, relationships, and customs that shape the quality and quantity of a society’s social interactions” (Audretsch, 2015). For many young German students, East Germany’s social capital is not comparable with that of the West and thus the East continues to suffer and is unable to retain and attract talent. Social capital can also be viewed as civic virtue and trustworthiness, such as voter turnout or participation in the democratic process. In the 2013 election, the former east had a voter turnout of 64.3%, whereas the West voted at 70.8%, which was the lowest turnout in democratic history (Heine, 2013). This can be attributed to the lack of emotional attachment and sense of importance many East Germans feel. Even 30 years after reunification, many politicians don’t campaign as hard in the East since they only make up 20% of the German electorate (Heine, 2013). This dramatically influences the feelings of citizens in former East Germany and potentially discourages them from being active citizens and working to promote the progress of the former East.

While most of East Germany is regarded as pretty bleak and success less, Berlin is on the rise as one of the most innovative cities in the world. Although the city was almost completely destroyed during World War II, the city went to great lengths to become a city that fostered the Internet industry and other creative industries by investing in infrastructure and culture (Audretsch, 2015). These investments helped rejuvenate the city and recreate the image that many people in Germany and across the world had. A 2012 study of Germans 30 years or younger found that two-third would prefer to live and work in Berlin over other cities, especially attractive for entrepreneurs (Heine, 2013). By investing in a new culture and industry, Berlin was able to reinvent themselves into a city that is attractive and is now tearing down the stereotypes and images that people have held for so long.

#### **2.4.3 Networks and People**

Perhaps one of the biggest differences between former East and West Germany are the number of immigrants. In the East, migrants make up 4–9% of the population, while in many parts of the West the figure is about 25% (Connolly, 2015). This is especially interesting when you compare the unemployment rates; around 10% in the former East and around 3% in the former West. So, although the West has a considerably lower unemployment rate, they still inhabit a much larger number of immigrants. This could be a source to the West’s economic success. According to Saxenian, success or failure in a region is due to the differences in people—not their level of human capital or talent but their ability and want to engage and interact with others (Audretsch, 2015). Saxenian studied the Silicon Valley and Boston’s Route

184 because they had relatively similar levels of investment in terms of human capital, R&D, and university research. However, their main difference, and the principal reason that the Silicon succeeded, is due to the immense linkages and networks of people (Audretsch, 2015). Additionally, the Silicon Valley is a cluster of entrepreneurial prosperity that draws talent and knowledge from all levels. Many companies have lawyers, venture capitalists, bankers, etc., on their board of directors. Having a pool of knowledgeable people who talk and share views and knowledge in turn creates innovative ideas. The diversity of people and perspectives is a huge advantage to the Silicon Valley and a huge disadvantage to former East Germany.

After analyzing the many different aspects of the human dimension, it is obvious that East Germany is struggling to compete in many dimensions compared to the West. Besides Berlin, most of the East struggles with emotional attachment and thus loses many young, talented people to other parts of the country and the world. Also, the mindset of East Germans is considerably different than their Western counterparts. The West embraces immigration and integrates many migrants into the workforce, whereas the East is less inviting to immigrants and is less willing to encourage migrants into the workforce.

There are many factors that contribute to the high-unemployment rates in former East Germany, however, there are no simple solutions.

### **3 Problem Solution**

#### ***3.1 Fostering R&D: Setting up Tax Incentives***

As mentioned above, low levels of R&D can lead to a decreased economic performance of a region, state, or city, and consequently to a higher unemployment rate. This implies that the German government should foster R&D in the Eastern territories to close the economic gap.

In addition, there is the economic rational to foster R&D from a government perspective. It implies that the private market would not supply the economically efficient amount of research. This argument applies strongly to fundamental or basic research due to its characteristics. The full economic value of basic research is unlikely to be assessed correctly by the companies or research institutes if the newly created knowledge can be replicated or disseminated at low cost. If research done by others can therefore be easily exploited by the public, the social return of the investment is clearly higher than the private one. However, the people who receive the private return are those who bear the cost and risk of innovation. This will ultimately lead to a significant underinvestment in R&D, providing a clear rationale for government intervention (Bernanke, 2011). A second justification for the state support of R&D is the existence of asymmetric information. Financing R&D projects always go along with a high risk and creditors do not have the sufficient information to decide whether they should finance a project or not. This leads to

the common problem of adverse selection which implies that only low-risk R&D projects will be provided with the necessary financial needs. Other projects with a maybe higher return rate could be overlooked and finally not be financed (Peiffer & Spengel, 2015).

In Germany, a differentiated portfolio of R&D expenditures by the government already exists. From a literature point of view, several potential tools exist, ranging from direct funding of private-sector research, grants to universities, the funding of government research, and tax incentives. For example, The Central Innovation Program for small and medium enterprises (ZIM) forms the basic funding program of the Federal Ministry for Economic Affairs and Energy (BMWi). In this program, the focus lies on the market-oriented promotion of technology in the innovative medium-sized business sector in Germany (Federal Ministry for Economic Affairs and Energy, 2018).

In order to find the correct funding or support strategy for a project, the characteristic of the particular research project matters. According to the common literature, direct government funding is especially useful if the project is focused on large-scale, involves the need for coordination, and carries high risk. The national space program research funding is a well-used example for such a large-scale project (Bernanke, 2011).

As above mentioned, direct funds can be grants, subsidies, and allowances. However, it is undisputed that these funds have a direct impact on the targeted projects, its application process is often complex, protracted, and bureaucratic (Peiffer & Spengel, 2015). The second major government support comes indirectly, through the tax system. Looking at the broad portfolio that already exists in Germany, all the funds focus on direct government support. Germany is one of the countries that has not yet implemented indirect tax incentives to foster R&D. Almost all innovative countries have already issued concrete tax incentives. Tax incentives are divided mostly in two different projects. First there are input-oriented incentives, which apply mainly to the first phase of the research process. The main aim of such incentives is to reduce the financial burden of a company. In the first phase, normally only expenses occur, and no income is generated. The second incentives are output oriented and try to target the second phase of the research process. They aim to provide a favorable tax treatment for the income generated from intangible assets (Peiffer & Spengel, 2015).

The firm landscape of the East with mainly small- and medium-sized businesses is not well suited for direct R&D funding. The application process can often be long and devours many resources. Resources that small- and medium-sized companies in the East do not have, and as a result they are overlooked by the existing direct funding. This problem clearly highlights the need for a more differentiated and more variable government approach. Tax incentives can be seen as a solution for the presented problem. A variety of empirical papers have found evidence for the effectiveness of such incentives and policy makers can rely on numerous studies to find the correct one.

Therefore, it can be proclaimed that input- or output-oriented tax incentives can help foster growth of R&D spending in the territories of East Germany which in the

long run will help to boost the economic performance of the region and lower the respective unemployment rate.

### ***3.2 Boosting Innovative and High-Growth Entrepreneurship***

Like already mentioned above, there are two effects which describe the relation between entrepreneurship and unemployment. A study of Thurik et al. (2008) find that the so-called entrepreneurial effect is stronger than the refugee effect. Germany already implemented policies to give unemployed individuals incentives to start their own business and exit their unemployment by self-employment (Thurik et al., 2008). Such policies to promote entrepreneurial activity include assistance programs for start-ups of the Kreditanstalt für Wiederaufbau (KfW), which provides financial assistance programs. Another example is the so-called Exist program (Audretsch et al., 2007). The main goal of this program is to improve the entrepreneurial climate at universities and non-university research institutions. The aim is to increase the number and success of technology-oriented business formations (Federal Ministry of Education and Research, 2018a). In addition, there is already an existing policy that focuses solely on the East German states. This so-called “Entrepreneurial Regions” initiative is a program that “supports regional alliances in developing a sustainable technology profile whilst consistently using and developing the strengths in their region” (Federal Ministry of Education and Research, 2018b). The goal is to “provide real perspective for young skilled workers and talented scientists, accelerate innovative start-ups, and develop competitive regions with their own economic and scientific profile. In an ideal scenario, the individual program will lay the foundation for long-term successful regional clusters” (Federal Ministry of Education and Research, 2018b). The program may be useful to increase the entrepreneurial activity and can be seen as basis for a good entrepreneurial climate in the East German states, but since the entrepreneurial effect is stronger than the refugee effect, public policy should rather focus on innovative high-growth entrepreneurship to create jobs than on policies that help the unemployed entering self-employment (Thurik et al., 2008).

So, a policy must be created that helps already existing ventures to grow in size, maybe even to become a hidden champion, and therefore create more job opportunities in the East German states. The policy can be included as part of the entrepreneurial regions initiative and focus on high-growth entrepreneurship. There is evidence in the literature that high-growth entrepreneurship policies can be successful and help entrepreneurial ventures to grow faster (Autio & Rannikko, 2016).

One factor to help ventures to grow more and faster is boosting the organizational capacity for growth through public sponsorship. A selection logic has to be implemented with relatively loose selection criteria in the initial selection process. Support will then grow more substantial as the company meets growth milestones. “The initial selection should emphasize strong growth motivation and require some check of ability, but the capacity for growth could be demonstrated by meeting

milestones” (Autio & Rannikko, 2016). In addition, public–private partnerships should be implemented to provide support to build organizational capacity for growth. So the hypothesis of Autio and Rannikko (2016) is: “Policy initiatives that are selective, impose milestones and focus on capacity boosting are able to accelerate new firm growth.” One example for a successful initiative is the so-called NIY (also called Young Innovative Company, YIC) program of the Finnish National Technology Agency Tekes. This funding program is designed to foster growth of the most ambitious and rapidly growing ventures and start-ups in Finland (Business Finland, 2018). Autio and Rannikko (2016) find a positive effect of the NIY program on the sales growth of the participating firms. They find that the program almost doubled the growth rates of the participating companies.

Based on these findings, a similar initiative should be implemented to boost growth for new ventures in East Germany. By using a milestone approach, it can be ensured that the companies that are selected for taking part in the program have incentives to reach their growth goals. Similar to the NIY program, the funding should take place in three stages. In the first stage, selected companies will receive a grant of 250,000 €. When the companies reach predefined milestones, they are eligible to move on to stage two where they get granted another 250,000 €. After reaching another milestone, the companies are allowed to move on to stage three and receive a loan of 750,000 €, which they have to pay back after a certain time period. The money could be provided by the funding that goes to the “Entrepreneurial Regions” initiative. The funding for this initiative has been carried out since 1999 and has acquired a total budget of approximately 1.8 billion euros (Federal Ministry of Education and Research, 2018c). The goals and milestones should be, similar to the Finnish model, related to the development of turnover and revenues, the ability to expand into new markets (Business Finland, 2018) or the amount of R&D expenditures. The latter should lead to an incentive for the companies to spent part of the funding into R&D, which may also lead to overcome the problems of low R&D expenditures.

In comparison to the NIY program, not only young companies should get the chance to apply for the program, but also companies that are between 5–10 years old and struggle with growing. In addition, applying for the program should only be possible if companies spent at least 10% of their total business cost into R&D (Business Finland, 2018). This should provide an incentive for companies to spent money for R&D before applying to the program and therefore helps to overcome the above-mentioned problems with low investments in R&D in East Germany.

This program as part of the “Entrepreneurial Regions” initiative and together with the “WIR!” program (program to support economically underdeveloped regions in Germany by promoting specific innovations in the regions; Federal Ministry of Education and Research, 2018d) could be an effective solution to help new ventures and already existing, small companies to grow and therefore creating more jobs to tackle the problem of unemployment in East Germany.

### ***3.3 Reduce the Brain Drain: Attract the East German Youth***

To fix the high unemployment and low-entrepreneurial activity in East Germany, an active democratic public, especially involving the youth population, must be created. As discussed above, there is a substantial problem with young people leaving East Germany to obtain a university degree or for starting their working life. A main reason for this flight is due to the lack of attachment and minimal attractions in East Germany. For example, East Germany only makes up 20% of the German electorate. Therefore, many politicians do not campaign in the East which leaves those citizens disconnected (Heine, 2013). To reach the young generation there, politicians must campaign and work for the votes of citizens in the East. East German states should begin to work with politicians who are in office as well as those who are running for office and try to arrange speeches, meetings, Q&A sessions, and more, to help encourage voting as well as educating rising youth on the importance of participating in a democracy. This sense of belonging and inclusiveness will help retain young people and promote national cohesion and integration.

Once there is a large percentage of East German citizens who feel attached and involved, the ability to rejuvenate their cities throughout the East will become much easier and more necessary. As can be seen in the example of Berlin, by investing in museums, transportation, infrastructure, and culture, a city is able to become an economic hotspot just decades after being completely destroyed in World War II. East German states need to push for the creation of areas that promote culture, art, diversity, etc., and thus the East will become more attractive to its current citizens as well as skilled, talented people across the world. East Germany must change the perception and stigma that is currently held. This can be done through investing in resources and industries in ways that do not appear to be obvious or mainstream solutions.

Another potential solution to the flight of youth in East Germany is the implementation of a scholarship program for students who are looking to attend University. A program in Indiana called the Next Generation Hoosier Educators Scholarship offers up to \$7500 per year to encourage Indiana's brightest to attend an in-state school and then commit to teaching in Indiana after graduation for 5 years (Indiana Commission for Higher Education, 2018). East Germany could restructure this type of program to fill the holes in their workforce in a way that will most benefit the economy. This could involve a scholarship to attend an East German University or a grant for living expenses and spending money to work in an East German company after university. A program like this could be extremely effective. Since East Germany already receives tax money to help with reunification, these funds could be allocated to a program similar to the Next Generation Hoosier Educators Scholarship. A fund that specifically targets and benefits the youth in the East is one of the best ways to encourage an active democratic citizenry. It would increase the sense of pride and attachment many young people feel for the East, and thus limit the current brain drain.

When analyzing East Germany's inability to compete with the West through the human dimension aspect, the biggest solution to curb high unemployment and low-entrepreneurial activity is through investments in educating the youth. Such investments will undoubtedly shape the future of the East and will determine their ability to become a successful and attractive region, not only in Germany but in the world.

## 4 Conclusion

Since the reunification, nearly 30 years have passed and East Germany is still suffering from mistakes made in the past. The purpose of the paper is not to say Germany has not worked hard to boost the economic performance in the East. The government has imposed higher taxes on habitants in the West to alleviate the East and helped with the reconstruction of the former GDR along with other strategic interventions; yet it seems not to be enough. The challenge is still tough and cannot be overcome overnight. The authors of this paper shed some light on the issues East Germany faces today and how they negatively impact the employment rate. The paper shows that the different factors do not only influence the general problem, but also affect each other like the low investments in R&D and the following low-entrepreneurial activity as well as low numbers of hidden champions.

By analyzing the expenses on research and development, it has been concluded that former East Germany is simply not investing enough money in research and development. By bringing in government aid, a mix of input- and output-oriented tax incentives would foster the research and development that could start creating more jobs. This paper also took a deep look at the spatial structure and organization of East Germany. As explained in the problem analysis, East Germany was characterized by its low-entrepreneurial intensity and low number of start-ups, which was believed to be a prime reason for the high-unemployment rates. High-growth entrepreneurship policies as part of the "Entrepreneurial Regions" program could benefit Germany if a milestone approach was put in place. Lastly, the human dimension was analyzed. It is essential to keep the youth of East Germany in East Germany. Perceptions need to be shifted and attachment for that part of the country needs to grow. Citizens should be proud to say they were born in the East. The paper proposes to add scholarship programs that incentivize students to stay and start their careers in the east. At the same time, the attractability in East Germany should also increase. The paper focuses on proposing different ways in which the region could attract individuals and make them want to stay.

In conclusion, this paper has proposed new ideas guided through the analyzation of the framework. A combination of the three proposed solutions could be a start to tackling the issue at hand. By implementing them correctly and efficiently, the economic performance of former East Germany and the country as a whole could improve significantly.



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# Analyzing Youth Unemployment and Brain Drain in Southern Italy



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**Abstract** This paper examines the issue of the European Brain Drain in Italy while highlighting youth unemployment rates. Looking into these prominent issues that have been plaguing Italy especially in the South for years, this paper uses the framework provided by “Everything in its Place” by Audretsch (2015). Young students have been migrating to northern Italy or even out of the country to receive a university level education and to find a job. When they are faced with the current labor market situation, they move out of Italy. This has been occurring at a rapid rate for many years now. The main factors that are causing this problem are stagnant foreign direct investment inflows, corruption in the southern Italian government, short term labor contracts, and skill mismatch. The government has made failed attempts at solving this issue and this is partly because it is a very immense and complex problem. The paper has developed several ideas that could lead Italy toward the direction of progress. These policy change proposals include first enhancing Italy’s startup culture by investing in entrepreneurial areas, ultimately increasing foreign direct investment inflows. Increasing law enforcement to end corruption is the next step to solving the issue at hand. Finally, enhancing education and matching skills to occupations should send Italy on the fast track to slowing their youth unemployment and Brain Drain epidemic.

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## 1 Introduction

“I don’t want to leave the Salento [southern Puglia] or Italy. But I think I will follow some of my friends and go to London” (Day, 2015). Italy’s north-south disparity is one of Italy’s best-known problems; the Italian Brain Drain. This term refers to the migration of young Italians to northern Italy to receive higher education, then the eventual immigration out of the country all together to seek employment. Of course, awareness of the problem does not seem to make it easier to solve. Even the former Prime Minister Silvio Berlusconi does not have any solution for the increasing poverty and unemployment rate in the South, suggesting dealing with poverty by marrying a millionaire like his son (Kington, 2008).

The phenomenon of economic division between the North and the South of Italy is a long-lasting issue, leading to an ongoing economic recession in the southern region of Italy (CityMetric, 2014). Italy’s southern region suffers from the social and economic problem of underdevelopment and lower levels of industrialization of the southern part of the Country (Coppola et al., 2002). The less young graduates feel to have a future in their home country, the more are going to work abroad, serving as a qualified workforce in countries that did not pay for their education. Following this, Italy faces an enormous non-return on investment, suffering from economic recession and increasing unemployment rates. The youth unemployment rate of 34.8% of youth labor force in Italy is one of the highest among OECD countries (OECD, 2017a–i), but the highest percentages remain in southern parts of Italy. This term paper aims to investigate the issue and implement a problem-solving solution for public policy makers.

At this stage, it is important to define a few of the key terms in order to properly frame the work of this paper. The southern macro region of Italy can also be called the Mezzogiorno Region including Abruzzo, Molise, Campania, Puglia, Basilicata, Calabria, Sicilia and Sardinia (Encyclopædia Britannica, 2011). The region starts below Rome and also includes many of the Italian Mediterranean islands. The youth unemployment rate is the number of unemployed 15–24-year-olds expressed as a percentage of the youth labor force. Unemployed people are those who report that: they are without work, they are available for work, and that they have taken active steps to find work in the last 4 weeks (OECD, 2017a–i). Unemployment can be divided into long- and short-term unemployment. “Long-term unemployment refers to people who have been unemployed for 12 months or more” (OECD, 2017a–i). Only the effects and determinants of long-term unemployment will be in the focus of this paper. The highest unemployment rates occur within the age of 20–24 for men and women. The term Brain Drain defines “the situation in which large numbers of educated and very skilled people leave their own country to live and work in another one where pays and conditions are better” (Cambridge Advanced Learner’s Dictionary & Thesaurus, n.d.). There are different reasons for leaving the home country including: bad working conditions, low payments as well as lack of career options and training. The opposite side of this loss is referred as the Brain Gain, which means

that the immigration country gains the highly skilled labor forces, know-how and potential (Sippel, 2009).

Therefore, public policy makers should aim to alleviate (youth) unemployment in order to revitalize the economic performance of a place, striving against the phenomenon of increased Brain Drain in Italy. A strong economic performance in Italy would lead to stronger economic growth, higher return on investment, and employment rates, which consequently nourishes the state with higher tax incomes. These incomes may be used to improve the infrastructure, the general living conditions, and public goods. Both output growth and employment levels, along with many other factors, help to measure the macroeconomic performance of a place. Besides, employment increases consumer's purchasing power which consequently boosts production and consumption. Another political argument for lowering unemployment rates consists of lower social costs for the state. Less income support or assistance of reintegration into the labor market ameliorates the national budget of Italy (OECD, 2009).

This research paper is split into two main sections; the problem analysis and the problem solution. In the analysis of the problem, the paper aims to identify its origin and the defining factors. In order to make the issue clear to the audience, the problem analysis is divided up into sections based on the model found in the book "Everything in its Place" by David Audretsch (2015). This model is showing the intersection between policy, economy, and the private sector. Within these main intersecting topics, factors of production, spatial and organizational dimension, and human dimension are discussed as sub-points. These sections are broken down even further into their own sub-points. After analyzing the problem through the lenses of relevant factors from the model, a solution is discussed.

## 2 Problem Analysis

### 2.1 *State of the Italian Economy*

More and more qualified professionals are losing hope in Italy's ability to revive its stagnant economy which is the main driver of increasing migration and a high number of youth unemployment rates within southern regions of Italy. According to OECD statistics, youth unemployment in Italy is one of the highest among the OECD countries, reaching 34.8% in 2017 and being part the top three after Spain and Greece. "Some youngsters join the Brain Drain even before finishing their studies, and at the same time [...] Italy is losing abroad top-quality students and researchers but is not attracting in incoming a similar number of high-quality people (Busini, 2017).

This social and economic problem led to further consequences for Italy like the Brain Drain phenomenon. According to an article of "La Stampa" from 2018, the number of Italians migrating in European cities doubled from 64,000 in 2011 to 136,000 in 2015. This mass emigration concerns mainly young people between the

ages of 19 and 32, especially from the southern region Mezzogiorno, who are leaving their home country to immigrate into the most popular destinations like Germany and the UK (Sabbadini, 2018). The population in Italy is equal to about 60 million people with a growth rate of 1.0% in 2016 (OECD, 2016a, b). Italy's GDP attained \$35,500 per capita (PPP) (World Economic Forum, 2016). The youth unemployment rate in Italy has been increasing significantly since the beginning of the financial crisis in 2007 and reached its peak of 42.7% in 2014. Italy's national debt is currently at about 2.4 trillion euros which means that the debt accounts for 138.24% of Italy's GDP and thus 38,777 € per citizen (National debt [clocks.org](https://clocks.org), 2018). Having a look at taxes on wages, Italy has the third highest tax wedge in the EU, scoring 47.7% of labor force income in 2017, while the OECD average for this indicator is at 35.92% (OECD, 2018a, b). Santander Bank states in its Trade Portal about Foreign Investment in Italy that foreign direct investment in Italy has stabilized and maintained a steady pace. The report lists weaknesses of Italy's economic situation like a high-corruption index, organized crime, and a weak infrastructure in the southern region (Santander Bank Trade Portal, 2018).

## 2.2 Problem Origins

As mentioned earlier, Italy is facing a lot of issues concerning its economic situation compared to other OECD countries. Historically, Italy has experienced two significant migration waves, between 1870 and 1920 and between the second post-war period and 1973. These mass emigrations involved millions of people, especially coming from the South (Sabbadini, 2018), which is today known as the phenomenon of Brain Drain. Statistics show that youth unemployment has been an issue in Italy for a long time, already starting in the 90s, when the rate has been about 7% higher than the average in Euro Area. Since the financial crisis in 2007/08, the rate has been increasing drastically, extending the gap between the Euro Area average and Italy's rate to a maximum of about 20% (Business Insider UK, 2015). The economic division between North and South Italy can be traced back to cultural differences between those areas. Drawing a horizontal line below the city of Rome, two completely different regions can be perceived. While Italy's North is characterized by a well-developed industry and infrastructure, the South is facing an outdated infrastructure and an inefficient industry (World Bank, 2013). Referring to a lecture of Cagninelli (24 May 2018), it is important to take into consideration that, historically, there is another reason for differences between North and South. The southern region of Mezzogiorno is deeply rooted in a mentality of lower productivity and lower innovative activities compared to the North. This cultural behavior leads to the problem of small economic output and therefore more (youth) unemployment than in Italy's northern regions. As a consequence, lowering the youth unemployment rate in this region is coherent with changing intuitive habits and the mentality.

To continue with the differences, it is important to consider the level of mafia presence and corruption in South Italy, where organized crime is responsible for

20% of the region's economic output decline (Doward, 2015). According to Pinotti, an economics professor at Bocconi University in Milan, "the five Italian regions with the highest presence of criminal organizations—Sicily, Campania, Calabria, Puglia, and Basilicata—are also the poorest of the country" (Doward, 2015). One of the main reasons why the infrastructure in South Italy is not fully developed is that the money intended to be invested in the southern regions is taken away by mafia and corrupt politicians. More detailed research findings about cultural differences between the South and the North, as well as corruption and mafia presence, will be discussed later in this paper.

## ***2.3 Factors of Production***

### **2.3.1 Universities**

Italian universities are not scarce in southern Italy, but the most popular and renowned academic formation is made in northern universities like "Università di Bologna" or "La Sapienza" in Rome. According to Statista (2018a–e), the outflow of university students to EU-27 countries increased from 30,500 in 2005 to about 54,500 in 2012. Following the data presented above, the conclusion is that the universities system plays a major role in the high rate of youth unemployment in Italy. Statistics show that 75% of Italian students earn a high-school diploma, of which 70% enroll in universities afterwards (Pastore, 2012). Even though the number of university enrollments is high, a positive impact on high-employment rates cannot be observed. Graduated students have profound theoretical skills after finishing university, but lacking practice skills due to low-practical labor market experiences. Consequently, the academic education is leading to an enormous skill mismatch between labor market needs and employee's academic knowledge. Since most of the biggest firms are situated in North Italy, South Italian students are left behind with an even greater disadvantage and lower opportunities to find a job within their region. Italian universities do not only provoke educational mismatch, but also a mismatch between fast technological progress and how fast the workforce can adapt to this progress. Referring back to the cultural differences between North and South, especially southern regions are lacking this adaption skill because of their old-fashioned mentality. Consequently, not only educational systems need to adapt but also professors in order to change the southern mentality in the long-term. Universities in Italy are not sufficiently internationally oriented and do not act as mentors for their students in order to prepare them for the workplace (Cagninelli, personal communication, 2018). Besides the facts explained above, the low level of secondary and tertiary education, lack of intermediation between demand and supply of qualifications, and the rigid education system are main drivers of youth unemployment in the southern regions of Italy.

### 2.3.2 Unskilled and Skilled Labor

Another factor of production, that is driving Brain Drain in Italy, is the dimension of skilled and unskilled labor. Skilled labor refers to highly specialized occupations that require higher education such as doctors, engineers, and accountants. Unskilled labor is the type of work that contributes to daily production tasks. These types of jobs possess the qualities of being repetitive and menial, and require little to no education. As many young adults in Italy seek higher education, more unskilled jobs become available. This is partially because employers are more willing to hire unskilled laborers because this is much cheaper for them. For every Italian who leaves, three foreigners will migrate into the country but this only makes the problem worse by increasing job availability for unskilled laborers instead of skilled workers. Unskilled labor is important in order to have a healthy economy but an unusual amount (41%) of Italy's population only has a basic education. Additionally, the literacy score in Italy is considerably lower than the OECD average. According to UNESCO (2006), literacy matters in terms of human, political, cultural, and economic benefits. It is stated that education is a major determinant of individual income and has a positive impact on economic growth in the long run. In order to have a job that matches the level of education possessed by many young individuals in southern Italy, migration seems to be the only option. This problem can be referred not only to a lower literacy score, but also to skill mismatch. Skill mismatch means that those who are skilled are forced to take jobs that they are overqualified for, if they choose to remain in Italy. The most qualified young Italians are the people who are most likely to leave the country to seek better employment in order to avoid skill mismatch. This problem shows that improving the education system and labor market policies are crucial to raising real wages, job satisfaction, and living standards.

### 2.3.3 Human Capital

Human capital and economic growth are strongly related to each other. Human capital refers to the knowledge, skill set, and motivation people have, which provides economic value (Investopedia, n.d.). As such, it is of interest to have a look at the study on Human Capital Index of 2016. It is noticeable that Italy is ranked as the 36th out of 130 countries that have been part of the survey. The working population (people from the age of 15 to 64) is more than half of the total population, reaching a value of 38 million people. Public spending on education accounts for 4.0% of the Italian GDP in 2016 which is considerably lower than the EU average of 4.9%. Regarding the human capital quality from the age of 15 to 24 years, Italy is ranked on place 49 out of 130 countries. The education system quality scores 3.71 points in a scale from 1 to 7 where 1 is "not well at all" and 7 is "very well. This relatively low-quality score influences the human capital quality and therefore the economic performance of Italy's regions. Some other interesting indicators, such as the index



of under education, scoring 35.9%, and over education, which is equal to 5.3% (World Economic Forum, 2016) are showing the mismatch phenomenon of the Italian workforce with labor market needs.

## ***2.4 Spatial and Organizational Dimension***

### **2.4.1 Market Power**

The economic term Market Power “refers to the ability of a firm (or group of firms) to raise and maintain price above the level that would prevail under competition is referred to as market or monopoly power. The exercise of market power leads to reduced output and loss of economic welfare” (OECD, 2002). It can be stated that Italy in general has relatively little market power compared to other OECD countries. Italy possesses its most significant market power in the electricity sector (Cavallo & Termini, 2005), whereas the Italian industries tourism, manufacturing, agriculture, service, and trade are not characterized by market dominant firms (Sawe, 2017). There is the long-standing view that economic integration reduces firms’ market power and increases productivity via the removal of non-tariff barriers (Bottasso & Sembenelli, 2001), which has been the objective of the European Union since its founding in 1993 by the Maastricht Treaty. Italy has been part of an economic co-operation since 1953 and has been member of the European currency union since 1999 (European Union, n.d.). The EU represents an economic union with the free flow of products and factors of production between members, a common external trade policy, a common currency, a harmonized tax rate, and a common monetary and fiscal policy (Hill, 2014). As Audretsch (2015) states, monopoly power, as a substantial part of market power, is “[. . .] superior to competition because it creates a high, sustained performance and rate of return, [. . .] ultimately for the place where the firm is located.” A certain degree of monopoly power helps the economic region to flourish and “shifting some of the return enjoyed by dominant firms to people living in that place” (Audretsch, 2015). Comparing German and Italian company sales numbers, a huge difference can be observed. The Italian multinational manufacturer and distributor of electricity and gas, Enel, is making the highest sales numbers in Italy. However, its \$75.9 billion of sales in 2017 are considerably lower than Germany’s top ranked company, Allianz, which records sales numbers of \$115.7 billion over the same period. In an international comparison, Italy possesses a certain degree of market dominant firms, but not significantly regarding other global players like ICBC (Industrial and Commercial Bank China) or Berkshire Hathaway, USA (Forbes, 2018). Besides, almost every headquarter of Italians multinational companies are based in the North in cities like Rome and Trieste.

### 2.4.2 Competition

Competitive advantage has its sources in knowledge spillover and knowledge externalities (Audretsch, 2015). The term competition refers to “the activity or condition of striving to gain or win something by defeating or establishing superiority over others” (English Oxford Living Dictionaries, n.d.). In contrast to the previous statement in the market power section, the two renowned economists Jane Jacobs and Michael Porter “argue that having an organizational structure of monopoly will actually hinder locational performance and that the exact opposite—competition—is important for a sustained high level of economic performance” (Audretsch, 2015). South Italy takes part in the Italian structural fund strategy within the European NSRF program in order to even the regional disparities and to improve regional competitiveness. The focus of regional support by the European Union fund (European Union, 2013) is on the regions of Campania, Calabria, Sicily, and Basilicata. The lack of competition within these regions leads to a wave of migration to more competitive countries like Germany, Great Britain, and Switzerland and even to internal migration to the North where the economic situation is more stable and desirable. One out of every two adult between the age of 15 and 24 has no job, every one out of three is permanently unemployed (Wenger, 2017). According to Jane in Audretsch (2015), the lack of competition also comes from a limited number of firms which leads to a loss of ideas, innovation, and hinders the entry of new firms in that region. Additionally, “studies find that those [regions] with a higher level of competition [...] also tend to exhibit higher levels of economic growth and register more innovative activity” (Audretsch, 2015). Since there is low level of competition within Italy, especially the South, the regions suffer from insignificant economic growth rates and low-innovative activity. According to Statista from 2016, Italy showed a GDP growth rate of only 0.86% compared to 1.86% in Germany and 1.19% in France (Statista, 2018a–e).

### 2.4.3 Entrepreneurship

Entrepreneurship refers to “the activity of setting up a business [...], taking on financial risks in the hope of profit” (English Oxford Living Dictionaries, n.d.). Especially, university entrepreneurship, the “universities engagement in the commercialization of research, [...] such as academic start-ups [and] university patents [...]” (Baldini et al., 2015), is an important factor of economic growth within a region. As already discussed in the previous chapter, Universities help to mitigate inefficient economic issues. According to Baldini’s study (2015), universities in the North display a better performance than those in the South. This boils down to difficult access opportunities to bank and equity finance of innovative start-ups and SMEs, curbing incomes for many potential entrepreneurs in the South (OECD, 2017a–i). Italy displays a significant lower entrepreneurial activity rate compared to other countries in Europe. Italy’s youth nascent entrepreneurship rate is much

lower than the EU-25 average. What catches the attention is that the entrepreneurial rate is higher between the ages of 18 and 30, in contrast to the total rate of entrepreneurship. Nevertheless, Italy is positioned as the third lowest country regarding youth nascent entrepreneurship rates.

#### 2.4.4 Specialization

“Specialization is a method of production where a business, area, or economy focuses on the production of a limited scope of products or services to gain greater degrees of productive efficiency within an overall system” (Investopedia, n.d.). Most common is a specialization of countries or economies in producing a special good or service for trading, when having a comparative advantage compared to trading partners (Menter, 2017). Referring to Italian regions, the “anomaly” is rooted in the predominance of clusters of small firms producing and exporting low-skilled labor-intensive goods (Cutrini & Valentini, 2011). The “anomaly” in this context is used by many critics of the Italian political system, lamenting that the country is lacking maturity and modernity (Sassoon, 2013). According to Cutrini and Valentini (2011), northern regions of Italy are oriented in capital and knowledge intensive industries, which can also be seen in the number of universities located in northern regions. Oppositely, the South is concentrating geographically on manufacturing industries. Over the last 10 years, most Italian regions have increasingly specialized in high-tech industries on a regional level (Cutrini & Valentini, 2011). This rather small specialization in the South is leading to an insignificant impact on better economic performance in those regions. Following this, the dimension of specialization can be seen partially as a driver of youth unemployment in South Italy.

#### 2.4.5 Diversity

“While specialization in a particular industry may yield a greater performance for a place, as the above sections suggests, there are also compelling arguments suggesting the exact opposite—a diversified portfolio of economic activities across different industries and sectors—may, in fact, be more conducive to a better economic performance” (Audretsch, 2015). As Audretsch states there is a number of reasons to suspect that the traditional strategy of specialization may no longer ensure a positive economic performance. Italy has a diversified industrial economy which is divided into a developed industrial North, dominated by private companies, and a less-developed agricultural South with relatively high unemployment as mentioned earlier. The Italian economy is mainly driven by the manufacturing of high-quality consumer goods. Those are produced by small- and medium-sized, family-owned enterprises (Corbetta & Montemerlo, 1999). However, the lack of entrepreneurial activity, innovation, and competitiveness hinders the diversity strategy to enhance the economic performance. In addition, Italy has a sizable shadow economy. “The main drivers of the shadow economy are tax and social security burdens, tax morale,

the quality of state institutions, and labor market regulation” (Schneider & Williams, 2013). As the tax wedge accounts for 47.7% in Italy (OECD, 2018a, b), the shadow economy is consequently relatively high with 12.9% of the GDP in 2013. However, measurement of the shadow economy is notoriously difficult as it requires estimation of economic activity that is deliberately hidden from official transactions. With the shadow economy comes along the decrease of competition and entrepreneurship (Schneider & Williams, 2013) leading to lower economic performance and consequently higher unemployment rates.

## **2.5 Human Dimension**

### **2.5.1 Networks and Linkages**

Two key parts of the human dimension are networks and linkages. Linkages is a term referring to the relationship between partner organizations. Networking is a little more specific as it refers to a relationship between groups and agencies who have common objectives and beneficiaries. Networking encourages ideas, allows an exchange of information, and helps the economy thrive and grow. Areas with stronger networks and linkages have outstanding economies. One example is a region in northern Italy called Emilia-Romagna. In this region, people share knowledge and ideas which intertwines businesses and industries with each other creating a unique environment for collaboration and growth. These networks are leading to a greater quality of living and higher GDP per capita in this region (Huggins & Thompson, 2017). Collaborating by using networks and linkages is also very important in university level education as sharing ideas and goals between multiple universities gives everyone an advantage (Universiti Sains Malaysia, n.d.).

Although it is hard to determine how strongly networks and linkages impact the economy, it can be seen as efficient by looking at regions that are successfully collaborating and growing economically at the same time. In the case of southern Italy, firms are aware of how impactful networks and linkages can be and businesses in the South are more likely to enter into formal and informal agreements to network with fellow companies in their area. Due to the lack of reliable data, it is difficult to know whether or not the increasing likelihood of southern Italy’s businesses to collaborate with one another is actually developing the economy. More networking means more information and ideas which means more successful businesses and a stronger economy. Besides, networks reduce transaction costs, can supply firms with resources, and facilitate knowledge flows and technological improvements (Cisi et al., 2016). This type of breakthrough would potentially help the problem of youth unemployment and underemployment that is rapidly increasing in the area as was already established earlier in this work.

### 2.5.2 Social Capital

Social capital refers to “aspects of the social structure that facilitate certain actions of actors within the structure [...] making possible the achievement of certain ends that, in its absence, would not be possible” (Coleman, 1988). Referring to Audretsch (2015), the “dimension manifests itself in a number of ways—networks, linkages, interactions, leadership, identity, and emotional affinity.” Social capital exists especially in regions possessing social organizations. It is considered as the social component and further extension of physical capital which shapes economic growth and prosperity (Audretsch, 2015). Social capital fosters the diffusion of knowledge and information among employees and industries (Sabatini, 2005). According to Marini (2017), “Italy’s social capital is rich in acts of solidarity (volunteer work, civil services) that go unaccounted for in the country’s GDP. The national pride nourishes a positive social atmosphere within the country. Citing De Blasio and Nuzzo (2004), North Italy has always been more endowed with social capital than the South. The poorer southern development is based on five key issues: “work productivity, entrepreneurship, female labor market participation, and higher education and job referrals.” Southern social capital is less developed because of a lower entrepreneurial activity and a culture that discourages risk-taking activities (De Blasio & Nuzzo, 2004). This phenomenon could be traced back to the fact that Italy has a relatively high degree in Geert Hofstede’s cultural dimension of Uncertainty Avoidance with a score of 75 out of 100. Coming back to the main economic issue in southern Italy, a low degree of social capital can be regarded as a main driver of high-youth unemployment rate due to lower work productivity, less knowledge transfers, and low levels of entrepreneurship.

### 2.5.3 Identity and Image

It could be assumed that a strong identification with a region or a country drives a certain economic wealth. Yet, this effect cannot be observed in Italy for which the paper will present two main reasons. As Audretsch states in his book “Everything in its Place” “[the] image of a place can also have a negative impact on its economic performance” (Audretsch, 2015). The first explanation refers to existing differences between North and South Italy. The presence of mafia and corruption in South Italy is the second reason for the absence of a positive effect of Identity and Image. For over 50 years, the Italian government has been constructing a highway, called the A3, from Naples to Reggio Calabria, a region characterized by 40% of youth unemployment. The project has not been finished yet. Since the road first opened for the public, “three generations of subcontractors—appointed by three generations of politicians—have made their livings from it” (Berlinger, 2012). The financing out of European Union funds has shed light on the controversial issue. From 2000 to 2011, already \$60 billion in EU funds have been spent to finance infrastructure improvements programs in the South, which have never really been used for its

original purpose. Since 2000, prosecutors have arrested hundreds of people which have been involved in the highway construction, mostly on charges of corruption and extortion (Donadio, 2012). For these reasons, it can be concluded that one of the biggest problems for the economic diversion between North and South Italy is the issue of corruption and mafia. As the mafia is having an enormous impact on the South, businesses do not invest in the regions of Mezzogiorno in order to avoid a non-return on their investment. Therefore, the regions suffer from a lack of investments, bad infrastructure, and a stagnating economic development. As a consequence, especially young people are leaving the South in order to build a better life and to escape the uncertain environment.

### 2.5.4 Leadership

“The human elements of leadership, image, and affinity for a place are not easily separable” (Audretsch, 2015). Leadership in Italy differs a lot from other European countries. It involves a completely different approach in terms of dealing with the Italian people as the Power Distance between managers and employees is relatively high compared to northern European countries (Hofstede-Insights, 2018). Additionally, Italian managers often make decisions on their own which leads to lower benefits of co-operative decision-making process. Furthermore, age is very important as the age determines the relative degree of respect one should receive. Since the majority of Italian companies have a rather old board of directors, they still do business in a more traditional way, whereas companies with younger people in charge seem to be more flexible (Istat, 2016). Due to this rather old-fashioned way of communicating and interacting in a workplace, lower innovative ideas and changes are taking place, leading to a lower economic performance within a company and ultimately in Italy itself or its regions. A leadership priority would be to ignite or awaken the affinity people have for their place. Effective leaders are able to both facilitate the voice option for people residing at a place and also reinforce their loyalty, so that they invest in their place in order to generate strong economic performance. Leadership is critical for the success of places (Audretsch, 2015). The Human Dimension is “at the heart of economic performance. Businesses and organizations that keep the human dimension in focus are more likely to achieve their goals” (Audretsch, 2015).

## 3 Problem Solution

When considering the problems of the Italian Brain Drain and youth unemployment, it is easy to see that it is something that is taking a toll on Italy’s economy. However, on the surface level of the problem, one does not see what kind of policy has caused the problem or how the private business sector is suffering and contributing to the problem. By making this analysis and doing research, it is now clear that economics,

the private sector, and policy are closely connected and therefore things that must be considered when exploring an issue that initially seems only economical. The deep divide between northern and southern Italy is where the problem seems to begin, but after looking further into the factors of production, spatial and organizational dimension, and human dimension it is obvious that there is much more to the problem than a cultural and economic divide. This can be perceived as a positive aspect because a culturally and economically divided country could be seen as nearly impossible to fix but, in this case, there are many parts of this problem that can be changed by policy. Finding one clear solution to this problem is not feasible. However, it is important to look into what can be done to move Italy out of this spell of high unemployment and to stop the increasing effects of Brain Drain. As the younger generations seek higher education and migrate out of their homeland, the country will suffer from lack of innovation and technology. The CEOs and board of directors of the existing companies in Italy are aging and will eventually no longer be working. There will not be enough skilled laborers left and there is fear the economy will plummet further. Decreasing youth unemployment and increasing foreign direct investment inflows will contribute to economic growth in Italy and provide a hopeful future for generations to come.

### ***3.1 Increasing Foreign Direct Investment Inflows***

This section proposes to increase foreign direct investment inflows into Italy's underdeveloped regions in order to boost competitiveness of southern regions and therefore creating an attractive environment to invest, leading to more jobs and higher economic output. "Foreign direct investment has a major role to play in the economic development of the host country" (Economy Watch, 2010). It helps economies to make further improvements by pumping in capital knowledge and technological resources into the economy, which consequently could help to improve infrastructure in long term (Economy Watch, 2010). Only a small proportion of accumulated foreign direct investment inflows into Italy is going into southern regions.

#### **3.1.1 Startup Culture**

Innovative entrepreneurship plays a key role for the economy development and several policy interventions in a country. However, not only entrepreneurial activities drive economic growth but mainly the quality of entrepreneurship is important. According to Schumpeter (1911), "entrepreneurial activity in innovative and high-tech sectors is deemed to play a crucial role for ensuring dynamic efficiency to the economic system and, thus, foster the global performance of economies" (Giraud et al., 2016). Referring to this, the paper aims to propose a solution to Italy's high-youth unemployment rate by building centers of entrepreneurial activities in the

South. The principal idea is to invest money in centers, by taking the example of *aitiRaum*, located near strategic places like universities or economic centers in the South of Italy providing marketing activities for the members and serving as a communication platform. The share of active enterprises in the South in 2013 was considerably lower than in the Center-North. Consequently, the share of total GNI in the South is much lower. By enhancing and supporting start-up activities in the region of Mezzogiorno, the imbalance between North and South will be equalized. The paper recommends financing this solution with funds of the European Union as they provide financial support for a wide range of projects and programs, particularly employment and social inclusion, regional and urban development (European Union, 2018). This will increase the collaboration between innovative students and the center, which will eventually lead to a rising number of startups and more entrepreneurial activity. The overall aimed effect would be the expansion of competition which will consequently attract international investors and the growth of foreign direct investment inflows into the southern region Mezzogiorno. Generally, the rising economical efforts will eventually decrease unemployment, which is the main objective of this research paper. However, as Audretsch states in his book “Innovation, Industry Evolution, and Employment,” it is crucial that, at the same time, there is improved technology as “industries with higher technologies seem to exhibit lower mortality rates and to benefit more from larger startup size” (Audretsch & Thurik, 1999).

### 3.1.2 Corruption Law Enforcement

Corruption and bribery in Italy are ongoing serious issues but have made some improvements over the last years (Treffer, 2018). Ranked on place 54 out of 180 examined countries, Italy is perceived as a corrupt state, according to the Corruption Perceptions Index of 2017, but reveals a score of 50, which means that Italy is neither highly corrupt nor completely clean (Transparency International, 2017). High levels of corruption reduce foreign direct investment, the level of international trade, and the economic growth rate of a country (Schwartz, 2017). Improving this situation, this paper aims to encourage the Italian government to take prompt steps to draft stricter laws limiting corruption and bribery in the state. The paper suggests adopting anti-corruption laws and reinforcing sanctioning for corruptive activities. As the government already transfers money to the South in order to improve the economic situation, the state is aware of the issue and supports the South with funds intended specifically for the southern regions. However, a significant amount of this money is taken by the Mafia. As a result, these transfers do not support the economy in the first place, yet, they increase the wealth and the power of the mafia (Kitzler, 2016).

For this reason, the paper recommends implementing mechanism for vigorous sanctioning of corruption. As Mr. Cagninelli said in his lecture, there are already rebellious movements of young people. These represent the hope and the urgent change which the South of Italy needs (Cagninelli, personal communication, 24 May



2018). Moreover, the idea is to divide the budget from the government for the regions of Mezzogiorno differently than it is happening now. During the conversation with Mr. Cagninelli, it was discussed that first money should be spent on implementing and enforcing anti-corruption laws before investing in roadworks or other region-specific improvements. These recommendations are supposed to increase eventually foreign direct investment inflows in the region of Mezzogiorno, as it will provide a more attractive environment to invest. As already explained earlier, this will have a positive impact on the reduction of youth unemployment within the regions.

### 3.1.3 Infrastructure in the South

Foreign direct investment plays a major role in improving infrastructure in the South. By attracting more foreign direct investment through better economic conditions within Italy, the South of Italy could make enormous improvements in their infrastructure whereby technological transfers and trade relation activities could flow more easily from one to another. This free flow of knowledge, also called knowledge spillover, through R&D activities is referred to “involuntary leakage, as well as, the voluntary exchange of useful technological information” (OECD, 2002). Entrepreneurship also benefits from better infrastructure. Citing Cagninelli (personal communication, 24 May 2018), “you can’t grow tomatoes in a desert,” expressing that without a fertile land and environment, neither entrepreneurship nor foreign direct investment or economic growth can evolve and emerge.

According to Pontarollo and Ricciuti (2015; 2017), railways also play a crucial role regarding a region’s productivity. South Italy is lacking railway networks compared to the North where cities are connected with dense railroads. “Infrastructure lead[s] to a widening of territorial disparities [...] by providing central and peripheral regions with a similar degree of accessibility and lagging provinces result to be disadvantaged, as their firms are in a weaker position to compete than firms in the core” (Pontarollo & Ricciuti, 2015; 2017).

This is why the paper’s solution finding aims to improve the infrastructure in the South. To finance those improvements, the paper suggests redistributing the state’s budget and using EU funds. In worst case scenarios, public company’s assets should be used in order to finance substantial improvements. Cagninelli states that the Italian government possesses enough private assets to pay the nation’s debt (personal communication, 24 May 2018). Following this, leaving nationalization and increasing privatization of companies and property would help to liquidate the nation’s budget and to finance socio-economical improvements.

## 3.2 *Reducing Youth Unemployment*

### 3.2.1 Labor Law Reforms

First, it is important to restructure labor contracts. As it is common to have a short-term labor contract, called “contratto determinato” (Farma Lavoro, 2018) and which is often limited between 3 months and 1 year, employees can be easily laid off. This leads to a substantial uncertainty for employees which makes it hard for them to plan the future and discourages them to engage in contractual relationships with companies. Therefore, especially young potential employees often prefer to leave the country in order to avoid uncertainty. For this reason, the paper recommends implementing obligatory long-term labor contracts which will encourage professionals and graduated students to stay in Italy. In addition, fixed costs can be reduced for the human resource department whereby the saved costs can be invested in R&D activities. Consequently, innovation will rise and lead to more market power for the company. Ultimately, the implementation of long-term labor contracts reduces the risk of moral hazard as the uncertainty of dismissal for employees decreases. This aspect of the problem solution can be seen as controversial because long-term labor contracts could also have a negative impact on the youth unemployment. As it makes the labor law less flexible, one can argue that long-term employment obligations could reduce the willingness of companies to employ. Despite this potential outcome, the recommendation can still be useful. This boils down to the fact that the existing system referring to short-term labor contracts is not working. Therefore, the focus on a long-term solution will provide employees with a higher labor market certainty.

Another impact on long-term labor contracts stem from labor unions. Even though labor unions exist in Italy, they mainly represent the elder active population by focusing on the pensioner’s needs. This phenomenon exists, because Italy has one of the oldest populations within the European area. Italy’s trade union landscape is characterized by three major federations, representing about 12.5 million employees of which about half are pensioners. This solution proposal not only aims to establish obligatory long-term labor contracts, but also to restructure labor unions in order to represent the different demands between the North and South divide more effectively. The industrial North has a strong workplace union tradition, whereas political objectives like fighting youth unemployment and combating the mafia is mainly an issue for labor unions in the South (Namuth, 2013).

Italy could also be oriented towards the French “code du travail” by establishing a similar guideline for working environments. As there are no proper industrial relation laws, Italy has several workplace agreements and regulations which are not obligatory for every industrial sector. By implementing a comprehensive law, the working environment is getting more attractive for young employees, benefiting from paid holidays, similar leave days across industries and bonuses. Consequently, the Brain Drain phenomenon and youth unemployment could be reduced as graduates are more willing to stay in southern Italy to serve as a valued workforce.

### 3.2.2 Investing in Human Capital

As mentioned in the “Problem Analysis” section, a substantial problem causing high-unemployment rates in the regions of Mezzogiorno can be traced back to the issue of skill mismatch (OECD, 2017a–i). Reducing skill mismatch is crucial to rising productivity, job satisfaction, and well-being of employees. Evidence recommends that Italy could boost its level of labor productivity by 10% if it were to reduce its level of mismatch within each industry to that corresponding OECD best practices (McGowan & Andrews, 2015).

For the first approach, the paper suggests assessing the labor market impact of job-search and training programs and focusing on those that are performing well. Furthermore, partnerships between schools and businesses should be built in order to create high-quality work-based learning for students. This can decrease the early school leaving rate and improve education and practical skills. In order to increase the matching of skills with labor market needs, the paper recommends increasing the share of students with working experience and also post-secondary vocational education and training (VET) as it “is of key importance to the development of systems that are successfully able to respond to the increasing demand for higher level technical and professional skills” (Journal of Vocational Education and Training, 2017). It is suggested establishing a national body on VET involving the business sector and all key stakeholders to link the training component of VET with apprenticeships. Moreover, it is important to ensure high-quality workplace training and to identify skills needed in the South Italian labor market. Moreover, the paper recommends enhancing the working environment and making wages more flexible would also allow a better match of supply and demand of skills by better rewarding highly skilled workers. All these policies could help reduce the high share of highly educated young Italians who choose to emigrate.

## 4 Conclusion

The major problem has been defined previously and is characterized by the youth unemployment rates in southern Italy that is causing the Brain Drain and in turn affecting the overall economy of Italy. The problem has been ongoing since the early 90s and there have been insufficient efforts by the Italian government. The problem of youth unemployment and Brain Drain can be partially attributed the instability of the Italian government. This instability allows corruption within government officials. Due to this corruption, funds from the EU for social programs, including education and infrastructure, are stolen and lost. Because of this, investors are hesitant to provide funding to southern Italy.

With the research done specifically on Italy and its Brain Drain, economics, and business outlook one is able to draw conclusions and define possible solutions to the problems occurring in southern Italy. The information about Italian economics and

education was very available and many well-known sources have written about the Italian Brain Drain and youth unemployment. It was difficult to find information specifically about the southern region of Italy because every source and statistic only referred to Italy as a whole. By reading multiple sources, one is able to infer many things about the problems occurring in the South. Overall, the research is reliable and the problem solutions are sustainable and realistic based on the data found.

One can be optimistic that the Italian Brain Drain and youth unemployment will change for the better in the future. There have already been steps taken to make a change. The Jobs Act and Good School Reform have been set into place. These are both policies that provide partnerships between schools and businesses built to create high-quality work-based learning for students. In the Good School act, a dual education system was planned in which students could learn vocational work skills as an alternative option to university. This is similar to Germany's "Berufsschule" (vocational alternatives education) which is working very well.

The new unemployment benefit program (NASpl) provides more flexible benefits to self-employed and unemployed Italian residents. Access to financial benefits for the unemployed is strengthened through this act and more money for longer periods of time is now available. Although these policies have been proposed and partially implemented, one can still see that university graduates could continue to struggle with finding jobs that match their skills. The suggestions proposed in the solution portion of this paper are all policies that could help decrease unemployment for Italian residents with varying levels of education. It is hoped that in the future, the Italian government will find similar solutions and is able to slow down and eventually stop the Brain Drain phenomenon.

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# Skilled Labor Shortages: The Bavarian Case



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**Abstract** The region of Bavaria is known as a powerhouse in Europe. Its recent economic history is characterized by innovation, steady growth, high wealth generation, and low unemployment rates. The abundance and continuous availability of low- and high-skilled labor due to good educational infrastructure and thoughtful policymaking have been a keystone for this development. However, different issues in the educational systems, as for example the decreasing attractiveness of apprenticeships, and the demographic change slowly deprive the region of this great competitive advantage. The problem of skilled labor shortage in Bavaria is a serious long-term threat to economic performance and therefore needs to be addressed in several ways. This essay considers policies addressing the educational system, labor market mismatches, as well as the demographic change. We propose strategies like increasing the potential workforce through the integration of immigrants, low-educated and older people, and qualifying them adequately through apprenticeships and education programs.

## 1 Introduction

Bavaria has long been known as an economic powerhouse in Germany (Statistische Ämter des Bundes und der Länder, 2022). The Free State of Bavaria strives and continues to develop. One could say this may stem in part from the uprising and abundance of “Mittelstand” companies in the region. Small and medium-sized companies that create products fall into this category. These companies have given the Bavarian region a nudge up on other parts of the country (StMWi Bayern, 2022).

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However, they are facing difficulties finding skilled labor to fill their open job positions (Michel, 2018).

The availability of skilled labor is steadily deteriorating in the Bavarian region. As companies are growing and more are starting up, the need for skilled labor is increasing. The supply on the other hand is stagnating, especially for specific qualification levels. It is therefore necessary to look for the root of the issue by developing theories as to why there is a shortage of skilled labor. The lack could be directly linked to the increasing attractiveness of education and the unattractiveness of apprenticeships. As apprenticeships provide the main access point for young people to the labor market, it is important to make them more desirable for the younger generation. While trying to grab the attention of younger students looking to start a career, especially those who are not interested in continuing their education, it is also important to consider other groups that are part of the potential workforce and have problems succeeding the labor market. Elderly, long-term unemployed and unskilled-uneducated people should be mentioned here.

The Bavarian state is going to continue developing in the economic and business world. Thus, it is necessary for the state to begin taking actions to increase skilled labor before it becomes even harder for companies to find employees. This paper acts as a starting point for this issue with a thorough investigation of the problem Bavaria is facing. Afterwards, we present reasons for the investigated complications. Finally, we develop solutions to counteract the current progress.

## 2 Problem Analysis

Before getting into detail about the problem itself, the reasons, and the solutions, it is necessary to provide a definition for the term “skilled labor”. The labor force comprises all persons currently working as employees such as white-collar workers, blue-collar workers, civil servants, or people in self-employment. Within the workforce, we refer to skilled labor as those with either an academic degree or at least a two-year professional training. For the purpose of this paper, we want to further distinguish between low-skilled and high-skilled workers as well as academics as a third fraction (Bott et al., 2022).

The lack of skilled labor that is currently experienced in several industrialized countries, as it is in Germany, means that not all the open positions requiring skilled workers can be filled by one of the three aforementioned groups of the labor force (Bott et al., 2022). The problem is not the high rates of unemployed in Germany but rather that the open positions cannot be easily filled with workers of adequate qualifications. Bavaria is one of the regions in Germany where there currently is almost full employment to be observed. This makes the issue of the lack of skilled labor even more complex (Leinweber & Kerperin, 2022). Not only are there not enough adequately skilled workers to fill qualified positions, but there is also no broad base of unemployed workers that could somehow be qualified and integrated into the labor market. For Bavaria, there is a general labor shortage as well as a

steadily increasing lack of skilled labor. Within the cluster of skilled labor, the need for low-skilled and high-skilled labor is steadily expanding. The choosing of the academic route is also increasing in popularity. Some experts estimate a surplus of academics in the coming years in the regions of Bavaria. The academic path shall not be considered a problem but rather be a side note emphasizing the growing problem of the lack of skilled labor in the state of Bavaria (Zika & Maier, 2015, p. 51).

## ***2.1 Bavaria Within the Theoretical Framework***

The economy in Bavaria is thriving, the unemployment quota is distinctly below 3% in every district of Bavaria, and therefore, most of the people can benefit from the economic stability (Leinweber & Kerperin, 2022). A detailed analysis of the reasons for the success of the Bavarian economy can surely not be conducted within the limits of this paper. For our analysis, the framework by Audretsch (2015, pp. 28–57) is used. For this paper, we focus on its most important and most relevant factors for our problem analysis. First, the policy dimension has its influences on the Bavarian economic development. Providing a high level of inner security, legal certainty, and good cooperation between the industries and the public authorities were key drivers of Bavarian policies. These policies succeeded (Leinweber & Kerperin, 2022). Apart from purposeful policy-making, Bavaria also has important factors in the human dimension contributing to economic success. According to Audretsch and Lehmann (2016, p. 122), the high flexibility of the Bavarian workforce that they are referring to as “Laptops and Lederhosen” is a key stone of the adaptability to change within the region and consequently for the steady economic growth. Another factor is the combination of identity and image by which Bavaria is characterized in the world (Audretsch, 2015, p. 95). People are proud to work in Bavaria whether it be for regional companies producing traditional products in the home market or high-quality goods for global supply chains in the world market. This is called a strategy of “roots and wings” (Audretsch & Lehmann, 2016, p. 79). At the same time, Bavarian or more general German goods are known for their good quality and high standards. The label “Made in Germany” is globally recognized by big companies as well as individual clients, continuously generating demand even in turbulent times. On top of that, Bavaria is far ahead of other German and European regions in the dimension of organization and structure. The German “Mittelstand” consisting of small and medium-sized companies is extremely successful all over the world and also valid for Bavarian “Mittelständler” (Audretsch & Lehmann, 2016, p. 16). Access to global markets and competitiveness in these specialized companies, for example within the automotive cluster, requires a solid infrastructure and above all, excellent human capital. This finding leads to the last and for our analysis most important dimension of the model: Resources and Factors. A high density of good universities and universities of applied sciences in combination with programs for dual professional training systems and apprenticeships provide skilled workers with good qualifications. Highly motivated and qualified workers who meet the

challenging and often specific requirements of local companies have been a keystone of Bavarian economic success in the past decades (Leinweber & Kerperin, 2022).

A success that might be fading. For the region of Bavaria, it is essential to be aware of fundamental developments like the demographic change and to recognize weaknesses along with potential problems. One important example being the recent developments in the domestic labor market and the resulting lack of skilled labor. This alarming trend can also be observed as the Bavarian economy, as it faces a shortage in low- and high-skilled labor. Already, 21% of German employees are filling positions for which they are not qualified (Frick, 2018). Businesses and organizations are struggling to find skilled labor in many regions and across industries. This development is likely to aggravate in the coming years. Demand and supply curves are estimated to further drift apart and therefore, the shortage of skilled labor is going to get even more problematic. Especially for the hidden champions, German “Mittelstand”, and the human capital-intensive clusters, this raises questions and concerns regarding future competitiveness. It threatens to deprive Bavaria of one of its most important factors of economic success, so that’s where future policy-making should set in (Federal Ministry of Labour and Social Affairs, 2017).

## ***2.2 Issues Related to the Lack of Skilled Labor***

Pursuing an apprenticeship is considered a minimum prerequisite to become a part of the skilled labor force in Germany. It is also the main access point to the job market for high-school graduates who do not strive for an academic career. However, the number of people pursuing an apprenticeship as well as the overall number of apprenticeship places offered decreased steadily (Bundesagentur für Arbeit, 2022). In the following two sections, the reasons for this phenomenon will be described. Additionally, the demographic change and the phenomenon of early school leavers and uneducated workforce will be brought into the context of the analyzed problem.

### **2.2.1 Larger Attractiveness of an Academic Career Compared to an Apprenticeship**

In recent years, the number of university students in Bavaria steadily increased each year (Statistisches Bundesamt, 2022c). Correspondingly, the German population having an academic degree increased, starting at 14.5% in 2017 and reaching 18.5% in 2019, whereas the German population having an apprenticeship decreased between 2011 and 2019 from 50.5% to 46.6%. Especially, younger people are more likely to obtain an academic degree. Especially, the number of women pursuing a university degree increased (Statistisches Bundesamt, 2020). It can be concluded that the decreasing rate of apprentices comes along with the increasing rate of students. More and more people prefer pursuing an academic career instead of an apprenticeship. The increasing number of academics itself should not be considered

a problem as more education is obviously a positive development. But at least a connection to the lack of low-and high-skilled labor is imaginable, if not probable (Federal Ministry of Labour and Social Affairs, 2017). In the following section, possible reasons for these observations are explained.

In general, Bavarian university students receive more support than people pursuing an apprenticeship. For example, according to the German law called BAföG (Bundesausbildungsförderungsgesetz) all young people can study regardless of their financial situation and social background. It provides financial support for those who do not have enough money at their disposal (Bundesministerium für Bildung und Forschung, n.d.-a). Vocational apprentices, conversely, cannot receive this financial support as they are excluded from the BAföG (Bundesministerium für Bildung und Forschung, n.d.-b).

Today, there are more possibilities to combine studying with practical experience. There are study programs with high-practical parts that include mandatory internships and dual study programs, which combines study programs with apprenticeships. Thus, students must no longer decide between theory and practice. For companies, it is also easy to attract students through internships and dual study programs. Therefore, they do not have to offer as many apprenticeships by themselves in turn saving them more money (Severing, 2013).

Five decades ago, different education systems were separated in a stricter manner. For the secondary school, students could decide between three different school systems. Only the school with the highest education offers the students the admission for a university called “Abitur”. Today, the education system in Germany is much more flexible. There are more ways to get admission to study at a university. Students attending one of the other two school systems have the possibility to catch up and carry on an academic path. In some cases, it is even possible to study without the “Abitur” at all, for example by continuing training after an apprenticeship. The additional possibilities to get permission to study can also be a reason for the increasing number of university students in Bavaria. With the number of offered study programs increasing, this provides another reason to why more young people are choosing to pursue academic careers. Between the winter term 2007/2008 and the winter term 2016/2017, the number of study programs increased from around 11,000 to 18,000 (Nier, 2017).

## 2.2.2 Decreasing the Number of Apprenticeship Offers

Between 2011 and 2020, the number of German companies that offer apprenticeship programs declined continuously from 453,554 to 419,683 (Bundesagentur für Arbeit, 2022, p. 33). Since there is a low demand, firms do not have an incentive to offer more training places. In general, a mismatch between the demand and supply of apprenticeships can be observed as companies have high expectations towards

potential applicants regarding qualifications and grades. Apprentices, on the other hand, often cannot fulfill the requirements or, in some cases, are not attracted by the apprenticeship programs offered.

### **2.2.3 Demographic Problem**

In recent decades, Germany, like much of Europe and other countries around the world, has been undergoing severe demographic change. Two complementary factors creating this demographic change are the lower fertility rate and the higher life expectancy. These factors result in having more people retiring from the workforce and less young people entering who can fill in the vacant job positions. The Statistisches Bundesamt (Federal Statistical Office) states that the fertility rate in Germany has followed the typical pattern of other European Union member states with declining numbers from the 1960s to the beginning of the twenty-first century. Following the slowdown of EU population growth, each member state took on policies such as financial incentives, child-related leave, and childcare provision to stop the decline. As a result, the fertility rate went up from 1.46 in 2001 to 1.50 in 2020 (eurostat, 2022). In Bavaria, the fertility rate has gone up from 1.56 in 2020 to 1.61 in 2021 (Statistisches Bundesamt, 2022b). The COVID-19 pandemic might have a positive side in this matter as a potential “Baby-Boom” was anticipated. Yet, the development did not occur so far (ZDF, 2021). The fact that the population is getting older contributes to the lack of skilled labor in the German workforce, which is particularly evident in the developed region of Bavaria where the need for skilled labor is more urgent. As the population is getting older, they are less likely to enter the workforce. In addition, as people get older, the level of infrastructure appropriate to their needs must increase. For example, the number of retirement and assisted living homes that provide health care and other assistance will need to increase, in turn causing the need for skilled medical assistants to also rise (iwd, 2018).

There is also a population shift. Most of the population is in their 50s and 60s, which means they are approaching the age of retirement and leaving the workforce. Every fifth person in Germany is older than 66 years old in the year 2021 (Statistisches Bundesamt, 2022a). This has economic consequences as there are not enough suitable candidates to take their place in the sectors that require skilled labor. Being suitable to fill those positions is not directly related to age but rather experience. However, the problem extends to young people with low levels of education, which are not able to pursue those opportunities.

### **2.2.4 Low Level of Education**

Apprenticeship can usually be started from the age of 15 onwards. It consists of a 3-year program in which the apprentice must attend lessons concerning the sector

they are training in and work for a company that offered them the apprenticeship. As mentioned before, companies select their apprentices carefully. One of the requirements is to be graduated from the school having achieved a certain grade (Bundesministerium für Wirtschaft und Energie, 2017). Through these constraints, companies take on people who they deem as potentially good employees and exclude students with bad scholastic results or those who for whatever reason, dropped out of secondary school. A low level of education in some parts of the society and resulting labor market mismatches are another reason contributing to the lack of skilled labor in Germany. In 2020, 45,072 people left their studies without finishing the degree which makes them unsuitable for an apprenticeship (Statistisches Bundesamt, 2021). They should be regarded as potential skilled workforce and be further educated until they are ready to enter the job market. The only other possibility for them is to perform unskilled and low-paying jobs, often in temporary contracts, which may lead them into poverty sooner or later.

### 3 Problem Solution

In the following section, we present possibilities to overcome the discussed issues and to resolve the problem of skilled labor shortage in Bavaria. These include measures to increase apprenticeship attractiveness, intensification of government support, a better integration of immigration and refugees, accommodating the older workforce, and bringing unemployed workers from other parts of the country to Bavaria to fill open-skilled labor positions. These suggested solutions could decrease the lack of skilled labor, increase apprenticeship attractiveness, and decrease the amount of open-skilled labor positions.

#### 3.1 *Increasing Apprenticeship Attractiveness*

There are many different measures that could help to increase the attractiveness of pursuing an apprenticeship. These could be implemented by companies, the German state, or by schools. First, financial support plays an important role. Some measures to financially support apprentices or employee training already exist. For example, the German federal labor office “Bundesagentur für Arbeit” offers monthly grants called “Berufsausbildungshilfe” for apprentices under specific conditions. It is for example granted to apprentices whose training organization is too far away from their parental home, thus the grant is available to be used for housing and other living expenses. (Bundesagentur für Arbeit, n.d.) Another measure that was implemented on December 18, 2018 by the German government is a law called “Qualifizierungschancengesetz”. According to this law, the German state can bear parts of the costs for employee trainings that are required during the changing

working world. This could help for example unemployed people to obtain skills in order to improve their chances in the labor market. (Die Bildungsberater, [n.d.](#))

From the mentioned examples, the issue is not the lack of government support but the conditions that must be met to obtain those grants. In most circumstances, apprentices only receive a very low wage during the apprenticeship. The average wage is 993 € in Bavaria (Schönfeld & Wenzelmann, 2022). A higher wage could increase the attractiveness of apprenticeships because it would enable young people to be more independent and to rely less on their parents financially (Bundesministerium für Bildung und Forschung, 2014). Therefore, a statutory minimum wage for apprenticeships would be an effective measure as it would guarantee a higher wage for all apprentices independent of the company. The additional costs for the higher wages could either be taken on by the state or by the company itself. If it was the company itself that must bear the higher costs, then they could be offered incentives to hire apprentices despite the risen costs. For example, when a company employs a certain share of apprentices in relation to the whole workforce it in turn must pay lower taxes.

Going further, another negative characteristic of apprenticeships that could be improved is the poor career and promotion opportunities. Companies should offer their apprentices more possibilities to be promoted even though they do not have a university degree. The quality process of apprenticeships and their status within a company could also be improved. For example, companies should avoid giving non-challenging and repetitive tasks not related to their training to the apprentices. By improving these factors, companies could contribute to increasing the attractiveness of apprenticeships (Bundesministerium für Bildung und Forschung, 2014). The implementation of such measures from the company's perspective should not only be decided upon cost considerations. Positive effects, such as the increasing number of apprentices and therefore potential skilled workforce should be considered as well. Moreover, improving the apprenticeship program and the wages will result in more suitable candidates applying and better-skilled workers joining the companies after the completion of their apprenticeship.

Specifically, students should be given more information about apprenticeships during multiple settings such as during and after school, workshops, and career fairs, to increase the attractiveness of apprenticeships. Teachers should also advise their students that there are multiple opportunities for the future. For schools, it is crucial to provide multiple measures such as information fairs, job fairs, company presentations, and mentoring programs to assist students in deciding about their futures. This should become an incremental part of the school syllabus. Moreover, there should be more focus being laid on the importance of internships during the school time as they help young people to orient themselves and to get in contact with different companies, make more connections, and find more opportunities (Bundesministerium für Bildung und Forschung, 2014). They are, therefore, empowered to find own passion or can dismiss certain career paths early.

These measures can be applied to students in all three different school systems. Also, for the students who attend a school to get the "Abitur," an apprenticeship can be useful. However, there should not be a strong focus on pushing these students



towards an apprenticeship instead of an academic career because, as already mentioned, the lack of skilled labor also applies to academics. The aim is not to increase the number of apprenticeships by reducing the number of university students but to increase the number of skilled labor in general (Federal Ministry of Labour and Social Affairs, 2017). Finding a right balance between academics and apprenticeships is important and necessary. Even for students who ended their studies, an apprenticeship could be a new professional perspective of interest to them. College dropouts often have the possibility to complete an apprenticeship in a shorter time. There are already some apprenticeship programs offered specifically for them (Bundesministerium für Bildung und Forschung, 2014). The main priority must be the adequate fit of the possible employees and the employer as the focal point in order to gain positive results (Audretsch et al., 2021).

### ***3.2 Reducing the Number of People Leaving School Before Graduating***

Another solution for the lack of skilled labor might be to decrease the number of students leaving school without a valid reason because for these people the only possibility that remains is to work as an unskilled worker. In Bavaria, the share of school leavers without any form of graduation certificate among people of the same age was 4.9% in 2020 (Statistisches Bundesamt, 2021). By ensuring that every child gets the same educational opportunities, the number of school leavers without any school-leaving certificate could be decreased. Every child should get the same education opportunities regardless of their social background and the financial situation of their parents. Childcare services can guarantee the early education of children and support their development. Therefore, the quality of childcare services and the attractiveness for parents to use them are very important aspects that should be focused on in order to improve the equality of educational opportunities for children (Federal Ministry of Labour and Social Affairs, 2017).

### ***3.3 Apprenticeship Opportunities for Low-Educated Students***

As already mentioned, there are not only a lot of unoccupied apprenticeship places but also many applicants who do not find an apprenticeship (Bundesagentur für Arbeit, 2022). This means companies often struggle to find adequate applicants and therefore give up their apprenticeship programs. Especially, young people with low qualifications do not always get an apprenticeship placement, they often need to acquire continuing education before. As the demand for apprenticeship programs exceeded the offers for a long time, the requirements of firms for their applicants increased more and more. Firms often employed people for apprenticeships with

higher education than required. Today, companies should be aware of the current situation and adapt their hiring criteria to the actual requirements for the job of the apprentice (Severing, 2013).

To fill the unoccupied apprenticeship places, companies should also consider lower education school-leavers. If the apprentice does not have the required qualifications, firms could also offer additional assistance during the apprenticeship or vocational preparation measures before the start of the apprenticeship. Offering such programs means higher costs and higher organizational effort for companies. Therefore, these programs should be subsidized by the state so that companies have an incentive to implement them (Severing, 2013). Due to the explained measures, low-educated students should have better chances to get an apprenticeship place and less-apprenticeship programs may remain unoccupied.

### ***3.4 Increase the Attractiveness for Companies to Offer Apprenticeship***

As the number of companies offering apprenticeship programs has declined over the last few years, measures should be taken to increase the attractiveness for companies to offer such programs. It must be considered as well that the current demand for apprenticeships is lower than the offer in Germany as a whole (Bundesagentur für Arbeit, 2022). Therefore, the focus should primarily be on the measures to increase the interest in pursuing an apprenticeship before measures to increase the attractiveness for companies to offer such programs can be taken.

For companies, offering apprenticeship programs is associated with high costs and high efforts. The apprentices must change their department after a certain time. This results in a lot of organizational effort for the company and a short training period for the apprentice. The employment of students for internships in turn means less organization and less costs for the company (Severing, 2013). If the costs connected to offering apprenticeship programs exceed the benefits, financial state support could help to increase the attractiveness for companies to offer apprenticeship places. Reaching a certain number of apprentices in relation to the whole workforce, the company could receive state subsidies or a reduction of tax payments. As an alternative to this market-based policy proposal, one could also think of a “command and control” approach via a compulsory quota for apprenticeship places in companies for example. If the quota is not reached, companies will have to pay penalties.

### 3.5 *Integrate Refugees and Immigrants*

One possible solution to the lack of skilled labor in Bavaria is the employment of workforce coming from abroad. This strategy has already worked in the 1960s and 1970s, when the German economy was developing extraordinarily fast in the “Wirtschaftswunder”, where “Gastarbeiter” from Italy (1955), Greece (1960), Turkey (1961), Portugal (1964), and Yugoslavia (1968) were recruited by the German government (Bundeszentrale für politische Bildung, 2022). In 2016, the Federal Government has already come up with a plan to secure and expand the skills base in Germany. This plan is called “Skilled Labor Concept” and includes five different paths to follow to solve this problem of skilled labor shortages. One of the five paths envisioned by the Skilled Labor Concept is “encouraging integration and the immigration of skilled workers”. A strategy that resembles the one adopted in the 1960s–1970s (Federal Ministry of Labour and Social Affairs, 2017).

The label immigrant also includes the asylum seekers, who have been fleeing to Europe. These people often represent good candidates to be employed in skilled labor sectors. To do so, however, a concept for their integration needs to be worked out first. Asylum seekers need to go to school to learn the language and be accepted by the German people within the country. Moreover, the apprenticeship needs to be open to refugees as well, enabling them to become part of the skilled workforce. According to the Federal Ministry of Labor and Social Affairs, progress has been made in this respect and in June 2017, around 181,000 asylum seekers were employed. This number, however, is still low. More effort needs to be made by the Federal Government, Länder, municipalities, industrial associations, and individual businesses to improve the integration of asylum seekers and make them members of the workforce (Federal Ministry of Labour and Social Affairs, 2017). This aspect gains further importance, since the number of refugees and asylum seekers might increase even further due to the ongoing war between Russia and Ukraine.

### 3.6 *Older Workforce*

The current regulations of the apprenticeship in Germany include that the apprentice is to be young and qualified enough to learn the job by following the example of an expert in the field (Bundesministerium für Wirtschaft und Energie, 2017). These rules do not consider the demographic change that has been affecting Germany in the last decades. The population is getting older and fewer children are being born. With so many people in their retirement age presumably the amount of the retirement funds will not be enough to provide them with the money they need to live, thus older people would need to work more years than today.

Therefore, to solve the problem of skilled labor shortages in Bavaria, another strategy would be to better involve the share of people from 55 to 64 years old in the

workforce, who are currently seeking jobs. Normally, a company would not consider them suitable candidates for an apprenticeship as they would rather take on younger people that would work for the company over a longer period. But also, open positions that would require more experience are not offered to older people, as companies shy away from the potential risks related to the recruitment of older people. These risks include a higher vulnerability to sickness, injuries, and death, which would be connected to high costs for companies. Therefore, the government could intervene to incentivize companies to take on this share of the population in case the market mechanism fails. The need to involve older people in the workforce has also been included in the fourth path of the “Skilled Labor Concept,” which aims at reaching it by “promoting skills development through initial and continuing training and education.” According to this strategy, the employment of older people would be easier, if they took part in continuing educational training (Federal Ministry of Labour and Social Affairs, 2017). The recurrent training of older people would enable them to be useful to the variable needs of a company and therefore, they would be active participants of the workforce rather than being made redundant and rely only on social help to survive at the later stages of their work life. Furthermore, if the continuing education training was to be extended to people belonging to the low-skilled workforce, then they would gain the necessary skills to enable them to aim for a better work position within the skilled-labor sector.

## 4 Conclusion

In conclusion, Bavaria is still one of the economically strongest regions in Europe. Nonetheless, the framework of the strategic management of places suggests to actively shape and enhance a place’s performance continuously. Staying innovative and competitive is a keystone to future economic success and sustainable development. As the abundance and quality of Bavarian skilled labor have been one of the main drivers of Bavaria’s economic success over the last decades, it needs to be preserved for future achievements. Until today, the extremely high density of universities and universities of applied sciences, the abundance and quality of apprenticeship programs offered by Bavarian companies as well as the strong educational system of the free state can be considered the main factors for the regions outstanding labor market situation. Bavarian companies are still finding themselves in a favorable position on the labor market due to the consistent availability of skilled labor. It is nevertheless striking that the success and economic well-being of a region may also create problems that simultaneously threaten this status. Low-birth rates and high life expectancy, which are typical for prosperous regions, push demographic change. At the same time, high levels of employment and increasing levels of education affect the labor market by creating labor demand surpluses and matching issues on the market. That’s where purposeful and well-considered policies must be implemented to encounter those problems. We proposed financial support to increase the attractiveness of apprenticeships, which must be a

central element of the action plan. At this point, companies as well as the government are required to take actions. Another crucial approach would be the integration of social groups that have been neglected in the labor force so far. Elderly unemployed people, low-educated school leavers, and especially immigrants and refugees provide a huge potential for the Bavarian workforce. Through continuous education and integration programs combined with tax incentives, subsidies, or the imposition of statutory quotas, the government could support those people entering the labor market. Meanwhile, companies are required to adapt their recruiting policies to the new circumstances, improve and expand their apprenticeship and training programs and eventually start competing again on the highly competitive Bavarian labor market. Finally, we think that the policy implications introduced in the previous chapter would be both feasible and effective to face the problem of skilled labor shortage in Bavaria and should be implemented now rather than later.

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# The Gender Pay Gap in France



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**Abstract** The present paper analyzes which characteristics, impact factors, and causes favored the emergence of the gender pay gap in France, by shedding light on societal, cultural, and political conditions and aims to provide possible policy approaches to solve the gap. France as a place is of particular interest due to its recent new pay gap measure that shall be introduced by the French government and France's low position in the global ranking regarding wage equality for similar jobs. Women are paid less, and they get undervalued compared to their male counterparts, who conduct equivalent jobs. Hence, policy interventions, which narrow the gap, are crucial for France's economy. Other European states, especially Finland and Sweden, which scored best in global comparisons due to their low-gender pay gaps, might serve as case studies and provide transferable strategies for France, such as legislation and pay system adjustments, investment funds, awards, or bonus incentives, to offset gender pay gaps within organizations.

## 1 Introduction

According to several European countries' constitutions (inter alia Finland, Germany, France, and Italy), pay discrimination due to gender is forbidden (Schäfer & Gottschall, 2015). Nevertheless, women still suffer more often from pay differences and get undervalued in contrast to male counterparts at everyday work. Although the gender gap between men and women could be decreased in the last years worldwide and thus is today substantially lower than in 2006 (World Economic Forum, 2017, p. viii), achieving gender parity remains one of the major global challenges of the

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future. The Global Gender Gap Report 2017 and its provided index predict that it will take 217 years to close the economic gender gap (World Economic Forum, 2017, p. viii). The report examines worldwide gender disparity by analyzing 144 countries within four dimensions, which serve as sub-indices, such as “Economic Participation and Opportunity, Educational Attainment, Health and Survival, and Political Empowerment” (World Economic Forum, 2017, p. vii). Out of the group of G20, France obtains rank 11, closely followed by Germany (rank 12), while Iceland, Norway, and Finland represent the top three with Iceland as best placed European counterpart (rank 1) (World Economic Forum, 2017, p. 24). France shows outstanding positions within sub-indices by obtaining the first position. For instance, France achieves gender parity within the dimension of educational attainment, followed by the ratio of women within ministerial positions, as well as in the category of professional and technical workers (World Economic Forum, 2017, p. 154). However, there is considerable scope for improvement regarding France’s wage equality (for equivalent jobs): France obtains one of the lowest scores by achieving position 129 out of 144 in the global gender gap ranking, which implies a large distance to parity (World Economic Forum, 2017, p. 154). Thus, the Gender Pay Gap (GPG) in France is of particular interest due to the new and radical policy initiative of France’s president, Emmanuel Macron, which recently has been very present in the media and due to France’s low score regarding wage equality for equivalent jobs.

The paper aims at analyzing the evolution of the GPG in France. Starting with Audretsch’s framework of strategic management of places, followed by an analysis of the emergence of the pay gap in France, including historical events, labor market conditions, and causes that were crucial for the gap’s evolvement. Finally, regulations and policy initiatives to tackle the GPG will be provided by referring to strategies that were considered effective responses toward the gap of other European countries and thus might be able to transfer to France.

## 2 Problem Analysis

### 2.1 *Strategic Management of Places Framework*

Audretsch presents a framework for the strategic management of places. “Place policy” or “location policy” exists because what may be beneficial to one region may be harmful to the neighboring region (Audretsch, 2015, p. viii–ix). To analyze a particular place, there must be an acknowledgment of the necessary “ingredients”: factors of production, the spatial and organizational dimension, and the human dimension (Audretsch, 2015, p. 23). For the purpose of focusing on the central issues regarding the GPG in France, only the aspects of each dimension that are most relevant to the topic will be covered: knowledge, research and development, universities, unskilled vs. skilled labor, and identity and images (Audretsch, 2015).

*Knowledge:* Our first factor of production is knowledge. Knowledge plays an essential role in employment and wage determination. The gender gap in school enrollment in Europe has essentially disappeared (Inchauste, 2018). In some areas, more young women are enrolled in school than young men (Inchauste, 2018). Despite this fact and many women having more education than their male competitors in the workforce, women in many fields still have lower wages than men (Inchauste, 2018).

*Research and Development:* Data results from the ILOSTAT database of the International Labour Organization (The World Bank, 2017) show a large difference in the percentage of males (80.612%) and females (53.855%) who are participating in the labor force in France. In addition, employment for both genders is reducing each year (The World Bank, 2017). These data correlate with the research and development topic within the factors of production dimension. With a 26.757% difference between the percentages of male and female employment and dwindling percentages for each gender, there will eventually be damaging economic consequences in France (The World Bank, 2017).

*Universities (Human Capital):* According to the Organization for Economic Co-operation and Development (OECD), 8% more young women are graduating from universities than young men (OECD, 2017a). However, only 38% of science graduates are female, which is below the OECD average (39.2%) and the percentage of science graduates in Portugal (56.9%) (OECD, 2017a). This is surprising given the favorable economy in France and their high ranking for gender equality: 11th out of 144 countries (World Economic Forum, 2017, p. 24).

*Unskilled vs. Skilled Labor:* In 2016, a government study revealed that women make up 80% of the part-time workforce in France (Cross, 2016). In addition, 33% of women work part-time, which is nearly five times higher than the percentage of men working part-time (7%) (Cross, 2016). 45% of women who work part-time have three or more children, while men who work part-time are more likely to be pursuing other career goals or going back to university (Cross, 2016). This study supports the notion that childcare is still placed too heavily on women and affects their career paths, and therefore wages, to a large degree (Cross, 2016).

*Identity and Images:* Since 1946, France has had legislation in place to guarantee wage equity between men and women for equal work (Soumeli & Nergaard, 2002). The central issue is that there is equity in the law, but not in practice. Within the French society and societies across the globe, there are stereotypes that each gender should work in a certain sector or field (Soumeli & Nergaard, 2002). Men and women are stereotypically categorized as having different skills. For example, women are supposed to work in the public sector because they are viewed as being more caring and having higher ethical standards (Soumeli & Nergaard, 2002). According to IES: The Cultural Atlas (2018), there is a high standard for women in France regarding family (IES: The Cultural Atlas, 2018). The mere potential for a woman to one day become a mother influences job recruitment, promotions, and task assignments in the workplace. This is a result of family leave legislation that reinforces traditional gender roles that relate to women working full-time in their homes while taking care of their children (Crowley, 2013).

2.2 Cultural Dimensions by Hofstede

The model by Hofstede consists of six dimensions, which show significant differences concerning the preferences of states or rather the preferences of people’s culture there (Hofstede Insights, 2018a). Hofstede, therefore, conducted a comprehensive study to find out, how workplace values differ because of culture (Hofstede Insights, 2018a). According to him, by the factors “power distance,” “individualism versus collectivism,” “masculinity versus femininity,” “uncertainty avoidance,” “long-term orientation versus short-term normative orientation,” and “indulgence versus restraint” (Hofstede Insights, 2018a, pp. 2–4) specific countries can be well compared.

For this research paper, mainly one dimension is of relevance: ‘Power Distance’. If a country is characterized by a high score in ‘power distance’, its inhabitants accept a hierarchical order and do not expect further justification or question the current situation (Hofstede Insights, 2018a). Consequently, there are not many people striving to equalize existing inequality (Hofstede Insights, 2018a).

Regarding Fig. 1, the US, Germany, the UK, and Australia have low scores between 35 and 40 in ‘power distance’, while France is set much higher at 68 out of 100. France, therefore, is more hierarchical and its society “accepts a fair degree of inequality” (Hofstede Insights, 2018b, p. 2). This finding underlines one of the main problems analyzed before: the gender wage gap, especially the different payment to women and men for the same job (discrimination) might not have been fought hard enough so far, as French people might even accept a certain small inequality. In other words, parts of GPG in France could possibly also have their origins in culture.

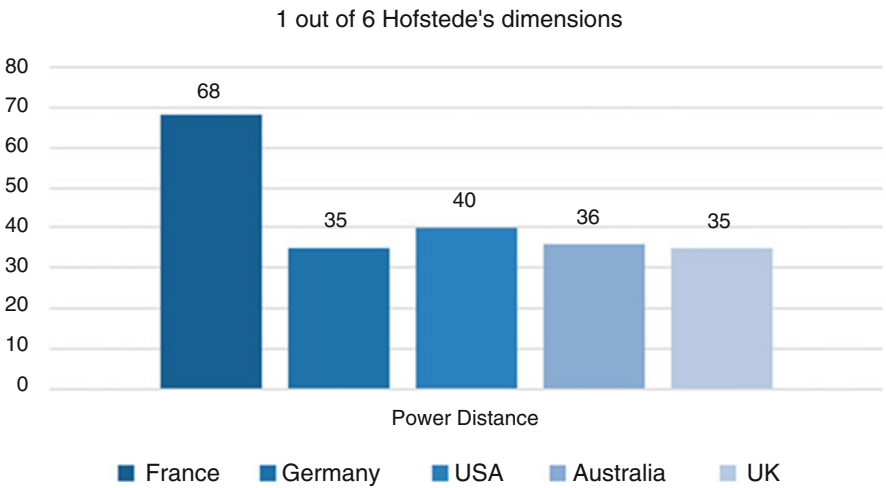


**Fig. 1** Own illustration based on data from Hofstede Insights (2018b); 1 out of 6 Hofstede’s dimensions

### 3 Evolution of Gender Pay Gap in France

#### 3.1 *Definition*

Gender pay gap describes the presence of “obvious or hidden disparities among individuals based on gender” (Wikigender, 2018, p. 1) and can be distinguished from the concept of ‘Equal pay’. The latter one, refers to a US’ legal requirement, the Equal Pay Act of 1963, according to that male and female employees, who perform equivalent jobs regarding “skill, effort, and responsibility under similar working conditions” (Equal Employment Opportunity Commission, 2018, p. 1) have to be remunerated equally and shall benefit from same working conditions and advantages, which are regulated by the Act. But the gender pay gap is a bigger concept that considers the difference in the average earnings of men and women, which does not depend on the nature of their work or the type of organization (Equality and human rights commission, 2018). In the world of work, the gender inequality is visible in the presence of different possibilities, advantages, roles, career opportunities, and ascendancy (Equality and human rights commission, 2018). Although over the years, several important goals and milestones regarding gender equality and women’s right were achieved, the gender gap is still pervasive and affects women of all backgrounds, at all ages, and of all levels of educational achievement.

Overall, the gender pay gap could be linked to cultural and social factors. For instance, mostly women tend to work within sectors where wages are, on average, lower than in the jobs field, which are dominated by men (Equality and human rights commission, 2018). Furthermore, women often have more caregiving responsibilities toward children and seniors so that they rather choose part-time jobs, or their competences and skills get underestimated (Equality and human rights commission, 2018). As a result, they frequently earn less than men for doing comparable jobs. However, the question of what drives the emergence of the gender pay gap, is difficult to answer due to the influence of many factors, such as changes in the labor demand, supply, lifestyle, group behavior, education level, institutional factors, and government rules. Hence, it is important to analyze the context and the market in which the gap arises.

#### 3.2 *Causes, Components, and Impact Factors of the Gender Pay Gap*

“No country in the world has achieved gender equality. Even the most egalitarian continue to experience troubling gaps between men’s and women’s aspirations, opportunities, and outcomes” (OECD, 2017b, p. 26). This quotation proves the topic’s relevance and the importance of finding the reasons for it.

The Gender Pay Gap results from mainly two reasons: (1) “direct gender discrimination” and (2) “Occupational segregation” (Blau & Kahn, 2000, p. 80;

Wagner, 2015, p. 17). Additionally, the factors “soft skills,” “education,” and “differences in hours worked” (Blau & DeVaro, 2006, p. 3; Wagner, 2015, p. 17) also need to be considered when searching for explanations. Although these reasons have a major influence on the wages of men and women and by that on the gender wage gap, additional factors like union affiliation cannot be completely ignored, as they can impact the wage as well (Audretsch, 2015, p. 63). So technically, it should be also analyzed, how high the proportion of women compared to men in unions is. In the following, the focus will be on the most principal factors.

### 3.2.1 Gender Discrimination

Although there can be many factors named, there still remains a portion of the GPG, which cannot be explained and might be due to discrimination (Blau & Kahn, 2000; Wagner, 2015, p. 17). There are different variations of gender discrimination, but one of the most significant ones is wage discrimination (Witkowska, 2013, p. 333). This means that men and women get paid a different salary for the exact same work (Witkowska, 2013, p. 333). These enormous differences also become apparent by having a look at the tracking of the 26 occupational categories (Wagner, 2015, p. 17). Some research even suggests that many women work for low-paid jobs because they were not hired in high-paid jobs (Gobillon et al., 2015). Due to motherhood, women are more likely not to work full-time or without any career break. Nowadays, even very career-oriented women might get to feel those disadvantages because they are seen as “potential mothers” (Dey & Hill, 2007, p. 3). Because of that, companies should offer various options to ensure that women can easily plan a management career and are able to combine it with childcare (World Economic Forum, 2016, p. 7). According to Dixon (2017), potential measures are a fair-paid parental leave and financially supported childcare, or alternatively the offer of on-site childcare. Additionally, it is very important to ensure smooth transitions in and out the parental time as well as flexible working hours (World Economic Forum, 2016, p. 5).

### 3.2.2 Occupational Segregation

Moreover, most women do not work in high-paid jobs such as in the industrial sector (18.3% of all women in the labor market) but in the service sector or agriculture (together 81.7% of all women in the labor market), where they earn much less (ILO, 2009, p. 10). Furthermore, many women feel themselves connected to work in a children, education, and family environment, as these working areas consist of similar tasks to their unpaid work at home (Chen et al., 2005, p. 29; Knauß, 2018).

Women also more often concentrate on low-paying firms when they make job choices because of their common focus on family-friendly conditions rather than high salaries (Groshen, 1991). Thus, these industry choices can explain a massive portion of the wage gap, in some studies even roughly 30% of the difference (Blau &

Kahn, 2000). As a solution, women should be provided with practical experience in STEM jobs (science, engineering, technology, and mathematics) and be informed about societal benefits of these sectors, as women are underrepresented in this high-paid field (Dey & Hill, 2007, p. 30). By winning more women for these kinds of jobs, the high salaries consequently are distributed more equally.

### 3.2.3 Soft Skills

Furthermore, many women do not benefit from their talents like caring for others at work because they are seen as “natural female characteristics” (Education International, 2010, p. 4) rather than workplace skills (Education International, 2010, p. 4). Instead, women might lack effective bargaining power, which plays an important role in setting their wages (Card et al., 2015, p. 19).

### 3.2.4 Education

Although more women than ever complete general higher education and top the male numbers, this evolvement does not automatically correlate with salary rises (OECD, 2017b, p. 26). Instead, the GPG is caused by the lower probability of women to pursue degrees in the specific high-paid fields like engineering, science, math, or technology (Wagner, 2015, p. 17). However, most parts of the GPG cannot be explained by differences in education because the levels men and women score in this field are fairly equal (Wagner, 2015, p. 17).

### 3.2.5 Differences in Hours Worked

A large factor in the gender pay gap is the difference in hours worked by men in contrast to women because men do work more often year-round, whereas many women work in part-time jobs (Wagner, 2015, p. 16). Because of that, they built up less work experience and get paid less consequently (Wagner, 2015, p. 16). But even directly after college, women must deal with this problem which shows that the named reason does not come alone: They are paid 7% less with the same qualifications as men (Wagner, 2015, p. 17). Relative wage ratios of younger women decrease with their age because the possibility of having children and thus being dropped out of the labor market gets higher (Blau & Kahn, 2000; Chamberlain, 2016, p.28). As a result, women are less likely to be promoted (Blau & DeVaro, 2006, p. 19).

3.2.6 Country Comparison of the Main Reasons

The data below show that the general pay gap in France is not that high compared to other countries at first sight (Table 1).

However, some severe problems can be seen after a more detailed analysis. The following table shows the decomposition of France’s gender pay gap amongst others based on Glassdoor salary data. The ‘explained’ part shows differences in worker or job characteristics like education or occupation, whereas ‘unexplained’ contains unobserved factors or forms of workplace discrimination, meaning that men and women are rewarded differently for the same work (Chamberlain, 2016, p. 3). The ‘explained’ part of the GPG is structured in roughly 50% occupation segregation and about 21% explaining individual worker characteristics such as working experience and education (Chamberlain, 2016, p. 44). Education and experience are therefore less important factors. As can be seen from this data, the GPG in France is mainly due to occupation segregation (Chamberlain, 2016, p. 44). The unexplained, discrimination part amounts to 29%, which is the second most common cause (Chamberlain, 2016, p. 44). The differences in payment for the exact same job are very high in France, which was already mentioned in the introduction (rank 129 according to World Economic Forum, 2017, p. 154) (Table 2).

To conclude, France should start mitigating the GPG by finding solutions for the occupation segregation and gender pay discrimination, as those are the main causes of the problem.

**Table 1** Gender Wage Gap in %; Own illustration based on Chamberlain (2016, pp. 13–44)

| Country   | Gender wage gap |
|-----------|-----------------|
| US        | 24.1            |
| UK        | 22.9            |
| Australia | 17.3            |
| Germany   | 22.5            |
| France    | 14.3            |

**Table 2** Percentage of the Gender Pay Gap in the specific country; Own illustration based on Chamberlain (2016, pp. 13–44)

| % of the Gender Pay Gap in the specific country |                        |                      |                  |
|-------------------------------------------------|------------------------|----------------------|------------------|
| Country                                         | Explained part         |                      | Unexplained part |
|                                                 | Occupation Segregation | Education/experience |                  |
| US                                              | 54                     | 14                   | 33               |
| UK                                              | 38                     | 26                   | 36               |
| Australia                                       | 38                     | 24                   | 39               |
| Germany                                         | 28                     | 22                   | 49               |
| France                                          | 50                     | 21                   | 29               |

### 3.2.7 GPG Awareness and Measures by the State for Mitigating the GPG

One significant policy measure is pay transparency, which shows the firm's management the GPG of their company (OECD, 2017b, p. 163). In some countries, employees get an insight into those results, which encourages the firm to pay equal wages (OECD, 2017b, p. 163). Additionally, the state can issue certificates for companies that pay their employees the same wage, independent of their gender (OECD, 2017b, p. 163). To put even more pressure on firms, reporting requirements on employee-wages could be implemented, so consequently companies could be analyzed regarding their GPG and take actions against it, as well as potentially being sanctioned for not following the rules (OECD, 2017b, p. 163). The state can also offer pay calculators for its citizens, supporting the awareness of what they should be paid for certain jobs, sectors, and localities (OECD, 2017b, p. 163). Coming from the other perspective, self-diagnosis gender pay gap tools or software could be provided for companies (OECD, 2017b, p. 163).

## 4 Policy Implications

France's economic activity follows closely the Euro area's top leader Germany and outperforms other European Union (EU) member states such as Italy, Spain, the Netherlands, and Switzerland (Statista, 2018). Regarding the top twenty countries with the largest GDP, France ranked fifth position with a GDP of \$2574.81 billion, whereas the United States (US) obtains the first rank (\$19362.13 billion), followed by China (\$11937.56 billion) and Japan (\$4884.49 billion) (Statista, 2018). France is ranked between Germany, their highest-ranked European counterpart (\$3651.87 billion), and the United Kingdom (UK) (\$2565.05 billion) (Statista, 2018). According to the Global Gender Gap report, solving the economic gender gap will result in advanced economic performance and rise France's GDP by an additional \$320 billion (World Economic Forum, 2017, p. viii). Thus, policy interventions that aim to narrow the gap are considered highly beneficial to enhance France's overall economic performance. Information about Emmanuel Macron's recent initiative to bridge the gap is provided in the following section. Due to Iceland, Norway, Finland, and Sweden's achieved top positions within the global gender ranking (World Economic Forum, 2017, p. 24), those countries as well as other European countries might serve as case studies. The EU Action Plan towards the gender gap as well as strategies of European counterparts to tackle the gap will be examined and assessed to what extent these might be transferrable to France. Finally, a conclusion will be provided.



## **4.1 *Macron's Policy Initiative***

In 2011, France introduced the Coppé-Zimmermann law, which determines a respective quota of 40% of women and men within executive and supervisory boards (novethic, 2018) and thus positively raised the share of women (En Marche, 2016). Listed companies with a staff headcount over 500 employees had to implement the quota until the first of January 2017 (novethic, 2018). Otherwise, they face financial penalties, such as the suspension of board members' remuneration as well as the cancellation of nominations (novethic, 2018). According to Emmanuel Macron, quotas that enhance the presence of women within top management positions are the key issue to enhance gender equality, women's societal status, and to support companies' reorganization processes (En Marche, 2016). For Macron resolving France's 25% gender pay gap (Financial Times, 2018) has the highest priority (Wulfhorst, 2018). Hence, a new pay gap measure, as an element of the social reform program, is planned to be implemented until 2020 in France, if approved by the parliament (BBC News, 2018). It consists of computer software, which will monitor companies' pay systems and check for pay gaps (BBC News, 2018; Reuters, 2018). Within large enterprises (minimum 250 employees), the software will be installed in 2019, whereas smaller ones that are placed between the threshold of 50 and 249 employees must wait until 2020 (BBC News, 2018; Reuters, 2018). Starting in 2022 with sample audits, (the number of inspections will increase four times thanks to the software) companies that do not close pay gaps within 3 years could face a sanction of 1% of a company's total payroll (BBC News, 2018; Reuters, 2018). Overall, Macron's policy measures are crucial to carry France further due to its status as "an empty shell" (Milner & Gregory, 2014, p. 259). The latter term refers to France's previous legislation, which lacked enforcement power and monitoring by governmental institutions but which are needed to oblige employers to implement changes within organizations and to enhance wage bargaining (Milner & Gregory, 2014).

## **4.2 *Key Findings of the EU Action Plan***

The EU has set up a strategic plan, which includes eight actions to narrow gender pay gaps (European Commission, 2017). First, existing legal regulations are reviewed and the need for new legislative text to ensure equal payment is examined (European Commission, 2017). Second, tackling stereotypes, such as the prevailing role of men within particular industry sectors, shall be addressed by targeted actions that are most effective within school career (European Commission, 2017). Concrete activities include the initiation of conferences that serve as an exchange platform of experiences, by inviting school principals, various universities, as well as training and career advice companies (European Commission, 2017). Specific projects to reduce gender clichés in the context of Erasmus+ are financed, as well as the

attribution of the “EU prize for women innovators” (European Commission, 2017, p. 17). The third step, as part of a Commission proposal, involves the goal to increase the number of women in top management positions, e.g., by quantitative target setting and transparency regarding management board eligibility criteria (European Commission, 2017). Another important issue represents care service for seniors and children. The EU plans to adjust existing legal regulations by establishing policies that allow flexible working times to support female employees, who take care of close relatives (European Commission, 2017). Furthermore, quality standards and costs of care service providers shall be improved to remain affordable (European Commission, 2017). Regarding parental leave, policies aim to encourage family-related leaves and the division of responsibility between both parents, which might provide more work-life balance for women and thus could increase their share in particular labor market sectors (European Commission, 2017). The fifth, sixth, and seventh activities include the spread of gender-neutral job classifications, continued reporting and data gathering about the gap’s emergence, its underlying reasons, and the publication of project outcomes, e.g., a calculation tool to provide a remedy to address the gap (European Commission, 2017). The last action out of eight, considers the importance of partnerships with key stakeholders, like governmental representatives, to develop legislative regulations, as well as the provision of funding to assist member states that intend to close the gap (European Commission, 2017).

### ***4.3 Strategies and Responses of Other European Countries***

The gender pay gap within the EU accounts 16%, which implies that women’s hourly earnings on average are 16% lower than those of men (European Commission, 2017; European Union, 2018; Eurostat, 2018). According to the Gender Equality Index, published by the European Institute for Gender Equality (EIGE), France scored 72.6 and obtained rank 5 (European Institute for Gender Equality, 2017, p. 8). The index attributes scores to the EU members that range from 1 (imparity) to 100 (gender equality) within diverse dimensions (European Institute for Gender Equality, 2017, p. 3). Another driving force of the gender pay gap within the EU is the prevailing role of men in high-paid industry fields, so-called STEM sectors, including “science, technology, engineering, and mathematics (STEM)” (European Institute for Gender Equality, 2017, p. 19), which amount 4.2% of the wage gap (European Union, 2018, p. 21). Within the global gender gap ranking, Iceland is best placed, as it achieves the first position (World Economic Forum, 2017, p. 24) and has the world’s smallest gender gap in the last 9 years (Henshall, 2018). Iceland’s model is outstanding due to its radical measure to address the gap, which involves one major change: In case of an unjustified pay gap, no individuals have to take their issue to the court, instead their superiors must discharge their burden of proof and have to show that their employees are fairly remunerated (Henshall, 2018; Spiegel Online, 2018a). Iceland’s legislation shall apply to companies with a staff headcount of minimum of 25 and more employees, which must

prove fair payment systems in a three-year cycle (Spiegel Online, 2018a). Overall, Iceland aims to close the gender gap until 2022 (Alderman, 2018).

France's recent initiative resembles Iceland's model due to its radicalism but it can be rather considered an extension through the implementation of software-based audits and payroll-penalties. However, one important part, the shift of burden of proof from an employee to an employer should be confirmed by the legislative text in France as well, so that individuals do not have to engage in excessively long judicial proceedings.

### 4.3.1 Transparency Initiatives

In contrast to France, the UK scored considerably better (rank 59, score 0.671) (World Economic Forum, 2017, p. 332). The UK's current average hourly earnings gender gap amounts to 18% (The Lancet, 2018). To tackle the gap, the UK mandated a transparency initiative, which targeted private and public sector employers with a minimum staff headcount of 250 (European Union, 2018; The Lancet, 2018). The latter ones had to report hourly earnings of their employees, as well as remuneration gaps, until fourth of April (European Union, 2018; The Lancet, 2018). More than 10,000 reports were received, and the reports implied a gender pay gap favoring men in the UK, as 78% stated that men receive higher hourly earnings on average (The Lancet, 2018). However, the result does not provide evidence for a lack of wage equality for similar work, it rather emphasizes the prevailing role of men in highly paid positions (The Lancet, 2018). Thus, the value of UK's initiative can be considered rather limited and less effective, as not all employers respond, the result does not present evidence for a gender pay gap and employers yet do not have to expect consequences if a pay gap is identified. Nevertheless, the EU recognizes the importance of gender pay transparency to develop an awareness of pay discrimination within companies and to entitle employees to take legal action (European Union, 2018, p. 19). Based on the EU Action Plan, EU member states were mandated to adjust their legal systems regarding transparency measures (European Union, 2018, p. 20).

However, the states are pending at different stages, and only six states, *inter alia* Germany, France, and the UK, introduced new measures or adapted former ones, whereas others are still planning to establish them, or their measures are prior to being implemented by parliaments (European Union, 2018, p. 20). For instance, Poland's ministry introduced an application to monitor gender pay gaps that aims to support employers in establishing a non-discriminatory pay policy. It is available online, free of charge, and considers individual characteristics, which can be selected within the application, such as employee's level of education, age, and gender (Ministry of Labour and Social Policy, 2018). Furthermore, increased pay transparency has proven effective, as it encourages salary negotiations (European Union, 2018, p. 21). Germany has been progressive by introducing the "Entgelttransparenzgesetz" in 2017, a law, which enables everyone to have access to employees' payment levels within companies that exceed the staff headcount

threshold of 200 employees (European Union, 2018, p. 20). It involves information about remuneration, criteria that determine bonus size, as well as the median gross remuneration per month of minimum six staff members of diverse gender, who conduct equivalent jobs (European Union, 2018, p. 20). Furthermore, employers of the private sector with a staff headcount of over 500 employees are mandated to do pay audits to ensure payment equality and must report the audit's outcome if they are obliged to publish an annual report (European Union, 2018, p. 20).

However, recently, the *Entgelttransparenzgesetz* has been subject to increasingly explicit criticism, and thus became a symbol of bureaucracy (Töpper, 2018). The law provides only a right to information, but employees are not entitled to any adjustment in remuneration (Spiegel Online, 2018b). Furthermore, the right is only provided in rare cases, as it requires at least six people who conduct equivalent jobs and the term 'equivalent' leaves scope for interpretations (Spiegel Online, 2018b). The *Entgelttransparenzgesetz* does not provide a genuine benefit: Individuals still have to take their issue to the court in case of an identified pay gap and thus may suffer from long judicial proceedings and the provided information can only serve as a base for salary negotiations (Spiegel Online, 2018b). Hence, the law is proven to be ineffective to achieve gender justice. France's new pay gap measure can be rather considered as effective mean to force companies to dedicate the right attention to gender pay gap issues. Both transparency approaches, Poland's app, as well as the legal regulations of Iceland, could be valuable for France as well.

In general, the lack of transparency represents one reason for the European gender pay gap. It impedes wage negotiations in which women, in contrast to men, might be more willing to participate only if bargaining wages would be seen as a common practice supported by policies or their organization (European Commission, 2017).

### 4.3.2 Minimum Wage Floors

The EU member states follow different approaches in determining wage rates: A passive one, e.g., the right for equal pay is guaranteed by the law so that employees may engage in companies' decision-making but the latter ones are not monitored by the state; a more corrective one in which states interfere by setting a minimum wage, or as the third option a mix of both approaches (Hu, 2018). However, the first one is appropriate only for countries that have strong labor unions to offset employers' dominant position like it is the case in Sweden (Hu, 2018). Introducing minimum wages improves employee's remuneration within low-wage sectors and thus narrows the gap, as in the case of Germany, with a 2.5% smaller gender pay gap, outlines (Boll et al., 2015; European Commission, 2017). Germany is ranked on the sixth position due to its national minimum wage of 8.84 € per hour, whereas France achieves the second rank (9.76 €) (Wirtschafts- und Sozialwissenschaftliches Institut, 2017). Minimum wages are considered effective mean to reduce gender wage gaps but do not increase future career prospects of women and men (Hallward-Driemeier et al., 2017). Since 1990, Germany struggled with its wage setting system, which as an autonomous one, suffered from trade union's decreasing power and a

high number of people without collective agreements (Hu, 2018). As a result, low-wage sectors expanded especially in East Germany, and the introduction of a national wage floor was expected to even worsen the situation (Hu, 2018). However, the floor, as a sole solution to enhance wage bargaining and union's power, had to be introduced in 2015 and then lead to the lowest unemployment rate since 1990 (Hu, 2018). Mini-job employees, large part of them mothers and women with part-time jobs, benefitted the most (Boll et al., 2015; Hu, 2018), as the wage floor offsets the lack of unions within mini job segments (Hu, 2018). However, the effect of the German reform lead rather to a "wage adjustment between regions than between genders" (Caliendo et al., 2017, p. 13). Women still get paid under the minimum hourly wage and suffer higher wage differences than men (Caliendo et al., 2017).

In general, opinions toward the effectiveness of wage floors are divided, despite positive cases of Germany and Ireland, where the introduction of a national minimum wage led to a strong decline of gender pay gaps at the lowest income levels but had no effect in the UK (Bargain et al., 2018). Regarding France's already high hourly wage rate, it must be questioned whether an increase in the national minimum wage can serve as the right mean to decrease France's GPG. Positive outcomes are not easily replicable and depend on the countries' different basic situations. The increasing divide between regions as result of the exacerbated mini and low-wage problematic (in East Germany) forced Germany to react. Hence, the wage reform is not easily comparable with France and its positive outcomes in Germany might not occur to the same extent in France.

#### 4.3.3 Role of Wage-Setting Institutions

Wage-setting institutions involve the provision of centralized wage-setting standards: Especially the high levels of minimum wage floors, collective bargaining systems or powerful labor unions (Kahn, 2015) favor female full-time employees by reducing gender pay gaps (Schäfer & Gottschall, 2015). However, strategies to enhance wage bargaining through sectoral negotiations and powerful labor unions rather exacerbate the gap for women, as centralization is not appropriate (Schäfer & Gottschall, 2015). In fact, national employment patterns and company characteristics must be considered (Schäfer & Gottschall, 2015). Not only income levels shape the gender pay gap, but diverse sectoral wage-setting routines determine the gap's height as well (Schäfer & Gottschall, 2015). Thus, previous EU regulations have to be questioned, as regardless of the presence of these institutional rules, the gender pay gap for female full-time employees within EU member states, especially within health and welfare branches, shaped by the women's dominance, is still pervasive (Schäfer & Gottschall, 2015).

The health sector is subject to a high gender pay gap in Finland, the Czech Republic, Latvia, Luxembourg, France, and Spain (Schäfer & Gottschall, 2015). In other EU member states, finance industry fields face the largest gap, which is driven by its status as a high-paid industry, the dominance of men and the least share of women (Schäfer & Gottschall, 2015). In general, a high minimum wage rate or

collective bargaining system, applied over all sectors and economies, leads to smaller gender pay gaps of full-time employees (Schäfer & Gottschall, 2015). However, its effectiveness depends on the number of affected employees and wage-setting institutions do not monitor how collective bargaining systems are implemented (Schäfer & Gottschall, 2015). Hence, wage regulations can be assessed as a useful tool for providing standards to mitigate gender pay gaps but do not present a final solution to close the gap.

#### ***4.4 Transferable Strategies to Close France's Gender Pay Gap***

The following strategies of other EU member states to address the gap could be transferred to France. Especially those of Finland and Sweden are of particular interest due to their outstanding position in the global gender ranking (World Economic Forum, 2017, p. 24). In general, the three countries do not consider money to be a private issue, as income tax returns are published every year (Marçal, 2017). This strategy is unusual, contrary to common practices and social norms of other EU states, in which it is not common to discuss everyone's salary in public. However, it turns out to be effective: Sweden's GPG is only 6%, regarding men and women who conduct equivalent jobs (Marçal, 2017). In fact, transparency is important, as people are more satisfied with their job and less likely resign their job (Marçal, 2017). Furthermore, Swedish companies with more than 25 employees have to disclose their strategy to tackle gender pay gaps within an equality action plan (Marçal, 2017). Overall, Sweden's system is simple: you call the tax authorities and get information about everyone's salary (Marçal, 2017, p. 1). Only the person who you are asking will know that you requested information (Marçal, 2017).

Finland established an Equal Pay program, which includes regular pay polls and plans developed by enterprises to foster the implementation of fair pay, like those required by Swedish companies (Ministry of social affairs and health, 2018). But the threshold is a bit higher: employers with a minimum staff headcount of 30 must develop such a plan to achieve gender parity (Ministry of social affairs and health, 2018). Furthermore, pay systems shall consider different levels of qualification, education, as well as performance, and in general women's job prospects are aimed to be enhanced by providing support to increase the number of women in the top management positions, which will raise female wage rates (Ministry of social affairs and health, 2018). Gender equality as part of organizations' corporate social responsibility practices shall ensure an effective implementation of gender equality (Ministry of social affairs and health, 2018). In Finland, an equality bonus of 0.2% is embedded in collective agreements that shall strengthen the position of women within low-wage industry fields that usually show a predominance of women (European Union, 2011). Furthermore, a prize was established, which is awarded to the company that has the best annual strategic plan to achieve gender equality.

Switzerland follows a similar approach, as enterprises could receive certification, the equal pay logo, if they succeeded in proving implementation of an equal pay policy (European Union, 2011).

## 5 Conclusion

Since 1983, France has been complying the “Convention on the Elimination of All Forms of Discrimination against Women (CEDAW)” (ILO, 2009, p. 33) implications (United Nations Treaty Collection, 2018), which ensures the avoidance of discrimination against women by implementing national countermeasures (ILO, 2009, p. 33). Finding solutions for the complex causes of GPG remains challenging. However, regarding the overall aim to mitigate gender pay gap, there is still scope for improvement and further available options to choose from. The GPG should be narrowed by starting with approaches to the above-mentioned factors and by identifying the reasons for across-workplace discrimination (Wagner, 2015, p. 18).

As industry selection and occupation represent one of the two main reasons for the GPG, public policies should support equality by eliminating social barriers (Chamberlain, 2016, p. 4). Thus, men and women should not be divided into certain majors and career tracks and should not be made solo responsible for child-raising and caregiving duties by social pressures (Chamberlain, 2016, p. 3). Furthermore, it is important that employers communicate transparent salaries so that hard-to-justify GPGs can be removed (Chamberlain, 2016, p. 4).

The World Economic Forum emphasizes within the global gender report of 2016 the importance of combining the interventions, as they do not produce successful results when they are used independently (World Economic Forum, 2016, p. 7). Instead, “they must be accompanied by a holistic set of priorities and long-term commitments, and by a deep understanding of the corporate, industry, and cultural context, as well as the organizational culture and local policy environment” (World Economic Forum, 2016, p. 7). To set a good example, the state should be a model employer concerning gender pay equity while introducing new policies (Dey & Hill, 2007, p. 35).

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# Population Decline: Detroit's Exodus



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**Abstract** This paper examines the phenomenon of shrinking cities, a problem defined as a major population decline in a city over an extended period. This paper focuses on Detroit as a prominent example since it went from being one of the leading city economies in the United States to declaring municipal bankruptcy over the course of the past century. From an economic perspective, the main factors that have contributed to Detroit's population decline are a lack of economic diversity, an ineffective educational system, and a negative city image. For these findings, specific problem-solving approaches are formulated. These include an extensive focus on sports as a catalyst for community togetherness and a technology hub to create a more diversified economy to counteract further shrinking.

## 1 Introduction

A declining automotive industry in the United States, deindustrialization, global financial crisis, shrinking cities in the time of increasing urbanization, lack of high-skilled labor. How can you link these major problems experienced in many different places throughout the world to Detroit? This paper will tie these global problems to the city and aims to analyze the population decline, which has been prominent over the last few decades from an economic perspective. Furthermore, the paper intends to provide innovative solutions for the problem, like urban greening, technology hubs, and many more, which could be relevant for policy makers in the future.

The city of Detroit was once one of the strongest economic powerhouses in the United States and a booming city in the twentieth century that grew immensely in

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population and size. However, due to strong dependence on one industry, Detroit has experienced a very sharp population decline since the 1950s from 1.8 million inhabitants to just over 624,000 in 2022 (World Population Review, 2022). This trend was accompanied by a dreadful economic situation created by the 2008 recession, leading to the largest municipal bankruptcy in the United States in 2013 (Fletcher, 2013). Even if the situation has bettered itself slightly since then, it could not be finally solved and still poses as a severe problem. It can be stated that Detroit is in a declining state of its entrepreneurial ecosystem (Cantner et al., 2021).

We start this paper with an introduction to the phenomenon of shrinking cities, which is present not only in the United States but can also be seen as a worldwide problem. Furthermore, background information on Detroit's history and current situation will be given. The paper will then be split into two main parts, starting with the problem analysis and continuing with the problem solution. The analysis will be based on the framework by Audretsch (2015), which he introduced in his book "Everything in its place: Entrepreneurship and the Strategic Management of Cities, Regions, and States". After analyzing all parts of the framework, we provide for each aspect. These aim to make Detroit more attractive for both businesses and residents and therefore tackle the problem of population decline. Lastly, this paper will be concluded with final remarks on the overall situation and a critical review.

## 2 Problem Analysis

### 2.1 *Shrinking Cities*

Shrinking cities provide one of the most crucial and challenging public policy and urban development issues. Nevertheless, they were widely neglected and ignored in literature and politics until recent years, (Audirac, 2018) even though 25% of cities in the world with over 100,000 inhabitants experienced a shrinkage in population before the financial crisis in 2008 (Hollander, 2018). Shrinking cities are not a contradiction to continuing urbanization. Instead, they pose a parallel to the overall increase in urban populations. Some urban areas still experience a major decline in population and economic performance, while other cities grow and thrive. One reason for the minor amount of political attention is that population loss is stigmatized as a non-ideal development for regions and cities (Adhya, 2017, p. 2). We will use the following definition of shrinking cities by Großmann et al. (2013, p. 221) which states: shrinking cities are "(...) those cities that have experienced considerable population loss over a prolonged period." The idea that cities shrink for a prolonged period is important because it avoids confusing short-term population fluctuations with the permanent shrinking process. It is important to note that shrinking cities are not defined by a balanced decline in all areas of the city but rather by a shrinking inner city and simultaneous growth of some areas around it (Adhya, 2017, p. 2).

Economic growth and a changing amount of employment can be seen as the main driver of population influx (Adhya, 2017, p. 3), as well as cultural tensions, aging population, and the lack of adequate education (Audirac, 2018). A declining population leads to decreasing tax revenue for the city and a financial vacancy. The result is a lack of investment in infrastructure and education from both the public and private sectors, resulting in further population losses, as well as decreasing property values (Adhya, 2017, p. 3). To counteract this trend, different public actors, civic initiatives, communities, and academics are needed to tackle this issue (Adhya, 2017, p. 6; Olsen, 2013).

## ***2.2 Background of Detroit***

Detroit has been subject to vast amounts of change over the course of its rich history. Being the automobile capital in the early twentieth century, many people were drawn to the city to work in the once-booming car manufacturing industry (Doucet & Smit, 2016). Due to the former demand for automobiles, the local car producers needed far more employees than the city was able to offer at that time, leading to a huge influx of people, especially from the south of the United States. This led to an increasing population from 285,704 in 1900 to 1,568,662 people in 1930, which is equivalent to an increase of 550%. During the Great Depression, the automobile industry hit an economic standstill causing many people to lose their jobs. This initiated the first downturn of population growth for the city. Many more soon followed (Owens et al., 2017). Before the Great Depression, the black population rose from about 5000 in 1910 to around 120,000 people in 1930, making the black population 8% of the city. During this time, however, race riots broke out which would later become a serious issue for the city (Gillette, 2017).

Following the events of World War II, Detroit saw a strong surge of regrowth and was responsible for 16% of the country's employment (Sugrue, 2022). This resurgence helped Detroit not only stabilize its economy but also helped the city excel. However, the great success of the city and its residents could not distract from the rising racial tensions, causing white residents to move to the suburbs (Owens et al., 2017). The city of Detroit and its industry were disrupted during the 1970s not only due to racial clashes but also due to the development in the automotive industry. Detroit's car producers, who were already struggling because of the oil crisis, saw increased competition in the market from foreign producers, especially from Germany and Japan (Sugrue, 2022). Despite the implementation of countermeasures, Detroit was unable to recover from the car industry meltdown to this day (Doucet & Smit, 2016). Following the bankruptcy of Lehman Brothers in 2008, coupled with the housing bubble burst and the collapse of the automotive industry, the state of Michigan losses of employment exceeded 800,000 jobs between 2000 and 2009. This timespan is known as the "Lost Decade" (Lioudis, 2008). By 2013, Michigan Governor Snyder filed for bankruptcy, setting the record for the largest municipal bankruptcy ever to be filed in the United States. The city's debt was estimated to be

somewhere between \$18 and \$20 billion (Davey & Williams, 2013). While many thought that the dire economic state of the Motor City would prove to be the final nail in Detroit's coffin, the city has begun to rebound in a few prominent ways. The downtown area has seen improvements through investments and following opportunities for employment (Feloni, 2018). The upswing in business activity in the heart of the city has made an additional investment in the area attractive, resulting in improved infrastructure (Saunders, 2018).

However, while downtown Detroit has flourished, the profits have only been shared within the city's business district. According to the U.S. Census Bureau, 33.2% of Detroit is still living below the poverty line in 2021 (U.S. Census Bureau, 2021a). In addition, the vast presence of abandoned properties led to a ratio of about 2700 violent crimes per 100,000 people in 2017, which is the second highest in the country among cities with more than 100,000 inhabitants (Macdonald & Hunter, 2018). All these factors combined may pose an explanation to the decreasing population of the city.

### ***2.3 Factors of Production and Resources: Education***

The economic downturn for Detroit caused many other important resources and facilities to deteriorate with it. According to Great Schools (n.d.), there are 523 schools in Detroit, with 314 being private schools. With all these schools comes a great deal of maintenance, and this maintenance is a problem that Detroit has been struggling to solve. The deterioration of the school system can be seen through the enrollment of the students. From the 1950s to the 2000s, the number saw a steep decline from a little under 2,000,000 students enrolled in public schools to a little over 500,000 enrolled. This equals an 84% decrease (Grover & van der Velde, 2016). This trend has further consequences on higher education. Looking at the share of population between 25 and 34 years having a bachelor's degree or higher, the number amounts for only 16.4% in Detroit (U.S. Census Bureau, 2021a) compared to the nationwide average of 32.9% (U.S. Census Bureau, 2021b). This number may be caused by a mixture of the poor high-school education, prevailing poverty, and a lack of high-skilled jobs. Living below the poverty line makes people not able to afford to study at a university because of high tuition fees as well as the strong need to work as soon as possible to finance their everyday life. Furthermore, highly educated people might be incentivized to leave the city, as job opportunities may be more fruitful and futureproof in other states and cities. All these aspects combined lead to a situation where the city is missing the cornerstone of human capital and education for developing a sustainable and future-oriented economy.

## 2.4 *Organization and Structure: Diversity*

Diversity—in contrast to specialization—lays the focus on an economy which consists of many different types of industries using different resources, both physical and intangible. Various scholars have shown that this approach for planning the economic structure of a place can foster economic growth more efficiently than a completely specialized economy. Furthermore, it grants economic stability (Audretsch, 2015, pp. 78–79). We will focus on the economic interpretation of diversity in this part with the focal point on ethical diversity.

To get an overall impression of the economic diversity of Detroit, we use the Diversity Index by Bernardo (2022). For this purpose, he uses the Herfindahl-Hirschman Index method to determine the concentration of the industry on predefined areas like agriculture, information or finance, and insurance. Among all cities regarded, Detroit ranks number 241 out of 501 when it comes to industry diversity. Digging deeper into the distribution of economic activity, the labor share of different industries shows that in 2020, 16.9% of the civilian employed population worked in the sector of “Health Care and Social Assistant,” representing the largest share. The second biggest sector “Manufacturing” claims 15.3% of the overall workforce (U.S. Census Bureau, 2020a). Compared to the employment statistics of the whole United States, it is striking that the labor share in the manufacturing sector is higher than the national average of 10.0% (U.S. Census Bureau, 2020b). Adding up the sectors “Professional, Scientific, and Technical Services” and “Management of Companies and Enterprises”, the labor share in Detroit lies at only 4.0% (U.S. Census Bureau, 2020a), which is around half of the national average (U.S. Census Bureau, 2020b). In conclusion, the analysis of the labor in the different industries shows that Detroit is lacking employment in the educational service, which is closely connected to the poor condition of the educational system. Additionally, it is striking that Detroit lacks employment in high-skilled industries. There is a preponderance of people in low-skilled jobs. This circumstance is reflected in the median household income, which was \$32,498 in 2020 in Detroit. This made it only half of the average income in the United States with \$64,994 in the same year (Data USA, 2020).

## 2.5 *Organization and Structure: Clusters*

In his book, “The Competitive Advantage of Nations,” Michael Porter introduced the concept of clusters as “businesses in related industries operating at the same place”. These businesses in related fields form an interconnected web of suppliers, service providers, and sellers, all with specialized niches within the common industry. It is important to note that the term clusters can refer to a small and specific field, such as orthopedics in Warsaw, Indiana, and to a broad and multidimensional field, such as technology in Silicon Valley. The main benefit of clusters is that they



provide a center of innovation that allows different members of a business sector to collaborate and share knowledge and resources easily. This has led to improved business performance and employee life for workers, including increased rates of employment and wage growth (Audretsch, 2015, p. 180–183). Additionally, clusters have increased the number of patents and startup businesses, fostering an area of creativity and creation. The main disadvantage of clusters is that when a cluster is focused around a small and specific field, the entire economy of the region is affected when that field experiences a downturn (Jenkins, 2013).

The main advantages and disadvantages of cluster economies can be seen through the history of Detroit's rise and fall throughout the twenty-first century. The American automotive industry was born at the end of the nineteenth century when Henry Ford test drove his first automobile. Ford and other local car manufacturers continued to competitively develop their businesses, and by 1925, the three most successful car producers in the world were in Detroit: Chrysler, Ford, and General Motors. These three businesses, the "Detroit Big Three," formed a cluster centered around manufacturing jobs in the automotive industry (Counts et al., 1999). This cluster benefited Detroit because it allowed car manufacturers to easily and cheaply access the physical and human resources needed to build cars. In reverse, this cluster also hurt Detroit because it made the city dependent on the success of the automotive industry (Price & Wang, 2012). By the 1950s, the entire city of Detroit revolved around it, seen through the abundance of automobile plants scattered throughout the city and 256,000 manufacturers working for the "Detroit Big Three". The automobile industry was the main supplier of jobs in Detroit, and thus had a large impact on the quality of life for the city's residents (Jenkins, 2013). When the American automobile industry began to decline in 1960s due to intensified global competition, this resulted in many of the automobile plants in Detroit closing, causing thousands of workers to lose their job. As this continued, the population severely declined as residents moved to new cities in order to have better job opportunities (Counts et al., 1999).

## 2.6 *The Human Element: Image*

The image that has been generated for Detroit continues to be a major struggle. A historically violent and tense past among racial differences, stereotypes of being dangerous, and having infamously impoverished neighborhoods have created a very negative image, which still remains today (Loftin & McDowall, 1981; Breetzke et al., 2020). Once being labeled as the "Motor City" or "All-American City", Detroit now has the nickname of "Titanic City" or even "Broken City" (Neill, 2015, p. 1).

Racial tensions and continued segregation contributing to Detroit's image can also greatly affect their ability to compete in business with other cities. The segregation that still plagues Detroit limits races to create networks only with each other. Without the ability to create relationships, their ability to expand and advance their



work to help further business developments as a city and to create a better Detroit is limited. By maintaining a primarily black population in the inner city and a white suburban population, there is a separation in education and resources. Higher education levels and resources only benefit the suburban population, while the inner city struggles to maintain their public schooling system. This concentration of resources in the white suburban population and the lack of integration disables the opportunity for Detroit to benefit from networks and linkages among its people.

A regression analysis of the housing market in Detroit conducted by Bentley et al. (2016) showed a clear connection between the problem of racial segregation and vacancy. Not only does the image of a racially segregated city hurt Detroit but it does also result in a large volume of abandoned properties in the long run. It is obvious that a sharp decline in population eventually leads to an increase in vacancy. While people are relatively mobile, properties are not, leading to an oversupply of houses and business spaces. Even though Detroit had extensive programs of demolishing old and abandoned properties, which decrease the housing stock by 7% from 2000 to 2010, it was not enough to stabilize the vacancy rate (Hackworth, 2014). During the same time span, the vacancy rate increased from 17.9% to an alarming 29.4% (Bentley et al., 2016). The impact of this problem can be seen from two different sides: as a damage to the image of the cities as well as waste of scarce resources. The effect on Detroit's image can be seen through the development of average house prices, which reflect the demand and supply for living space in a city and can be seen as an indicator of its attractiveness. From 2007 to 2010, prices decreased by 40%, which is more than double the national average (Hackworth, 2014).

### 3 Problem Solution

We will outline three different approaches to improve Detroit's overall situation. First, solutions to improve education will be presented. It will include proposals for enhancing extracurricular activities and implementing a special food system linked to the social situation and academic performance of students. Next, we will outline possible solutions in the sector of organization and structure with a strong focus on attracting high-skilled workers. Thus, we will talk about linking knowledge and technology through strong cooperation with neighboring research institutions and universities. Lastly, we will look at the image of the city and how to develop a more positive view of Detroit. The major focus of this aspect will be the abandoned homes and how to turn these areas from criminal hotspots into attractive locations. Moreover, we will talk about how sports can be assisting in the process.

### ***3.1 Factors of Production and Resources: Education***

Any advancements in fixing and improving the education system could greatly benefit the youth of Detroit. Through the placement of effective and innovative policies in Detroit's schools, the young people of the city could develop academically as well as professionally. Implementing more extracurricular activities and community engagement is one way Detroit's schools could maintain their student body and help increase graduation rates. Extracurricular activities are a widely used and well-known way to not only involve students but to enrich their education and help develop their interpersonal skills. According to various scholars, there are many benefits to participating in extracurricular activities. In their research, they have found that extracurriculars have been associated to academic commitment and performance, lower high school dropout rates, and lower delinquency and arrest levels (Broh, 2002; Covay & Carbonaro, 2010). With this information at hand, The Detroit Public Community School District (DPCSD) could better formulate their extracurricular activities policy by adding requirements and community engagement. One requirement that could be made is that it is mandatory for students to join and participate in at least one club or sports team to graduate. This would ensure that students are involved outside of academics. These clubs and teams should be supervised by a local volunteer, parent volunteer, or teacher. Having more than one supervisor could also help create larger groups and enrich the student and authority interactions. The DPCSD should also mandate a community engagement quota. This could include school sports teams visiting one of the many stadiums and would help the students learn hands-on and in a fun, out of the classroom environment. Community engagement could also open their eyes to careers and inspire them to pursue a possibly newfound passion.

Funding for this policy would depend on what clubs and sports teams are being formed and how many volunteers are acquired. A good source of volunteers and funding can be found at local universities. With an institution like Wayne State in town and the University of Michigan only 45 min away, a great deal of resources could be gathered. The board president could collaborate with universities to enhance their own educational experience while contributing to the young students of Detroit. This could be achieved by receiving credit in class through volunteering. For material resources, the DPCSD could look to the suburban public schools for donations and fundraising. Fundraising could be a great way to generate money for these activities, which should be done during big events in Detroit. For example, during the Thanksgiving Day Parade or outside of stadiums amid sporting events. Not only are these events useful to generate funds, but they will also illicit great publicity for the cause at hand.

Adding another possible improvement to Detroit's education problems, the city could revise its food system in schools. It can be inspired by the model promoted, for example, by the University of Bergamo. At the beginning of the year, each student presents the ISEE document. ISEE is a tool used to assess the economic situation of those who wish to benefit from subsidized social benefits. Based on this document,

each student is assigned to a bracket. The payment for food at the canteen depends on the category each student belongs to. For example, if a student belongs to the first band, he has a very low ISEE and the minimum price is applied to all dishes taken. On the contrary, for the students belonging to the maximum band, the maximum price will be applied for each course. Thus, students would pay for food according to their social situation which makes it more beneficial for poor families to send their children to school. In addition, for students with very strong academic performance, food at the canteen is given free. This is a strong incentive for better academic performance and gives a financial beneficiary to families of good students. In addition, higher overall grades would improve the school situation in Detroit. This type of system, as it is for example used in Bergamo, can be implemented in Detroit schools. Food for low-income families could be funded through the higher prices for families that can afford it. Moreover, social benefits for low-income people could be directly invested in the food system by the city to ensure that the funds are invested in the right cause.

### ***3.2 Organization and Structure: Clusters and Diversity***

Our solution for the organization and structure section is to create a university-centered technology hub, combining the strengths seen in the diversity and clusters concepts. For the purposes of the paper, we are defining a university-centered technology hub as a city or metropolitan area, which researches and creates new technologies and technological products through the assistance of a local university. These hubs accentuate the benefits of diversity by leading to the employment of both professionals who create and manage the tech research, and laborers who create the final products. Additionally, the hubs create products across a wide variety of industries, from robots and phones to smart home devices and cars. However, the hubs also incorporate the main benefit of clusters by retaining a focus that centers around technological innovation, allowing the companies and local universities to share common supplies and resources (Dellot, 2021).

Examples of successful university-centered technological hubs can be seen prominently throughout the United States in cities such as Austin, Texas; Charlotte, North Carolina; and Pittsburgh, Pennsylvania (Smith, 2018). Pittsburgh provides a great example of the success of a university-centered technological hub since Pittsburgh shares many characteristics with Detroit. Just like Detroit, Pittsburgh is a rust belt city that was dependent on one specific industry, the steel industry, throughout the early half of the twentieth century. Additionally, most of the steel jobs in Pittsburgh were manufacturing jobs, just as most of the automotive jobs in Detroit were manufacturing jobs (Stodola, 2011). As global economic competition began to increase in the latter half of the twentieth century, Pittsburgh lost hundreds of thousands of jobs in the steel industry, leading to rapid unemployment and population decline. However, unlike Detroit, Pittsburgh's population has been steadily increasing over the past decade and their economy has moved away from

their old focus (Kurtz, 2017). Many sources, such as Forbes, Bloomberg, and the Brookings Institution, have attributed Pittsburgh's recent success to its ability to work with Carnegie Mellon University and the University of Pittsburgh, two local and highly acclaimed universities (Stodola, 2011). The governmental and educational institutions specifically work together by having the students and professors at the university research and develop new products using the extensive research funding of the university. Then, the university can test drive these products by employing members of the local population of Pittsburgh to create new technological items. Through this program, 23 start-ups have been created by students from the University of Pittsburgh, attracting larger tech companies to move outposts to Pittsburgh. A few of these businesses include tech giants Uber and Google (Dellot, 2021). Detroit could implement a similar program by working with the University of Michigan, a nearby school, which has a high-overall ranking, especially in terms of engineering (University of Michigan, 2021). The technology created through this funding could easily be implemented in the vacant automobile plants scattered around Detroit, using local highly skilled workers. This program could be funded using the research money granted to students and professors at the university. In the end, the university-centered technology hub has the potential to create more economic variation and a higher number of jobs for both professionals and highly skilled laborers, thus promoting the growth of the city's population.

### ***3.3 The Human Element: Image***

The solution for an image problem of a place or a certain region is most likely not reached with one certain mechanism. It is rather a multi-dimensional approach that can provide a change in the way how people would see the image and identity. In the case of Detroit, the solutions proposed in this paper include investment in sports as a catalyst for the downturned area, taking care of the abandoned houses, and finally promoting the changes with an image campaign.

Thinking about a solution for Detroit's image problem, sports would not be the first thing that comes to one's mind. However, they can be a catalyst for the economic development of an area, especially for the downtown of cities. Moreover, sports facilities can help revitalize certain parts of cities when they are built. In the example of Detroit, professional sports play a major role. The city is one of the only two US examples with four teams in all major leagues (NHL, NBA, NFL, and MLB), which leads to heavy investment in the franchises and facilities. Rightly, Detroit has used professional sports in recent years to boost the identity and image of its city. In 2017, the Little Caesars Arena was opened in downtown Detroit. This is a unique project because the arena was blended into the surrounding area and planned to boost the overall attractiveness of the new stadium district. With multiple office buildings, restaurants, and hotels, it also provides new jobs and tourist destinations, which may positively impact Detroit's economic development. The new arena is nowadays used by the Detroit Red Wings (NHL) and the Detroit Pistons (NBA),

who moved back to the downtown area after almost 40 years of absence. By bringing their franchises back into the downtown area, Detroit's image has been elevated and a higher flow of people into the inner city has been achieved. An average visitor of a regular season game in NFL, NHL, NBA, or MLB spends between \$150 and \$175 per game in the downtown district of Detroit. Multiplying this with the average attendance of these games, the direct economic impact of these events becomes clear (Trendafilova et al., 2012).

Furthermore, the major league franchises can create a feeling of togetherness in a community, especially when the teams are successful. Community spirit and civic pride can lead to moments where citizens of Detroit can step away from the present racial segregation and come together to support their teams. Moreover, if the major franchises are successful and create a hype around their team, spillover effects can occur toward local high school teams, leading to a higher interest in sports for students. The social component of activities like high school sports can then help to overcome barriers like racial prejudices (Trendafilova et al., 2012).

Funding for new facilities like Little Caesars Arena is normally a joint investment of private investors and the city. In this case, 62% were covered by private investors, including the Ilitch family, the rest was government financed (The Detroit News, 2017). Franchise owners and billionaires like the Ilitch family and Dan Gilbert heavily invest in the downtown area. As of 2018, Dan Gilbert has spent almost six billion dollars through his businesses, trying to help downtown Detroit prosper (Feloni, 2018). This aids the city save money on pilot projects. However, taking a critical look on investments in sports, the financial burden is still heavy and is often controversially discussed. This is also partly because success in leagues like the NBA, NHL, etc. can hardly be planned and thus, one can never be certain if the investment and commitment of the city will lead to championships or major success.

In Detroit, over 20,000 abandoned houses are still a crucial factor for the negative image of the city (Ikonomova, 2018). Its current policy approach regarding this issue makes it very hard for the city to control the selling of abandoned properties. Compared to other shrinking cities in the United States, Detroit imposes hardly any regulations for the buyers of abandoned properties that fell into public hands through the tax foreclosure process. This leads to a lot of cases in which these properties go into the hands of investors which do not make any effort to revive them. Cities with this "market only" approach were hit the most severely by the recession, showing the need for at least some political involvement regarding abandoned properties. Furthermore, the city of Detroit and Wayne County both own parts of the abandoned properties but they use different policies and different levels of policy enforcement when selling them. This makes the situation even more complicated. One solution for County and the city would be to use a consciously managed approach towards abandoned houses, where they use a clear structure and empower an institution with a wide range of mechanisms. We would propose to implement a system comparable to Cleveland, where the Cuyahoga Land Bank is used as the main institution to fight land abandonment. This bank always has the first right to buy property when it is auctioned. When it has bought the property, it has a wide range of choices of what to do with it depending on its situation. It can either

re-furbish the property and bring it back on the market, tear the building down, resell it to neighbors of the property, or use the place for options like community farming. Giving one institution all these different tools to use the abandoned land makes it easier for a place like Detroit to fight the issue. Looking at the current situation, demolition is the method of use with 7000 properties destroyed under the current mayor of Detroit, and another 10,000 units planned (Hackworth, 2014). However, vacant areas in an urban context should rather be seen as raw materials that could be used to foster new growth. A particularly interesting method is urban greening, which includes both the creation of public green spaces like parks as well as the use of abandoned land for farming and vegetable beds. Even though this approach is rather new, there are already prominent examples like “Philadelphia Green” or “Groundwork Lawrence”. These projects and various scholars have shown that urban greening could not only reduce physical and psychological illnesses, increase property values, or reduce crime but that it creates a completely new economic sector. A non-profit initiative of the Carnegie Mellon University, called “Growth through Energy and Community Health”, has planted various plants that can be used to produce biofuel. New greenspaces create an opportunity for social interaction, which is an especially important aspect regarding the racial segregation in Detroit (Schilling & Logan, 2008). Looking at the aspect of urban farming, Detroit is a leader in this special field of agriculture and even partnered with Michigan State University in 2017 for the first urban food research center. It is meant to further develop urban agriculture entrepreneurship towards healthy food and innovative growing systems. Detroit is on its way to develop a very new and state-of-the-art industry (MSU Today, 2017) and should continue to do so.

About the aspect of finding the right policy approach towards urban greening and its financing, the lessons from already implemented programs should be considered. It needs actors from different areas to work together, especially the local government, as they are entitled to provide the land, non-profit organization as a provider of ideas and a mediator between the actors, and local educational institutions for providing the necessary knowledge, as shown with the partnership with the Michigan State University regarding urban farming. This interactive approach could also be pursued regarding financing, meaning a mixture of government funding, community engagement, and private investment (Schilling & Logan, 2008).

Finally, after all the aforementioned solutions have been in place, one might turn to image campaigns such as promotional videos to increase tourism and show the changes and improvements in the city of Detroit. These videos must have the purpose of showing the strengths of the city and the attractions that can be seen. This way people will be able to understand the difference to the previous situation and appreciate the work that has been invested to rebuild the city. The authors of these videos could be citizens, who could testify their experience before and after the land reclamation. The sum of all the videos would create a story that can be used as a promotional campaign for the city.

## 4 Conclusion

Overall, this paper showed the great amount of challenges Detroit faces as a city. During the analysis, it became clear that the declining population cannot be explained simply by one cause but rather by the fact that multiple factors influenced the outflux of people over the past decade. The underperforming school system, as well as racial segregation, and a very negative image of the city provide strong social reasons to leave. Moreover, a very undiversified economy and the lack of high-skilled jobs make Detroit economically unattractive to live in. In consequence, factors like the many abandoned houses create a downward spiral for a place that is hard to overcome, and the city has had limited success in fighting these issues.

After a critical analysis of crucial factors in all three elements of Audretsch's (2015) framework, we proposed solutions in the same areas to achieve a problem-solution fit, consistent with the analysis. This excludes the analyzed racial tensions as this issue is a multi-dimensional problem today. A solution has not been found by scholars or politicians in the past. There is still more in-depth research specified to the topic needed.

The presented solutions included that the public school system should be improved by providing a stronger commitment to extracurricular activities and an income-oriented food system. This should make it more attractive for parents to send their kids to school and reduce dropout rates. Secondly, to advance the organization and structure element of the city, a stronger collaboration with universities of the area was recommended to increase the number of technology start-ups and the availability of high-skilled jobs. Pittsburgh, a fellow rust belt city, was used as a positive example of how these collaborations can create successful technology hubs which, in turn, grow the local economy and help to provide the needed diversification. The physical resources for this technology hub would be present in the area as Wayne State University is right in the city and the University of Michigan is located close by.

Finally, we presented solutions for the image of Detroit. This part was split into two sections, as sports and urban greening were both considered possible solutions to enhance Detroit's image. Sports was identified as a significant catalyst for the revival of the downtown area by providing direct and indirect economic benefits through visitors and important facilities. Furthermore, urban greening was presented as an innovative solution to solve the problem of abandoned houses. Creating ecological benefits, as well as jobs for local citizens and fresh food, would improve the situation of the whole community.

In all solutions, financial feasibility was the focus to provide a realistic approach on how to regrow Detroit sustainably. However, it must be considered that most of the proposed solutions would take time to be implemented. Therefore, their feasibility and practicality cannot be terminally and instantly determined. Since most of the city's revenue is provided by taxpayers and a declining population is leading to less tax revenue, the financing of the suggested projects is the most challenging part for the public actors in Detroit. Thus, it is crucial to convince private investors that



Detroit is becoming an attractive place to invest in. There are other elements of the framework, which were discarded, as we were focusing on the most prominent problems. Therefore, the number of solutions covered is not complete. Accordingly, further research that focusses on the remaining elements of the framework to provide a full analysis of Detroit is needed. When comparing the city's past and future outlook to other cities from the rust belt area, there is still hope for Detroit to return to its former glory and stability.

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# The Impact of Hosting the World Cup on the Economic Performance and Labor Conditions of Qatar



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**Abstract** The 2022 World Cup in Qatar: A momentous global sports event that will bring Qatar under the world's scrutiny. Until the year 2010, Qatar was mostly known for its prosperity thanks to the country's natural reserves of oil and gas. This changed with its selection to host the World Cup. Since then, labor abuse and human rights violations seem to be the hottest topics when talking about Qatar and its World Cup preparations. In this paper, Qatar's much discussed problems, along with social, economic, and energy structure issues, will be analyzed and presented with detailed findings to introduce feasible improvement policies. The solution recommendations aim to utilize the 2022 World Cup as a catalyst by applying the strategic management of places framework, concentrating mainly on 'factors of production' and the "human dimension." Ultimately, the aim of this paper is to analyze existing social and economic problems and provide viable suggestions for policies to improve Qatar's future economic performance.

## 1 Introduction

Qatar is the host of the 2022 FIFA World Cup. The award decision back in 2010 created a lot of criticism and a number of controversies in regard to Qatar's suitability to organize such a global sports event. On top of that, Qatar was involved in numerous bribery allegations of buying votes to win the bid for hosting the tournament, which provoked a big media affair that is still ongoing. Due to the rumors and scandals coming along with the Qatar World Cup, this paper gives Qatar's preparations for the upcoming World Cup a deeper look and analyzes its

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overall economic performance by using the strategic management of places as a framework (Audretsch, 2015).

Classified as a wealthy country, Qatar is using migrant workers as the main source of its labor force nationwide. The migratory flow, produced by the recruitment of workers for the World Cup, is expected to even grow further (Bel-Air, 2017). According to reports from international organizations such as Human Rights Watch and Amnesty International, the Qatari labor system, especially its Kafala system, is the main reason for the poor treatment of workers and the violation of human rights. The organizations' reports have highlighted the booming issues of exploitation and abuse of construction and domestic workers in Qatar (Amnesty International, 2019). Holding this momentous sports event could be an opportunity for Qatar to make some changes to its labor system and to enhance its image and its mainly negative reputation from within and outside the country.

Another problem, that Qatar will have to confront in the long term, is its strong economic dependency on its oil and gas reserves. Qatar's current extractions account for more than 50% of the state's GDP, which represents the importance of oil and gas as physical capital. As the reserves can only sustain production in the medium term, the Emirate should start generating new concepts and strategies to diversify its economy (Qatar Central Bank Statistics & Stability System Sector, 2018). As Qatar is already investing in sustainable construction methods for the 2022 World Cup, an expansion of R&D in the field of renewable and sustainable energy sources could break up its focus on oil and gas and thereby transform the Qatari economy.

Thus, this paper is aimed at helping Qatari policymakers better engage in their two main factors of production, physical and human capital, but also in their social capital, identity, and image. By improving the current labor system and shifting to a more sustainable economy, Qatar could not only change its global image but also strengthen its economic performance. In brief, this paper wants to show what the situation of Qatar's World Cup preparations and the economy looks like and how the above-mentioned changes could be implemented.

After this short introduction to the topic, the paper continues with an explanation of the overall context and the problem description. This will be followed by a detailed problem analysis of the prevalent situation of production factors like physical and human capital and the peculiarities of the human dimension in Qatar's economy. After that, the problem solution section is presented to explain how the analyzed problems could be transformed from issues into opportunities for Qatar. Finally, the conclusion summarizes the main results of this paper and outlines this evaluation of the topic.

## 2 Problem Analysis

### 2.1 Context and Problem Description

Qatar is a developing country located in the Middle East, occupying a peninsula that juts into the Arabian Gulf. The Emirate has an estimated population of 2.74 million (World Population Review, 2019) with a growth rate of 1.95%. It gained its independence from Britain in 1971 and has been ruled by the Al Thani family since the mid-1800s. After the 2003 constitutional referendum, it formally became a hereditary constitutional monarchy, and the current chief of state is Emir Tamim Bin Hamad Al Thani. The legislative branch of Qatar is represented by the Unicameral Advisory Council, which has 45 seats. 30 members are elected by residents, while the remaining 15 seats are appointed by the Emir. There are no existing political parties, as the monarch banned them from the council (Central Intelligence Agency, 2018). According to Qatar's constitution, the country's legislation is based on Sharia Law. In practice, Qatar's legal system is a mixture of civil law and Islamic law (Central Intelligence Agency, 2018).

In 2018, Qatar had an annual GDP of \$192.009 billion with a growth rate of approximately 2.3%. In the same year, the GDP per capita was \$69,026, which ranks Qatar under the top ten richest economies in nominal terms (World Bank, 2018). Qatar's natural oil and gas reserves of around 25 trillion cubic meters are, as shown, the main drivers of the national economy and account for 14% of the world's reserves. Lately, there has also been strong development in the manufacturing industry and financial services, which have contributed to the diversity of their economy.

After the assignment of the World Cup in 2010, the migratory flow has increased dramatically, due to the strong demand for migrant workers, particularly in the construction sector. Ever since, the percentage of Qataris has fallen to less than 15%. Indians represent 24% of the population, followed by Nepalis (16%), other Arabs (13%), Filipinos (11%), Bangladeshi (5%), Sri Lankans (5%), and other nationalities (10%) (World Population Review, 2019). In connection with this, there has been a worldwide focus on the abuse of these workers in Qatar following several reports of death, illness, and injury. Therefore, international media, trade unions, and human rights organizations have highlighted the abuses of migrant workers' rights in Qatar.

In 2008, Qatar launched the development plan "Qatar National Vision 2030," which aims to "transform Qatar into an advanced society capable of achieving sustainable development by 2030" (Qatar Central Bank Statistics & Stability System Sector, 2018). That shows Qatar's goal is not only to be an advanced country that improves on the Triple Bottom Line (economy, environment, society), but also to be capable of "generating sustainable development over time, ensuring a high standard of living for all its citizens and for future generations." However, it is possible to assess the undeniable problems in Qatar by analyzing two different aspects: factors of production and the human dimension.

## 2.2 *Factors of Production*

### 2.2.1 **Physical Capital**

Qatar used to be a fairly poor country, but ever since the discovery of oil fields and massive reserves of natural gas, it has become one of the wealthiest countries in the world. At present, Qatar has 25.7 billion barrels of oil on standby, with most of its oil fields offshore. Based on Qatar's current production rate and reserve ratio, its oil reserves can last about another 33.1 years (Qatar Central Bank Statistics & Stability System Sector, 2018), which is not a long time. Once those oil fields are dried out, knowing that oil itself is non-renewable, Qatar's GDP and its regional influence are going to decrease. Besides the oil, Qatar holds the world's third-largest natural gas reserves with 24.5 tcm (865 tcf) (Qatar Central Bank Statistics & Stability System Sector, 2018). The major part being located in the offshore North Gas Field, which is the world's largest non-associated gas field. According to the Qatar National Bank, the country's natural gas reserves can maintain the current production for another 138 years (Qatar Central Bank Statistics & Stability System Sector, 2018). After the Qatari economy's downturn, caused by a decrease in the world oil price in the 1980s, the Emirate's government started investing a lot of money in natural gas and other industries in order to diminish its dependency on the oil price. Even though the natural gas reserve ranks third worldwide and will last for more than 100 years, Qatar may increase natural gas production and exports in order to make up for the profit loss due to the lower oil production and maintain its regional and world-wide influence by holding as much global natural gas market share as possible. However, if the natural gas production increases, the 138 years are going to reduce drastically. Currently, profits from oil and natural gas still make up about 46-48% of the GDP.

In 2017, several Gulf nations started a blockade on Qatar, resulting in negative impacts on the national macro- and micro-economy. In addition to that, international oil and gas prices were also affected by the embargo. Therefore, Qatar's economic overdependence on natural resources is a potential threat to the country's economic health. In addition, Qatar's fossil fuels, the combination of oil and gas, are the nation's major source of energy; almost 99% of Qatar's energy, 77.05 billion kWh per year, comes from fossil fuels and only about 1% – 770.53 m kWh per year – from renewable energy sources (Qatar Central Bank Statistics & Stability System Sector, 2018).

As shown, the high dependence of Qatar's national economy and energy supply on natural resource reserves is not a wise strategy and thus needs to be changed. Diversifying the country's income sources is most certainly beneficial for an economy. This becomes extremely relevant when taking into account that the Emirate makes most of its profit out of non-renewable natural resources and has a bad diplomatic relationship with its neighboring countries. A diversified and healthy economy is a sustainable economy, that has a long-term positive impact on the nation. For energy supply, as mentioned previously, fossil fuels are non-renewable, making them a "one-time" resource. Hence, keeping fossil fuel as a major energy

source is not suitable for Qatar's future vision and national interests, whereas the usage of renewable energy could lead to new income sectors by developing a more sustainable and green energy supply. In addition to that, it would diversify human resources and the overall economy.

Continuing, or even intensifying, the consumption rate of fossil fuels will ultimately increase natural resource production and thus decrease the current reserves' durability. Without the support of natural resource exportation, Qatar's current economy will become uncompetitive and weak. It should be in the Emirate's own interest to prevent this situation from happening. Therefore, it is necessary and vital to take action right now in order to diversify its economic structure and energy supply sources.

### 2.2.2 Human Capital

In order to meet the FIFA requirement of at least eight playing venues, Qatar had to build seven new stadiums and renovate one. For instance, one of those mega construction projects, which will host the tournament final and has a capacity for 90,000 people, is in Lusail City, north of Doha, where they are building a new city from scratch. This entire project is supposed to amount to a total of \$45 billion (Pattisson, 2013).

The pressure of building the required infrastructure for hosting a momentous event like the World Cup resulted in an excessive rise in the need for construction workers. According to the International Trade Union Confederation (ITUC), 1.2 million migrant workers were working in Qatar in 2013, but Qatar was expected to require 500,000-1,000,000 additional workers from other countries, which means an increase in the workforce of over 50% (ITUC, 2013). And according to the CEIC, by the end of FY2017, there were 2,054,502 (migrant) laborers in Qatar (Bel-Air, 2017), which accounted for about 75% of the whole population and about 95% of the total labor force, with more than 40% of these workers being employed in construction fields (Fottrell, 2015). As of 2013, there were only 71,076 Qataris registered as workers and 1,199,107 non-Qataris (Chalabi, 2013).

Migrant workers might be strong in terms of numbers but weak in terms of basic human rights. Ever since Qatar was awarded the World Cup, the abuse and exploitation of low-paid migrant workers, sometimes amounting to forced labor and human trafficking, have been extensively documented (Svensson, 2019). Heart attacks attributable to poor working conditions are among the leading causes of death (Pattisson, 2013). According to the ITUC, 1,200 migrant workers have lost their lives during construction for the World Cup (as of 2019), and they expect over 4,000 deaths by the time the tournament begins (Svensson, 2019).

Most of these two million migrant workers can generally be described as unskilled or low-skilled laborers who want to find a well-paid job in Qatar to financially support their families (Fottrell, 2015). As stated in a report on Qatar's current labor situation from Amnesty International (2019), "many of the myriad problems that migrant workers in Qatar encounter can be tracked back in different

ways to the Kafala system [...]” (p. 9). Overcrowded living quarters, a lack of potable water, underpayment, and insufficient health care and safety precautions at the workplace are only some of the reported violations against Qatar’s Labor Law. These severe conditions even resulted in the deaths or serious injuries of some workers (Ministry of Labour and Social Affairs, 2019). In 2013, Qatar’s health authorities reported the deaths of 520 workers. About 75% of them died of unexplained causes. According to an article from The Guardian, “Nepalese workers died at a rate of almost one a day” (Pete Pattison, 2013) at the beginning of the World Cup’s preparation and construction in Qatar. This certainly illustrates how crucial investigations and, even more important, changes in the prevalent Kafala system would be.

The Emirate used this system even before they started with the construction of the World Cup. However, as already mentioned, there was a tremendous increase in the number of migrants and, therefore a low-skilled labor force. In her article “Disadvantage of Unskilled Labor,” Lisa McQuerrey (2019) analyzes the issue of the excessive use of this workforce. Unskilled labor has a lower starting wage, which could save money for companies. On top of that, as shown in previous chapters, Qatari employers are sometimes not paying their workers at all. However, hiring unskilled workers, particularly for skilled positions, can have disadvantages that could affect production, efficiency, quality, and overall economic performance, which could result in profit loss, damaging the companies’ reputation and causing extra expenses. For instance, a working construction site may not require a huge and diverse set of skills. However, an investment in some sort of training is necessary, which can be an extra expense compared to hiring a skilled worker in the first place.

Another problem that comes with low- or medium-skilled workers is lower productivity. These workers usually lack the required skill set in order to work at a fast pace. Furthermore, unskilled workers can be found on the low end of the payment scale, and therefore, most of them only have the motivation to fulfill their very basic job requirements, which leads to low efficiency and a lack of innovation. This can also be seen in the construction of World Cup playing venues. When they won the bid to host the World Cup, Qatar announced that they are planning on building nine new playing venues and renovating three. But for now, they are cutting it down to only creating seven new stadiums and one refurbishment. Even though the Minister of Commerce and Industry Al Kuwari did not state why they could not meet the originally planned number of venues, it is quite clear that it is due to delays and a leap in costs (Schaal et al., 2014).

Qatari migrant labor force conditions, as shown in this chapter, can be considered inadequate, and one reason behind it is the Kafala System. This monitoring and controlling scheme will be further explained in the next chapter regarding the human dimension.



## 2.3 *Human Dimension*

### 2.3.1 **Social Capital**

Qatar's labor system is built on a labor law that ratifies minimum standard rights for employees while strengthening the position and power of employers. It includes regulations about the employee-employer relationship, the terms and conditions of contracts, the payment and recruitment of employees, and also the regulation of workers' committees. Labor Law No. 14 of 2004 combines most principles of the employees' and employers' rights and obligations. In terms of this law, every employment contract needs to be drawn up in the Arabic language; contracts are limited to a maximum period of 5 years; one work week consists of a maximum of six business days with less than eight hours of work each day; and the law restricts the formation of workers' committees by only permitting organizations with more than 100 members (Ministry of Labour and Social Affairs, 2019). Even though most of the labor system is regulated by the law from above, certain groups, like migrant workers from Asia or employees in domestic services, are exempted from those arrangements.

In all the Gulf Cooperation Council (GCC) countries, Qatar included, the Ministry of Interior rather than the Ministry of Labor is responsible for managing their employees in addition to the sponsor. This arrangement denies migrant workers the right to be employed and protected by domestic labor law, as well as the opportunity to enter a labor dispute process to address their complaints (Migrant Forum in Asia Secretariat, 2018). So, unlike the employees who are protected by Labor Law No. 14, the migrant laborers of Qatar, who are mostly employed as domestic servants or as workers in the construction and hospitality sectors, are employed according to a sponsorship system.

The Kafala System was put into action in several Arab states as a monitoring system for migrant labor. It prescribes that a migrant worker needs to have an in-country sponsor, who is usually called a "Kafeel" and holds responsibility for the migrant's legal status and his/her residence permit. The migrant employees do therefore need their sponsor's permission if they wish to change jobs, leave the country, rent housing, obtain a driver's license, or even open a bank account. This prerequisite ties the migrant workers strongly to their employers, which is also declared as the main reason for Qatar's large-scale labor abuse and exploitation (Amnesty International, 2019; Migrant Forum in Asia Secretariat, 2018).

Ever since Qatar was awarded the right to host the 2022 World Cup, the country has been put under immense global and media pressure. Especially the poor labor rights for migrant workers and the bad working conditions on the stadium construction sites have been strongly criticized. In 2014, the government of Qatar therefore reacted by making a series of promises to reform its severe Kafala system. First, the opening up of the "exit permit" requirements should enable the employees to leave the country without their sponsor's permission (Amnesty International, 2019; Trading Economics, 2019). Also, a wage protection system was implemented to monitor

the payment of workers' salaries and to set a temporary minimum wage of 750 QAR (Qatar-Riyals) per month. As these new regulations have not been implemented everywhere, the governmental attempts could not generally improve the situation or the worker welfare standard yet (Amnesty International, 2019; Trading Economics, 2019).

### 2.3.2 Identity and Image

When talking about the identity and image of Qatar, one must distinguish between the internal view, or how the Qataris see their own country and government, and the external view, or how the rest of the world sees it. Therefore, the aspect of identity or identification with Qatar best describes the national view, whereas the image accounts for the international view. Unfortunately, many Qataris have limited overall affection for their homeland, especially due to two major reasons: The first is the general lack of justice, and the second is an uneven distribution of power.

A lack of justice will eventually lead to mistrust in the overall political and social system and therefore to a fragile society (MSN News, 2019). In the case of Qatar, this problem has a very basic root. The emirate lacks judges and therefore relies on expatriate judges. The problem with this very uncommon method is that these judges need new contracts every year and can be dismissed from duty at any given time. This leaves them defenseless to any attacks from the public sector or other administrations. Furthermore, Qatar has failed to implement a strict separation of powers, which leaves Qatar's legal system vulnerable to political attacks and actual interference from the government (Doha News, 2015). In addition to that, foreigners are not provided with the same legal support as Qataris (Doha News, 2015). This is extremely problematic when considering the fact that Qatar's population consists of 75% migrant workers, as mentioned earlier.

This goes hand in hand with the unsatisfying distribution of power based on Qatar's hereditary constitutional monarchy. Hence, the monarch and his family are above the law to some extent, and therefore nearly all of the actual power lies in the hands of the emir (Khatib, 2013). On top of that, the distribution of power is strongly cohesive with the distribution of wealth. Mainly rich people's voices are heard, and poor people have little political capital.

The poor part of the population, especially the migrant workers, is provided with very limited legal support and restricted political power. Therefore, it is quite hard for these citizens to be able to identify as Qataris. However, identifying yourself with your workplace is crucial for overall economic performance. Since this paper analyzes the work for the World Cup 2022 thoroughly, and the state of Qatar is the indirect employer for everything regarding the World Cup, it is essential for the overall economic performance of the emirate that the workers are able to identify themselves with Qatar.

In order to work productively and perform at a high level, a certain amount of motivation among the workforce is essential. This incentive can either be intrinsic or extrinsic. Workers with intrinsic motivation identify themselves with the

organization, or in this case Qatar, and therefore work on behalf of it with limited additional motivation required. On the other hand, workers with an extrinsic motivation lack this identification and therefore require money or valuables as a form of additional incentive to put in maximum effort. As mentioned above, a low trust relationship exists between the migrant workforce and the Qatari government. As a consequence, the workers have very little intrinsic motivation to exert high effort and need monetary incentives. This means that Qatari employers and the government have to spend additional money on motivating their workforce, which could be saved by boosting Qatar's national identity and image.

When talking about Qatar's image in the rest of the world, one must consider two major aspects that are responsible for Qatar's sometimes negative perception: The first is the presence of corruption, and the second is the violation of human rights and the exploitation of the migrant workforce. Corruption in Qatar has been widely reported on, and it has contributed to the country's controversial reputation, especially in the western world. It is obviously difficult to measure corruption; however, corruption in the public sector can be measured to some extent by the "corruption perceptions index," introduced by Professor Johann Graf Lambsdorff in 1995. The scale of this index ranges from 0 to 100, with 0 representing the highest level of corruption and 100 the lowest. In 2018, Qatar's score was 62, above the worldwide average of 42, which leaves them in 33rd place out of 180 countries (Transparency International, 2018). As already mentioned, Qatar's corruption problem cannot easily be described as common due to their use of *Wasta*, which is a quite popular method of conducting business in the region. It is essentially a form of using connections and gift-giving in order to receive a favor apart from the usual ethnic norm from someone. In the Arab World, this represents a convenient use of social capital networking, but for the western world, not being familiar with this practice, it sounds more like an abuse of these networks. In spite of the excessive use of *Wasta*, there is very little known about it (Gold & Naufal, 2012). On top of that, there is sometimes a lack of transparency regarding laws and regulations in the field of natural resources, on which Qatar's economy depends the most (Business Anticorruption Portal, 2016). Combining these two aspects, it can be difficult for potential business partners from the rest of the world to trust the Qatari government.

In the chapters above, the exploitation of the migrant labor force has been thoroughly explained. It is crucial to know that the Emirate mostly used the *Kafala* system even before they were awarded the World Cup. However, hosting a sports event this big draws a lot of attention to the hosting country. Over the past years, ever since they won the bid to host the tournament, a lot of investigation regarding the violation of human rights in the Emirate has occurred that probably never would have happened without the increase in media attention due to the World Cup. A massive variety of articles and reports addressing this topic and confronting Qatar with it have been published by numerous prestigious newspapers, like 'The New York Times' and several human rights institutions, like "Amnesty International." The critics were heard all around the world and are one of the major reasons for Qatar's negative image and bad reputation.

The negative media attention to the country is exposing Qatar to a serious economic struggle. In the eyes of many investors, especially western ones, the Emirate appears to be a potentially difficult country to conduct business with. Other countries or international firms will reflect thoroughly as to what extent they want to invest in Qatar if they choose to do so at all. The emirate's reputation, due to the negative factors impacting its image and identity, may cost Qatar potential business partners and is threatening its economic health.

### **3 Problem Solution**

#### ***3.1 Policy Recommendations: Factors of Production***

The best solution for Qatar's physical and human capital issues would be the shift from fossil fuel-based energy sources to sustainable and renewable ones. Ultimately, this would tackle their overdependence on gas and oil. Qatar is already trying something along these lines. The Emirate is planning on using cutting-edge, solar-powered cooling technology for five playing venues (Oxford Business Group, 2017). In addition to that, they constructed one stadium out of reusable materials that could easily be put in containers in order to disassemble it and reuse it elsewhere (Nation, 2017).

Overall, the Qatari government should use this World Cup as a catalyst to become a pioneer in the field of green and sustainable energy sources. It is quite urgent that the transition away from natural resources, no matter how large their reserves may be, takes place as quickly as possible. In order to reach this goal, it is essential that the Emirate invest in R&D and reallocate its human capital. Qatar has an ideal location with perfect climatic conditions for the usage of solar panels and other forms of renewable energy. Combining this with the government's great will to diversify its energy sources and, therefore, its whole economy creates a tremendous opportunity. Even though Qatar has already started taking actions in this segment, it is crucial that they are willing to innovate and are brave enough to invest a lot of money in these kinds of sources.

To accelerate this energy transformation, Qatar also needs to develop its high-technology industries and a creative industry in order to assist in the will of not only usage but also storage of renewable energy. In order to maximize access to renewable resources, Qatar urgently needs to have an energy system that is decentralized and can use renewable energy in a high proportion, with sufficient flexibility to accommodate the volatility of solar, wind, and even other energy sources. Combining the need for several high-profile tasks shows that Qatar requires more skilled labor. Therefore, the reallocation of human capital is essential. Due to the potential high growth in this segment, the personal incentives of the workers for this transformation from unskilled to skilled labor are extremely high. However, it is important that Qatar seize this great opportunity as well in order to support the workforce.

Furthermore, since the State of Qatar was awarded the right to host the 2022 World Cup, the country has been under pressure from the media. Qatar has excessively shown its determination to hold an impressive tournament by making a series of promises and modifying existing laws and policies from 2014 (Amnesty International, 2019). This is an opportunity, not only for Qatar to solve the problem of human capital, but also to reform their overall labor system in order to improve their social capital situation, as explained in the next section.

### ***3.2 Policy Recommendations: Human Dimension***

As the global public visibility of this situation will likely never be higher, the 2022 World Cup presents a unique opportunity to raise awareness of the situation. This forces the government of Qatar to take its current steps, as promised, more thoroughly and to revise them in order to change the labor system and the working conditions in the country. For this reason, one of Qatar's main achievements would be the reform of its Kafala system. As this is challenging to put into action, the policymakers and also FIFA should start with some short-term changes in regard to the World Cup.

FIFA is the governing body of the World Cup tournaments. Because of this standing, it definitely is a powerful organization, and it likewise has to carry the responsibility for Qatar's violations of human and labor rights. The organization should therefore play a greater role in monitoring and supervising the World Cup host to exert more pressure on the decision-makers and to directly ameliorate the situation on site. A conceivable solution for this World Cup would be a set of rules, like in soccer itself, which would guarantee some overall regulations for better working conditions. This must include, in the first place, a legal distance between employers and workers and protection of workers from their employers, humane and secure working conditions at the construction sites, good health provision coverage, and the freedom of assembly, which involves the ability to form labor unions.

To be able to make a profound long-term change and to implement alternate policies, it is inevitable for the Qatari policymakers to go further and to even think beyond the upcoming event. Global organizations like Human Rights Watch and Amnesty International have already conducted a variety of investigations and issued reports on Qatar's human and labor rights violations (Human Rights Watch, 2018; Amnesty International, 2019). Hence, according to those reports, the government of Qatar would be well advised to revise its present attempts. The cooperation with pro-worker's rights organizations such as the two above-named or a better collaboration with the UN can offer great possibilities to improve the situation conscientiously and holistically. Pro-worker organizations should support Qatar by making its reformation framework and concept transparent, sustainable, and conform to global labor rights proceedings. It might be helpful for Qatar to get advice and maybe also concrete guidance from globally acting consultants of the organizations to get through its transition processes.

By the step-by-step implementation of the following proposed actions, a lot of progress in the human dimension and a strongly related increase in social capital could be reached. First of all, the employment of migrant workers needs to be incorporated into the Ministry of Labor's (MOL) field of responsibility to ensure justice and appropriate individual treatment. As the rights of migrant and domestic employees need to be inclusive, the applicability of the national labor law should be extended and revised to also include foreign employees. Through this, the MOL needs to take over some of the former responsibilities of employers like the monitoring of entry, transfer, and departure of migrant workers according to every human's right to freedom of movement. The introduction of an employment visa could therefore define more open requirements to enter, to resign or change a job, or to even exit the country without anyone's permission. Furthermore, it is necessary to guarantee access to justice or even a labor dispute process to ensure migrant and domestic employees' rights to justice. The latter also needs to incorporate the right to freedom of assembly, appropriate employment contracts, and fair salaries for all of Qatar's workers. Next, the improvement of working conditions at the labor sites definitely has to be pushed forward by setting new regulations, and not only in respect of the upcoming event. This means that humane and agreeable working standards need to be met. Another inevitable and necessary key point, in particular, is the enhancement of Qatar's welfare and health care systems to improve a society's social capital. As the services of these sectors are likewise complex as the employment system, this paper does not go further into detail at this point.

Putting all this together, it's eventually important for the government and the MOL to have an adequate monitoring system to oversee the recommended actions and to control the strict adherence to all new regularities. In case of further violations, sanctions and penalties against unrelenting employers have to be pronounced. Only by providing oversight of Qatar's employers can efforts pay off by truly reforming the country's overall labor system and raising its social capital potential. Besides an increase in social capital, an even more striking argument for the Emirate to transform actual conditions could be the enhancement of its identity and image by way of a better global reputation.

Even though Qatar's negative image represents a major threat to its economy, it would be wise for the Emirate to focus on its interior issues before solving the exterior ones. To do so, ensuring sufficient and equal legal support for everyone is fundamental. As a consequence, the overall judicial system of the country will become more stable and secure against possible interferences from politics or the public sector. Therefore, Qatar could implement a more strict separation of powers as well as a system of checks and balances. Thus, the Qataris and migrant laborers could be able to regain trust and belief in their legal system and government. This is a change that can be fairly implemented by Qatar's government, but would ultimately have a tremendous impact on the image and identity of the country.

Tackling corruption essentially means addressing *Wasta*. Unfortunately, this system of conducting business represents a serious challenge for intercultural management and business due to the fact that, outside of the Arab world, very little is known about this practice. If Qatar is planning on doing business with other

countries and international firms, they have to align the way they carry out economic activities with the rest of the globe, at least for those international transactions. Most importantly, Qatar's public sector needs to stop any illegal activity. Even though some actions might not be against the law in Qatar, when conducting business with international partners, the Emirate must obey international rules. The image will benefit immensely. Wasta has been the way of conducting business for a long time. As a result, reforming the practice for international transactions cannot be done easily, but doing so will increase Qatar's economic health and make the Emirate more attractive to foreign investors.

It is clear that the problem Qatar has to face uncompromisingly is the violation of human rights and the exploitation of the workforce. This issue bears the highest responsibility for Qatar's bad reputation and image due to the negative media attention. In order to turn things around, they have to initiate several steps. As mentioned earlier, about 1200 workers have lost their lives already as of 2019. It is fundamental that Qatar pay financial compensation to the victims' families and thoroughly clarify the circumstances of the deaths. However, this is far from solving the actual problem entirely. Reforming the Kafala system to put an end to the violation of human rights will improve the Qatari government's image and reputation. If they fail to do so, the Emirate's economy will keep suffering under its bad public perception.

Qatar has the potential to become an economic global power because of its natural resources and high GDP. However, the Emirate's economy would highly benefit from the execution of the changes mentioned above. Qatar should seize this opportunity by writing positive headlines once and consequentially enhancing its social capital, image, and identification. Eventually, this will improve Qatar's reputation drastically and hence lead to a healthier economy. Its workforce will be able to work more efficiently and cost-effectively again, and due to its higher reputation, the country will become more lucrative to foreign investors and thus be able to maximize its full economic potential.

## 4 Conclusion

It is clear that Qatar needs many migrant workers to build the facilities necessary to host the World Cup in 2022. But to make the hosting project sustainable, it is necessary to implement policies for the protection of human rights so as to safeguard every single worker. Therefore, the first solution to be adopted concerns the improvement of the current labor system through the reform of the Kafala System, which will make workers more independent and guarantee protection. This will also allow for establishing a minimum wage, ensuring access to justice, and incorporating the right to assembly.

These reforms will boost the economy and labor market productivity by improving working conditions and better meeting the needs of employers and employees. It is also necessary to explore new industries, such as renewable energy, not only to be

able to replace oil-based energy sources with long-term sustainable ones but also to create new jobs, so as to reallocate the human capital from unskilled to skilled labor. The protection of human rights and good working conditions would demonstrate the progress and modernization of the country, which would consequently strengthen its international image. In addition, Qatar should take advantage of the opportunity to host the World Cup, not only to change its public perception but also to build a better society where everyone can respect each other and live with dignity.

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**Part III**  
**Environmental Challenges, Economic**  
**Development and the Region**

# The Norwegian Paradox: Analyzing Overdependence on Oil Exports



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and Melanie Zott

**Abstract** Norway—a country with an exceptionally environment-friendly image—is implementing lots of renewable resources for its own consumption. On the contrary, about half of Norway’s exports are crude petroleum and natural gas. This great overdependence on oil makes Norway especially vulnerable to fluctuations in the oil price, the amount of remaining resources, and the overall global acceptance of fossil energies. It is of high importance to diversify Norway’s exports in order to ensure long-term economic stability. Hence, this paper focuses on suggesting alternative businesses to strengthen other industries. This can be done through government investments in local businesses and by strengthening economically important SMEs and innovative startups.

## 1 Introduction

“Environmental issues are intrinsic to Nordic politics and policy,” says Olivia Burton, Journalist for the Green Hub (Burton, 2018). Burton believes that investing in the required infrastructure and eco-programs to protect the environment is vital now and for the future of Norway. Therefore, it is not surprising that Scandinavian countries are frequently ranked among the countries with the highest environmental awareness and most sustainable mindset. The fact that Norway plays a leading role in these Scandinavian countries can be illustrated by multiple examples. In 2019, Norway announced its intention to strengthen the control of the international trade in plastic waste, as “[plastic waste] may also cause significant environmental and health problems,” as the Norwegian Ministry of Climate and Environment (2019). Another

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example is the number of electric vehicles: In Norway, every fourth person is driving an EV (Innogy, 2019), and with this high number, the country is certainly a role model in the European context. The reason for this phenomenon is the state subsidy for the purchase of such a car as well as the indirect government support provided by extending the infrastructure for charging stations. Another element that undermines the sustainable way of living is the fact that Norway achieved a 71% share of its energy from renewable resources in 2017 (Statista, 2019a).

But while Norway sets high goals for its own country, this green mindset does not hold in all of its dealings abroad. The fact that “emissions from Norway’s oil exports [in 2017 have been] 10 times as much as Norway’s domestic carbon emissions” explains the Norwegian paradox clearly. But how is it possible that Norway is constantly ranked among the countries with the highest environmental performance? The answer is easy: “Countries are measured by how much they reduce their own emissions, within their own borders, not by the impact they have on the planet as a whole” (Sengupta, 2017).

To explain this phenomenon, the following paper is divided into two sections: In the first one, the framework of the strategic management of places is used to show Norway’s current status as a leading oil exporter and the resulting consequences on the environment and the country’s own economy. In the second part, solutions for the overdependence on oil are presented, and suggestions are made on how to implement these policy adjustments.

## **2 Problem Analysis**

### ***2.1 Factors of Production***

#### **2.1.1 Physical Resources**

One of the leading sources of physical capital in Norway is oil. Since the 1970s, Norway has been considered the leading European country in the production of gas and oil, reaching levels about 20 times higher than those of Italy. It is also considered the third largest exporter of natural gas in the world, after Russia and Qatar. Since 2012, Norway has also become the sixth-largest producer of dry natural gas. Oil extraction has allowed Norway to become one of the richest countries in the world and to remain outside the European Union, keeping its own currency [HG1]. In addition, the extraction of hydrocarbons in the North Sea has allowed Norway to support the country’s pension expenditure, providing citizens with a very high standard of living, with rich unemployment benefits, health care, and education (Tognini, 2018).

Next to oil, fish is also a crucial natural resource for Norway, with commercial salmon farming starting in the 1970s. Since 2017, a strong growth in the fishing industry, with an export volume worth about ten billion euros, can be observed. Drivers for this growth are rising demand and ascending prices for Norwegian

salmon. In this case, by far the largest customers are EU member states, followed by Asian countries (Eurofish, 2018).

Despite other natural resources and unprecedented measures to reduce dependence on oil and gas, some countries remain heavily dependent on this sector. "Despite more than three years of low raw material prices, dependence on the oil/gas sectors, which affect most major exporting countries, has not fallen significantly." (Atradius, 2018). That this is particularly true for Norway becomes visible when looking at the development of the unemployment rate. It can be said that unemployment hasn't been a big issue in this country. That changed at the end of 2014, when the unemployment rate increased from under 3% to its maximum of 5.5% in the middle of 2015 (Eurostat, 2019a). This movement is negatively correlated to the barrel price of oil, which started to decline at the end of 2014 and reached its lowest point at the beginning of 2016. That strong negative correlation can be explained by the fact that 6% of total employment in Norway is constituted by the petroleum and petroleum-related industries (Norwegian Petroleum, 2018). This event has shown that the oil price is a strong predictor of the unemployment rate and that it has a tremendous effect on the well-being of the economy as a whole.

While Norway has a massive physical capital with which it can make enormous profits, there are serious drawbacks to the production of gas and oil. It is no secret that gas and oil consumption pose threats to the environment. Countries like Norway, with an enormous excess of oil, face the challenge of embracing the worldwide shift toward a greener energy utilization approach while still utilizing their most lucrative resources (The Guardian, 2019).

Four rising areas of concern in oil production are wildlife, landscape, climate change, and population (The Wilderness Society, 2019). For instance, the oil and gas industry impacts the landscape of an area. When oil mills are built, the construction strips the environment of vegetation. Moreover, during the production of oil, methane is released into the air. While most oil industries claim that their product uses natural gas in the production process, this does not necessarily guarantee clean air (Environmental Defense Fund, 2012).

The reason Norway can still claim to be green is that the Stockholm Environmental Institute examines a country's environmental friendliness based on the level at which it is able to reduce emissions within its own borders. Only 5% of the pollution from oil and gas comes from the production of these sources, and the rest comes from consumption, which happens outside the borders of Norway (Teigen, 2018). Norway has a mix of power generation based almost exclusively, 98% consisting of hydro and wind, on renewable sources (Sartori, 2018).

As Norway claims to be environmentally friendly and pushes for policies that support a greener way of living, they must examine how the oil industry used for exports is harming the environment and, most importantly, the economy, and consider these ramifications as they move forward. But as can be seen, there are also non-environmental reasons why Norway has invested in renewables and other projects to reduce its dependence on oil. However, Norway is particularly concerned about its overdependence and an overexposed economy to falling barrel prices.

### 2.1.2 Skilled and Unskilled Labor

To fully understand how the concept of human capital applies to the Norwegian economy, one must examine the breakdown of Norway's working class. The working class of any country can be broken down into skilled and unskilled labor. Skilled labor involves work that generally requires an education, an apprenticeship, or some type of training. Jobs for skilled labor are those of health professionals, engineers, teachers, and business managers. Unskilled labor, on the other hand, requires little training or education. Such jobs are those in the service industry, such as food service, housekeeping, etc.

Especially, SMEs play an important role as employers of the most unskilled and semi-skilled workers (Fanta, 2015). The current status of this specific company type will therefore be explained later in the paper. Their ability to absorb most of the unskilled and semi-skilled labor is far beyond a simple economic role and is part of the sociological benefit SMEs offer to society. Examining the skilled and unskilled labor of a country is important for knowing how the government can help diversify the market. With overdependence on oil, Norway's SMEs have the potential to help strengthen the country in case the oil industry should fail.

### 2.1.3 Capital

Only twenty years after Norway discovered oil in the North Sea in 1969, the government adopted the "Government Pension Fund Act." Capital from Norway's petroleum revenue is transferred periodically to this fund, with an annual return of 5.8% on average (Norges Bank, 2019a). In this way, the government saves money for a time when the oil resources are exhausted, which is expected to be in 2070. This is how not only the current generation but also future generations can profit from Norway's wealth generated by its physical resources. In June 2019, the fund's market value contained 8,940,213,624,467 Norwegian Kroner (NOK), which equals 914,583,800,000 euros (ibid.). This money is invested in 9,158 companies in 73 different countries all over the world, such as Apple, Samsung, BASF, and Facebook, to only mention a few. "[Their] principle is simple: [They] swap [their] gas and oil for international shareholdings" (Nowroth, 2017). This long-term management of its revenues helps "to manage the financial challenges of an aging population and an expected drop in petroleum revenue" (Norges Bank, 2019b) and thus keeps the social welfare state alive.

## 2.2 *Spatial and Organizational Dimension*

### 2.2.1 Market Power

In general, Norway's economy can be described as very stable. With about 5.4M inhabitants and a GDP of USD 399 billion, it scores with a GDP per capita of USD 75,000 (Forbes Media LLC, 2019). In 2017, it ranked in fourth place regarding GDP per capita, only surpassed by Luxembourg, Switzerland, and Macao (Statista, 2019b). In Norway, 87% of the GDP is constituted by state-owned enterprises. Furthermore, the government possesses 59% of domestic wealth (Kjolberg, 2018).

Unemployment is expected to constantly shrink after reaching a significant high of 4.7% in 2016. Furthermore, growth is predicted to remain steady at a level of around 2% in the near future. Reasons for that are solid domestic demand, higher investment, and a growing trade surplus. Nevertheless, the Norwegian economy greatly depends on the price of oil, as it is one of their main export goods. Thus, a drop in oil prices reduced GDP results in the last few years, but after the recovery in 2018, this positively influenced the economic outcome in the country (Export Enterprises SA, 2019).

Despite the remarkable subsidies in agriculture, not more than 2.0% of the population work in this sector. Especially, fishing is of high importance for Norway, as they account for the second-highest seafood export after China. The industry sector employs around 20% of Norwegians while making up 30% of GDP. Complementary services can be described as the most influential sector, accounting for about three-quarters of employment and resulting in a share of 57% of the GDP. (ibid) In comparison to previous years, Norwegian imports surged by 12% in 2017. Main import goods have been vehicle machinery and equipment, electronics, fabricated metal, transport equipment, chemicals, food, basic metals, electrical equipment, and coke and refined petroleum products. The country received those goods mainly from trading partners like Sweden, Germany, China, the U.S., and South Korea. Overall, one could describe the Norwegian import portfolio as diversified without depending highly on a specific good or country (Trading Economics, 2019a).

In addition, exports climbed by about the same percentage as imports did. This was mainly achieved through rising oil prices, as explained above. Thus, by far Norway's core export goods, accounting for about 49% of exports, are crude petroleum and natural gas. This is followed by coal-refined petroleum products, basic metals, fish, food, chemicals, and machinery equipment, all of which account for a relatively equal share. Partners for exports are predominantly in the UK, Germany, the Netherlands, Sweden, France, and the U.S. (Trading Economics, 2019b).

Overall, Norway has been constantly retrieving a trade surplus since 1989. In the year 2017, it rose to NOK 160 billion, which is approximately USD 18 billion (Trading Economics, 2019c; The Money Converter, 2019). Despite the strong economy in Norway, their overdependence on oil poses threats to the future of the

country. While the economy is currently stable with the exportation of oil, without a diverse market, the country is highly sensitive to fluctuations in oil prices. The impact of this great amount of exported oil and gas will be explained later in this paper.

### 2.2.2 Entrepreneurship

Entrepreneurship is highly correlated with the propensity for economic growth in a country (Reynolds, 2007). Thus, the current status of different methods to engage as an entrepreneur will be examined. David Audretsch speaks about the relationship between entrepreneurship and the performance of a place (Audretsch, 2015). While entrepreneurship can have a positive impact on a country, it is also an incredibly huge risk on the part of the investors. This type of business involves uncertainty. Audretsch says uncertainty relates to what people call high-risk situations. As a result, the likelihood of success for an entrepreneur must be reduced to estimates, predictions, and educated guesses. “Taking a flight involves risk in that a likelihood can be assigned to a safe journey or a deadly crash” (Audretsch, 2015). Therefore, entrepreneurship requires the strategic management of a place where the foundation happens. In managing a place, policymakers and investors are tasked with promoting factors, institutions, and conditions that spur entrepreneurial activity and encourage entrepreneurship capital (Audretsch, 2015).

Looking at entrepreneurship in Norway, challenges on the global side of things can be observed. It can be difficult for other businesses to collaborate with Norway because Norway is not a part of the EU but rather a part of the European Economic Area. The EEA is the product of an agreement enacted in 1992 that joins the European Union countries along with Iceland, Liechtenstein, and Norway into one single market. The fact that Norway is not a part of the EU and only a part of the EEA can create problems when collaborating with other countries in terms of customs and restrictions (TMF Group, 2018).

Norway has an emerging startup culture compared to its peers in Europe. But as the other Nordic countries are highly ranked in categories that compare the attractiveness of different places for startups, for example, the global innovation index or R&D investments as a percentage of GDP, Norway doesn’t show up in these (Creandum, 2016), a fact that Norway slowly started to realize and strive against in 2016 when the investment in startups rose by 300% (Murray, 2019). There is also a governmental initiative called “Innovation Norway” whose goal is to support aspiring founders. But still, “compared to its startup-breeding Nordic neighbors — Sweden (in a league of its own), Denmark, Finland, and even Iceland — Norway is faring poorly.” (Mitzner, 2016).

When comparing self-employment in European countries, Norway scores the lowest among all countries. The participation rate among natives is only about 6.7%, and for immigrants, it is 8.7% of the population. Specifically, interesting is the fact that, in nearly all European countries presented in the study, startup rates are higher for foreign-born people than natives (Hermes & Leicht, 2010).



### 2.2.3 Small and Medium-Sized Enterprises

Small and medium-sized enterprises (SMEs) are not known for being the most innovative. They tend to protect their intangible assets due to their traditional business management mindset. When one looks at Norwegian SMEs (companies made up of 100 employees or less), one can see that they account for 98% of all firms in the country. According to a 2001 study on Norwegian enterprises, SMEs strongly dominate the Norwegian economy within the country itself in terms of their numbers (Iversen, 2003). The study provides statistics that show the breakdown of business types within the SME economy. The breakdown shows that a large portion of Norwegian enterprises operate in the services sector, which includes wholesale and retail businesses. Meanwhile, less than 10% of these enterprises are manufacturers. Working fields like public administration, defense, health, and education make up another 10% of Norwegian enterprises. Finally, the public sector makes up about 30% of employment (ibid.). Even though the level of SMEs is rising in Norway, there is still great potential for further improvement (European Commission, 2014).

## 2.3 Human Dimension

Audretsch (2015) stated that “the human dimension is at the heart of economic performance,” and further that “businesses and organizations that keep the human dimension in focus are more likely to achieve their goals.” It becomes clear that the mindset of the people and the culture they live in influence the economic power of an area. Thus, the cultural dimensions of Norway and their impact on the country’s economy are analyzed (see Fig. 1).

Cultural aspects are important in order to understand how certain groups of people behave. To see how countries differ from each other, Hofstede’s cultural dimensions can be taken into consideration. He measures six different categories: power distance, individualism, masculinity, uncertainty avoidance, long-term orientation, and indulgence. When looking at Scandinavian countries in general, it can be said that they are rather individualistic, feminist countries with a low power distance. How regional cultures view leadership and work together to link creative minds is essential for the success of a country’s economy and, in this case, is crucial for explaining Norway’s performance. When one takes a closer look, one can observe two irregularities concerning Norway in comparison to its neighboring countries.

First of all, Norway scores 51, much higher than its neighbor Sweden, in the dimension of uncertainty avoidance. This dimension “expresses the degree to which the members of a society feel uncomfortable with uncertainty and ambiguity” (Hofstede Insights, 2019). For Norway, this implies that in unknown situations, people tend to step back and thus avoid risks. One of these situations is whether to start a business or not. The propensity to do so highly depends on whether

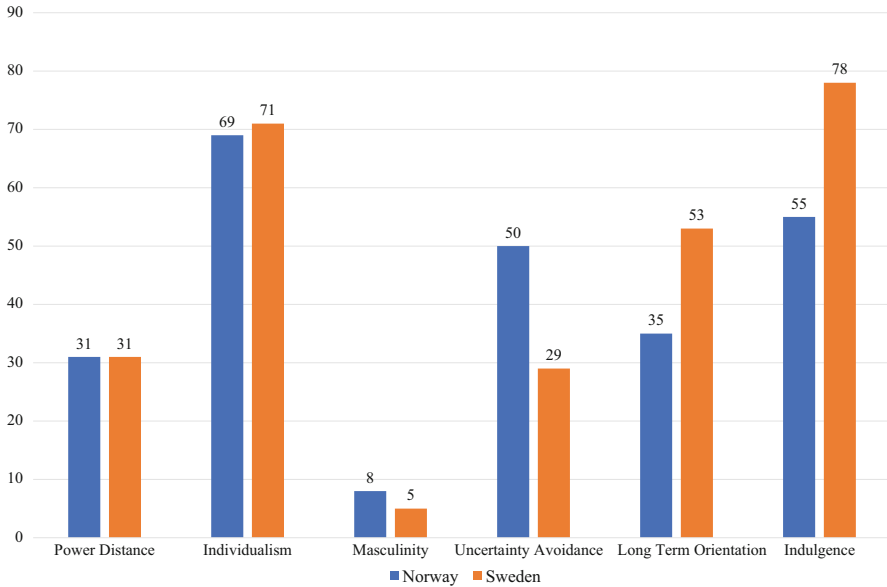


**Fig. 1** Comparison between Norway and Sweden (based on Hofstede Insights, 2019)

individuals are willing to take risks in order to pursue an opportunity. This “fear of failure” often prevents people from engaging in entrepreneurial activity. Regional differences can be observed in how pronounced this form of risk aversion among entrepreneurs is (Wyrwich et al., 2016). In Norway, this fear is more prevalent than in comparable countries, as the high score in uncertainty avoidance also implies. This is despite the fact that one can find relatively high survival rates among young firms in Norway (OECD, 2014). This suggests that it is not the inability to find a business that prevents Norwegians from starting a business but rather their anxiety. This phenomenon is not unique in Europe, as failing often means losing trust in one’s ability to be an entrepreneur. In contrast, in the U.S., failure is seen as a possibility to learn from it, making that founder specifically valuable and experienced (U.S. Chamber of Commerce Foundation, 2013).

Secondly, but also vitally important, is Norway’s relatively low score in indulgence compared to Sweden. This dimension describes the extent to which people try to control their desires and impulses based on the way they were raised. For Sweden, that means that they have a rather optimistic view and a general willingness to realize their impulses. This mindset is exactly what is needed to create a business out of a new idea and what Norway is missing. Norway is thus, in comparison to its neighbor Sweden, less willing to take risks and also to follow impulses. As this is what puts forth a strong startup culture, Norway still has a lot to learn in this regard.

### 2.3.1 Social Capital, Networks, and Linkages

Social capital can be defined as the norms and networks that enable collective action (Audretsch, 2015). Social capital, though difficult to fully define, encompasses multiple aspects of society and how that society utilizes its resources for economic growth. As Audretsch (2015) implies, the way people interact with each other strongly impacts efficiency and the ability to implement new technologies, namely by enabling knowledge spillovers and innovative activity. When there is a greater propensity for people to interact and communicate, they are more likely to diffuse innovation and create even new ideas (Audretsch, 2015). This phenomenon is especially important in the area of startups, where innovation is the deciding factor between success and failure. The vision of the Norwegian Labor Party, which is at the moment the strongest in the parliament, is that “[by] acting together rather than just as individuals, [they] can make a better society for all” (Arbeiderpartiet, 2019).

In a recent study, 58% of Norwegians agreed with the statement that their country is superior to others (Berglund, 2018). The reason for this sense of pride might be the wealth of their country, which Norway accumulated over the past decade due to its discovery of oil. But as pride comes before a fall, Norway has to come up with progress to keep its current status. In order to ensure Norway's wealth in the long term, they have to build on that base by developing its networks. How this can be successfully implemented will be part of the following solution section.

## 3 Problem Solution

### 3.1 *Fostering Startups*

In his book “Everything in its Place,” Audretsch shows that entrepreneurship is fostering a region’s economic development (2015). Furthermore, entrepreneurship is able to positively stimulate productivity, job creation, and, most importantly, in the case of Norway, the development of new industries (Reynolds, 2007). Startups are found to be highly innovative by identifying unexploited business opportunities. Additionally, there is a high potential for international growth if the idea satisfies an important need. Moreover, startup entrepreneurs add competition to the market. This is especially crucial in order to diversify Norway’s exports. Overall, startup entrepreneurship greatly contributes to a country’s dynamics in research and innovation and proactivity among the population (Shabangu, 2014). For these reasons, it is of high importance to foster the startup culture in Norway. In the following, different recommendations to achieve this goal are described.

### 3.1.1 Embracing Failure

As shown earlier, Norway is scoring relatively high in uncertainty avoidance compared to similar Scandinavian countries like Sweden. Complementary to this, Norwegian inhabitants tend to have a higher risk aversion, which results in a lower propensity to start a business. Thus, the attitude towards failure prevents highly capable workers from using their potential to engage in startups. For this reason, a key element to fostering new, firm foundations is to embrace failure. It is crucial to establish a universal mindset that not being successful at what you're doing professionally does not diminish one's value as a person. Rather, taking risks should be seen as brave even if it might not result in the admired outcomes. Clearly, a nation's attitude cannot be altered overnight, but there are initiatives one could implement to promote change in the long run.

Norway has an extraordinary social security system providing, e.g., free education, parental leave, health insurance, and financial support in case of a job loss (HuffPost, 2018). Therefore, no inhabitant must fear severe consequences when failing with a new business, as they are still health insured and get unemployment benefits. Complementary, the key here is to draw attention to the benefits that such a strong welfare state has when considering starting a business. To encourage the broad population to embrace this, one could create campaigns providing specific facts about how the state can intervene when something unpredictable happens, either in personal or professional life. Additionally, founders with experience in this subject could talk about the topic and what happened to them personally. Sweden has a comparable safety net that has embraced entrepreneurship in the country (Independent, 2018). Thus, it can be observed that when people are aware of the security they have, even if they fail, they are more likely to start a business.

### 3.1.2 Government Investment

As Norway has already made enormous savings for a time when relying on oil is no longer an option, the reason for the scarcity of investment is clearly not a lack of resources. The problem lies elsewhere, namely in the order of priorities. At the moment, Norway solely invests in international assets with the aim of increasing the value of the fund. But in order to strengthen the economy, which was the initial purpose of the fund, it would be advisable to largely invest in the local economy. With Norway's low unemployment, strong economic growth, and available capital, it is a solid base every investor could ask for. Through this shift in investments, the drop in oil prices can be seen as a chance rather than a loss and a starting point to speed up the whole process.

The fact that the responsibility for innovation lies clearly in the hands of the government is given by the fact that the majority of the companies are state-owned as explained previously in this paper. For this reason, the fund, which has been explained above, could be used to invest in valuable startup programs like

accelerators or incubators. Their mode of operation and the feasible positive effects they can have on the Norwegian startup scene will be explained in the next section.

### **3.1.3 Accelerators and Incubators**

Starting a new business often bears many uncertainties, which might hinder many highly capable entrepreneurs from starting a new foundation. Therefore, assistance programs are necessary to help founders in the beginning and early stages of the startup process. Two forms are the most prevalent and successful in reaching this goal: incubators and accelerators. These two programs have the same aim but operate in different ways.

Firstly, incubators help prospective founders further develop an exceptional idea into a business model. Thus, this type solely focuses on the very early stages of entrepreneurship. Sponsors for incubators can be venture capital firms, angel investors, governments, or enterprises. Hence, this program may have a focus on a market or vertical linked to the sponsor. The aim is to develop ideas into a thoughtful business model, including, e.g., contact networks. Moreover, incubators often provide shared working spaces. On the contrary, accelerators work with already-established countries in order to spur their growth. Often, this incorporates a mentoring program, including venture capitalists, startup executives, and industry experts, within a fixed time frame, aiming to prevent mistakes and lead the business in a promising direction. Additionally, the startup in many cases receives seed investment. In exchange for this help, the new ventures mostly have to trade some amount of their equity. This aligns all participants' interests. By participating in accelerator programs, startups are often likely to develop faster than under normal circumstances (Forrest, 2018). The Norwegian government should subsidize such programs.

Thus, by establishing strong incubators and accelerators in Norway, people might be more willing to engage in entrepreneurial activity as they are able to receive help if necessary or are aware of possibilities to foster growth. One good example of where this knowledge is already being put into practice is the "Digitales Zentrum Schwaben," which is located in Augsburg. Within this framework, young entrepreneurs are encouraged to use creativity to trace their business ideas, accompanied by financial as well as managerial support. It is a place where creative minds can meet and get the chance to connect with each other. Their vision is to invest in networks in order to strengthen not only the entrepreneurial spirit in the region but also the connection between startups and established companies (aitiRaum, 2019).

### **3.1.4 Immigrant Entrepreneurship**

Another way of using resources efficiently could be to integrate immigrants into the startup culture. This employment opportunity might help them prepare themselves to hit the ground running in their career. How big the potential becomes visible in some

statistics: Only in 2017 did over 53,000 immigrants migrate to Norway. Most of them are between 18 and 35 years old. About a percent have obtained a degree in their home country, and even more have a high school degree (Eurostat, 2019b).

As mentioned beforehand, immigrants are more likely to engage in entrepreneurial activity than natives. Therefore, foreign-born people are valuable assets when it comes to establishing entrepreneurship in a country. Immigrant entrepreneurs add different perspectives, and due to their deep knowledge of their home countries' economic circumstances and their international ties, they can foster exports and trade relations (OECD, 2010). These international relationships can become especially valuable as Norway is, as explained, not part of the EU but only the EEA. Thus, strong relations with other countries can help overcome some difficulties in trading.

These linkages and networks are specifically valuable when immigrant entrepreneurs are engaging in new industries like the high-technology industries. Saxenian (1999) found a significant connection between the prevalence of immigrants engaging in entrepreneurial activity and the dynamics of entrepreneurship in Silicon Valley. Wadhwa et al. (2008) found that this is not only true for such a specific region but rather a national phenomenon. For this reason, high-skilled immigrant entrepreneurs specifically contribute to firms in the technology and engineering sectors. Hence, it is of significant importance to attract highly educated immigrants by offering unique opportunities to start a business in Norway. In order to implement a program, it has to be considered that immigrants might face specific challenges due to their newness to Norway or their heritage. Raising capital is one main problem immigrant entrepreneurs might face, as they might not have business relations in the country or do not succeed in presenting their concept in an appealing way (Cities of Migration, 2014).

Norway, among other Scandinavian countries, has a very high level of an English-speaking population (Cremer, 2016). This implies that language barriers might be lower than in countries where English does not have such a high prevalence. Nevertheless, it is not the first language in the country, and it might also not be the native tongue of immigrants. Furthermore, immigrants have to adapt to local cultural contrasts and learn about regulatory circumstances in Norway before being able to establish a functional business (Cities of Migration, 2014).

In order to attract high-skilled immigrant entrepreneurs and motivate immigrants to Norway to establish their own businesses, a reliable support system should be built. Sweden has already found such assistance services targeting immigrant entrepreneurs. It is called "IFS" and was established in order to help immigrants overcome challenges. This is accomplished through training, business advice, and access to opportunities. (Cities of Migration, 2014).

Norway should come up with a similar program to assist immigrants in establishing businesses. This service should be highly promoted and accessible for every immigrant by providing language assistance next to business-related advice. Furthermore, networks for immigrant entrepreneurs could be specifically helpful to promote startup activity. Having people as mentors who went through the same immigration process and had to face similar challenges might be of extraordinary importance for immigrant founders. Aachen, Germany, has successfully established

an inclusive business network promoting immigrant entrepreneurs in highly knowledge-based areas. Nevertheless, members do not have to be immigrants as the main idea of “The Business Network Aachen” is to foster international entrepreneurship in the city of Aachen. The program includes networking events and workshops to discuss current issues and strategies in order to build up valuable business relationships and help the city to foster international entrepreneurship (Cities of Migration, 2012). Norway could implement such programs in bigger cities like Oslo, Bergen, or Trondheim. By introducing these support systems, Norway would be able to retain the best talent for building businesses in order to accelerate startup activity. Thanks to international alignment, this can spur exports and therefore economic growth.

### ***3.2 Investing in Education***

As addressed earlier, human capital is a vital resource in a working economy. Investing in human capital takes the form of adequate education. Education is part of the groundwork of economic and social development. As noted in the Journal of Rural Development and Administration, education ensures a place has the means to be competitive in the world market amidst changing technologies and methods of production (Ozturk, 2001).

A recommendation for Norway in terms of investing in education is to build relationships between the classroom and the workforce. This can happen through field trips to company sites, wherein students develop a vision of what opportunities exist in their community. Secondly, schools can bring in representatives from local companies to give presentations and answer questions regarding their market. Schools should start to invest in education and build market relationships as early as kindergarten. Once students reach high school and college age, Norway’s youth should be well-versed in market opportunities. In the case of post-high school education, Norway should steer more towards local companies investing in human capital. Since higher education is expensive, it is recommended that companies offer tuition reimbursement or assistance. This will allow employees to earn a degree without getting into debt while they are still working and earning an income.

#### **3.2.1 Investing in SMEs**

Because Norway is overly dependent on its oil industry, it is recommended that the country invest in its small and medium-sized enterprises. With this investment, the country can avoid situations like what happened in Venezuela, where the country’s biggest export was sanctioned by the U.S. due to political unrest. According to the Central Intelligence Agency’s World Factbook, “Venezuela remains highly dependent on oil revenues, which account for almost all export earnings and nearly half of the government’s revenues, despite a continued decline in oil production in 2017”

(Central Intelligence Agency, 2019). While Norway is an extremely peaceful country, there is always a possibility that its biggest source of income could be cut off from the world, leaving them with small and medium-sized businesses to sustain its economy. The recommendations are thus twofold. First, Norway should follow the German Mittelstand model and invest in its SMEs to move from unskilled to skilled labor and maximize their human capital. Secondly, Norway should invest in energy-efficient businesses, specifically electric car businesses. The electric car industry could help as Norway moves to become a more environmentally friendly nation.

The German Mittelstand encompasses the small and medium-sized enterprises of the country, which make up 95-99% of German firms. These firms are in the 200-250 employee range and are usually family-owned. One such company is Weisser Spulenkörper, founded in 1922 and currently managed by Alexzander Starnecker and his wife. The company has been in the family for three generations and currently manufactures bobbins, boxes, and insulation parts for magnets, motors, relays, sensors, and transformers. Weisser Spulenkörper employs around 195 workers who, although the company has an enormous factory, are not the typical factory workers. These employees are highly skilled in building and fixing machinery. In the age of technology, most factory workers were replaced; however, the German Mittelstand trains its staff to be innovative so that even if technology can replace their work, their skilled training allows them to work in other areas of the company. Another characteristic of the German Mittelstand is that the employees of the company generally work their entire lives with the same company. Furthermore, their children typically work as apprentices after school so that when their parents retire, they too can work at the company (Weisser Spulenkörper, 2019).

The German Mittelstand is an exemplary model for Norwegian SMEs to help diversify the market and avoid such a high dependence on the oil industry. Norway has an enormous potential to maintain its economy by investing in its SMEs. Thus, the recommendation is to implement a package policy wherein education and SME investments draw Norway from being a country solely dependent on one resource to utilizing the cluster approach to governing.

### 3.2.2 Utilizing Apprenticeships

Germany serves as an exemplary figure in the use of apprenticeship programs. According to Erik Lehmann in his book "The Seven Secrets of Germany," there are roughly 324 trades that offer classroom instruction and company training in social and technical fields (Audretsch & Lehmann, 2016). Apprenticeships maximize human capital by allowing graduates from multiple backgrounds to be flexible for a wide range of industries. This time of training gives employees a skill that not only strengthens the business but also benefits the employee. If, while investing in education and SMEs, Norway can implement an apprenticeship program, its market value will become a leading figure in the global economy.



## 4 Conclusion

For a nation to reach economic success, it requires strategic management of that place. Over the last 50 years, Norway has been a leading European country in the market for oil and gas production, but this one resource is the single pillar holding up the nation's economy. Oil and gas production is not only harmful to the environment, but it also neglects to harness the country's full potential. While this single means of physical capital has made Norway one of the wealthiest countries in the world, the human capital, potential for startups, growth of SMEs, and opportunity for educational partnerships are at times overlooked.

The approach utilized in this paper to address the Norwegian paradox involves attacking the problem of overdependence on oil by using Norway's current factors of production to diversify its strategic portfolio. The country has massive potential for growth in other markets aside from oil, which will in turn solidify the nation as a leading economy in the world market. It is important for Norway to tackle its current overdependence by investing in startups through accelerators and incubators to help businesses in the earliest stages of production. Furthermore, Norway must invest in education to strengthen its human capital and provide startups with an adequate workforce. Finally, Norway should invest in small and medium-sized enterprises, similar to the German Mittelstand approach to economic growth, with the mindset that "small is beautiful."

From the analysis, it has been revealed that there are many elements that contribute to the economic growth and sustainability of a country. From physical capital to human capital, from the human dimension to the spatial and organizational dimensions, without the collaboration of each of these factors of production, a country may strive to find success, but it will never be able to thrive in a world economy. If Norway's government can use the money from oil to invest in startups, to invest in higher education for its population, and to model its SMEs after the German Mittelstand, it will not only diversify its approach but also display a proactive mentality.

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# Fracking in Texas: Effects on Economic Development and Future Outlook



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**Abstract** From a country-wide perspective, the state of Texas contributes the second-highest amount to the GDP of the United States). Within Texas, the energy sector has emerged as one of the strongest and most promising factors for economic development. The invention of fracking gave the oil and gas industry advanced possibilities to reach resources in places where traditional methods had to surrender. This technique enabled the state of Texas to become the country's most important oil and gas provider. However, fracking is claimed to cause various negative side effects, especially on nature and the environment. This may bring up plenty of challenges for communities, companies, and policymakers. This paper uses the framework from "Everything in its Place: Entrepreneurship and the Strategic Management of Cities, Regions, and States" by David B. Audretsch to analyze Texas and the impacts fracking has on the economy. Solutions to rectify the situation are presented. These include implementations for water usage, regulations for chemicals used in the process, and the strengthening of entrepreneurial activities at universities.

## 1 Introduction

When looking at any place and its issues, it is important to understand the economy and its different most heavily influencing sectors. In addition, how they may affect one another. In Texas, some of the main industries include energy and agriculture, with Texas being the number one energy producing state in the United States. This can be attributed in part to the increased use of hydraulic fracturing. Hydraulic fracturing, or fracking, is the process of drilling wells deep into the earth to access

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natural gas and oil deposits. With recent advances in the drilling process, the deposits of these energy sources are more easily accessible, making them an even more popular mode of energy production (U.S. Energy Information Administration, 2022). The process entails pumping a mixture of water and chemicals into the drilled hole until it reaches the depths of the rocks holding the natural gas and oil. The recent advance in the process means that these drills can not only reach great depths but can also extend horizontally once at the desired level and cover more area of the shale gas reservoir. The pressurized water causes the rocks to fracture, releasing the desired substances (Healy, 2012).

The first attempts at fracking were made in the 1940s, but the practice would only develop to the point of feasibility starting in the 1990s. Beginning in the mid-2000s, fracking would be utilized to begin extracting from previously unviable shale rock reserves (United States Government Accountability Office, 2012). With new oil and natural gas resources suddenly in play, the United States became the world leader in energy production, with Texas leading the way, rivaling Saudi Arabia and Russia (U.S. Energy Information Administration, 2022). Therefore, the United States is no longer heavily dependent on politically unreliable nations for energy imports (United States Government Accountability Office, 2012).

Fracking and the resulting greater availability of energy resources had outcomes like lower energy prices for consumers, new jobs in the energy sector, and massive infusions of cash in resource-heavy regions (Bartik et al., 2018). But while fracking has produced economic booms in some areas, it has also come under scrutiny, particularly for its impact on the environment. Especially calling into question whether the long-term negative externalities of fracking dwarf the short-term economic prosperity created by the practice. One major consideration, too, is the effects not only on the environment but also on the agriculture sector.

Our paper focuses on the state of Texas, as its massive energy industry and extensive energy reserves make the state well-positioned for even further expansion of fracking operations. This is setting up a possible conflict between the state's major agricultural operations and the state's important energy sector. This potential for the energy industry poses threats to people around the area and to other economically important sectors in the state, thus presenting the question: do the negatives outweigh the positives? The following pages give an overview of the Texan economy and a deep analysis using the framework. In the following chapter, problems caused by fracking that contribute to the three subsections imposed by the framework will be identified. Afterwards, the paper presents solutions and ideas on how to improve the current situation regarding fracking and the economy as a whole and will conclude with a thorough discussion of the findings.

## 2 Problem Analysis

The following chapter will focus on a problem analysis of the state of Texas. The economy and the factors of production, referring to Audretsch (2015), will be examined.

### 2.1 *The Texan Economy*

The economy of Texas can be categorized as strong. The unemployment rate in Texas sat at a respectable 4.1% in August 2022 (U.S. Bureau of Labor Statistics, 2022). The GDP reached \$2.1 trillion in the first quarter of 2022, with Texas contributing 72% of the overall GDP of the Southwest states (Bureau of Economic Analysis, 2022b). According to the Texas Workforce Commission, the state has recovered well from the COVID-19 pandemic. In mid-2021, three of the state's major industries reported surpassing pre-coronavirus employment levels. The long-term industry projection for the health care and social assistance sector alone is estimated to grow by 1.8 million jobs by 2028 (Texas Workforce Commission, 2022).

The Texan economy has been propped up by energy production since the early 1900s, when the first significant oil extraction began (U.S. Energy Information Administration, 2022). While Texas's natural resources have helped drive the economy throughout the state's history, reliance on the industry has historically left the state vulnerable to fluctuations in oil and natural gas prices (Gold, 2015). Today, Texas is the United States' largest energy producer, accounting for 25% of national natural gas production and a third of the nation's oil production, thanks in part to fracking (U.S. Energy Information Administration, 2022). Government research by the Texas Legislative Council indicates that the oil and gas industry was the sector with the largest job growth since 2000–2016 (Texas Legislative Council, 2016).

Texas has a robust agricultural industry. According to the Texas Department of Agriculture, farmland in Texas takes up about 130 million acres, making it the state with the most farms in the United States by area. According to state estimates, about one in seven Texans is employed in this sector. The state is also the country's largest producer of cattle and cotton (Texas Department of Agriculture, n.d.).

According to the Office of the United States Trade Representative, the Texan economy is also bolstered by trade with neighboring Mexico, with an estimated \$109.7 billion in exports crossing the border in 2018. The state's easy access to an international border has helped it become the state with the largest number of exports in the country. Exports to Mexico are estimated to account for approximately one-third of Texas's exports (Office of the United States Trade Representative, n.d.).

## 2.2 *Factors of Production*

The most critical part of what determines the state and nature of an economy are the factors of production. When it comes to Texas and hydraulic fracturing, the key factor in production is water.

### 2.2.1 *Water Contamination/Usage*

Water is one of the most important substances on earth. It is essential for plants, animals, and hydraulic fracturing. Gas drilling companies claim that this method is a more climate-friendly way to generate electricity, but if you take a closer look, the outcome is terrifying (Kiger, 2014). Currently, there are more than 252,567 active gas wells in Texas (Drilling Edge, 2022). Each one requires millions of gallons of water to operate (Habib & Hinojosa, 2016). The main issue is that these vast amounts of water are contaminated with up to 1,021 chemicals (Greenwood, 2016). Together with sand, the mixture is pumped at high pressure into the underground rock layers, where the fracking fluid helps release the gas from the rock formation. Yale School of Public Health researchers have found that various used substances in the process are associated with either developmental or reproductive toxicity (Kaylin and Greenwood 2016).

To analyze the full threat that occurs, we first characterize the different areas where the gas companies threaten water. In a state like Texas, which has a history of water shortages and droughts, fracking has had a huge impact through its immense water withdrawals. Especially in the drought of 2011, water became an even more valuable resource (Combs, 2012). The sheer number of the state's gas wells explains how the high demand for water will likely increase its price. A study by Duke University's Nicholas School of the Environment recently published that the amount of water used in Permian fracking operations increased from 4,900 cubic meters per well in 2011 to up to 42,500 cubic meters in 2016 (Druzin, 2018). This represents a skyrocketing increase of almost 800 percent.

As a result, it is likely that water prices will rise in the area and in other industries. It is likely that farming will not be able to stay competitive as their cost of production will increase. Texas has a long history of agriculture and is home to most farms all over the United States, with 248,800 farms and ranches covering 130.2 acres. The two biggest industries in this sector are cattle farming and cotton production, which are both water-intensive businesses (Texas Department of Agriculture, n.d.). According to the OECD, 73% of the water that is used for irrigation on farms in the south of the US, including Texas, is coming from groundwater (Wichelns, 2010). Therefore, those aquifers are an important foundation for this industry. However, fracking puts this industry at two major risks.

Firstly, if a water aquifer is contaminated by a nearby fracking well, the water will be polluted with several toxic chemicals. Depending on the level of contamination, the farmers might not observe this pollution immediately, which leads to continued



irrigation of the fields. Therefore, the crops in the fields as well as the soil will be contaminated. Thereby, the crops and the grass that are fed to the cattle in this area might be poisoned. Farmers will be unable to sell their produced goods in the long run as they may represent a major health hazard. Another aspect to look at is the water prices. To stay competitive in the market, farmers try to produce their products at low costs. If they happen to lose the water aquifers due to fracking gas and chemical contamination, they will need to obtain water from other sources. However, the demand for water during the fracking process is putting increased pressure on water prices due to further shale energy development. Especially in Texan counties such as Dimmit, Zavala, and La Salle, researchers found that local aquifer levels have declined 100-300 feet over the past two decades as a consequence of groundwater depletion challenges (Freyman, 2014).

## ***2.3 Spatial and Organizational Dimension***

Following the framework by Audretsch (2015), we analyze the spatial and organizational dimensions. How do physical resources work in the surrounding environment, and how are they affected by it? In the matter of Texas and fracking, we identified issues related to the ground, buildings, and air.

### **2.3.1 Air Pollution**

Research on the impact of fracking has been carried out in several cities and countries. Evidence suggests the existence of a troubling relationship between fracking, pollution, and public health risks. According to a recent review of the existing scientific literature, “84% of public health studies contain findings that indicate public health hazards, elevated risks, or adverse health outcomes; 69% of water quality studies contain findings that indicate potential, positive association, or actual incidence of water contamination; and 87% of air quality studies contain findings that indicate elevated air pollutant emissions and/or atmospheric concentrations.” (Hays & Shonkoff, 2016, p. 1).

Directional drilling and hydraulic fracturing in the United States have led to the widespread development of unconventional natural gas resources. Oil well completions with hydraulic fracturing can result in volatile organic compounds and methane emissions, which occur when gas spreads in the atmosphere during flowback. In addition to these direct and fugitive air pollutants, one must also consider diesel emissions, which originate from the combustion engines of heavy trucks and machinery used during well site preparation, drilling, and production.

The Barnett Shale is a geological formation consisting of sedimentary rocks, located in North Texas. According to an ambient air study, the unconventional natural gas development process in the Barnett Shale leads to direct and fugitive air emissions of a mixture of pollutants (Zielińska et al., 2010). Chemicals and

secondary air pollutants are likely to be inhaled by workers and nearby residents. In Texas, considerable attention has been focused on the Barnett Shale because of public concern over industry emissions of hazardous air pollutants. The air contaminants associated with hydraulic fracking are benzene, toluene, ethylbenzene, xylenes, nitrogen oxides, methane, ethane, and propane. Nitrogen oxides and volatile organic compounds released from fracking-related processes react in the presence of sunlight to form ozone. This is commonly referred to as smog. Olaguer (2012) used a neighborhood-scale three-dimensional air dispersion model to simulate ozone formation. The researcher investigated the ozone impacts of a hypothetical natural gas processing facility in the Barnett Shale and concluded that “oil and gas activities can have significant near-source impacts on ambient ozone, through either regular emissions or flares and other emission events associated with process upsets, and perhaps also maintenance, startup, and shutdown of oil and gas facilities.” (p. 976).

### 2.3.2 Earthquakes

Among the many possible consequences of increased fracking activities in an area is the increased possibility of seismic activity. After the water is used for fracking, it is disposed of in underground wells. These wells can receive billions of gallons of wastewater during their lifetime, and without exact knowledge of fault lines in certain areas, it has been found that these wells could be placed right on the brink of earthquake fault lines. This makes the high pressures exerted in the area even riskier and more likely to cause earthquakes (Davis & Fisk, 2017). While assessing the different impacts of hydraulic fracturing, the Environmental Protection Agency found that there are large numbers of Class II disposal wells in Texas. This class has been connected to earthquakes in several states (United States Environmental Protection Agency, 2016). With states such as Texas and Oklahoma, which are more dependent on these sources of energy production, the economic risk of more earthquakes is likely to be less of an issue than the economic risk of changing fracking practices (Davis & Fisk, 2017). It can be seen in examples from other states that stricter regulations can be enforced; however, it is not a widely used practice.

As state regulators are likely to approach the topic and issue at hand cautiously, the relationship between induced seismicity and earthquakes is still an arduous issue to impose regulations on. In addition to that, when the public officials of a state believe their economy is dependent on these actions for revenue or jobs, ignoring the issue is not uncommon (Davis & Fisk, 2017).

### 2.3.3 Real Estate

Some research has indicated that fracking can have positive effects on property values due to the added value newly discovered resources contribute. Most research, however, is primarily concerned with the potential negative impact fracking can

have on communities (Bartik et al., 2018). This includes the loss of trust in the industry (Cox et al., 2022).

Investigations from heavily fracked Pennsylvania and neighboring Oklahoma have established the negative impact on property values. Duke University found that properties in Pennsylvania near a fracking well, which also sourced their water from nearby groundwater wells, experienced a steep reduction in their value, about 13.9% on average. Properties that did not use local well water were not negatively affected (Muehlenbachs et al., 2015). Similarly, in Oklahoma, earthquakes caused by fracking have depressed property values. A study conducted from 2006 to 2014 found that increased seismic activity caused by fracking resulted in property values dropping by 3-10% in affected areas. Territories affected by the most severe earthquakes saw the largest declines (Cheung et al., 2018). There is not a plethora of research available on how fracking has impacted Texan property values during the short time the practice has been used in the state. However, existing research from Pennsylvania and Oklahoma underscores the urgency for Texas to address the issue and prevent similar scenarios from occurring.

## **2.4 Human Dimension**

This category explains how other categories and factors, like the values of a community or leadership, affect people. Regarding the purpose of the paper, we examined the impact fracking has on people in terms of health, human capital investment, and their connection to their pride in living in the area.

### **2.4.1 Health Issues**

The impacts of fracking are multiple and are spread on a scale that encompasses local, regional, and global consequences. Emissions of carbon dioxide and methane contribute to climate change, thereby having a global effect. Many studies have provided an association between exposure to petroleum hydrocarbons and serious health problems, which can be referred to as the regional and local effects of fracking. Among the local effects, we can distinguish between impacts on workers and the community. Considering the impact on workers during well development, “the most important stressors include mortality, exposure to hazardous materials, and increased risk of industrial accidents” (Adgate et al., 2014, p. 8307).

The effects are not only occupational, but they extend to the community since residents living near unconventional natural gas development sites may be exposed to the same chemical and physical hazardous materials. The Natural Resources Defense Council summarizes the main health effects due to exposure to hazardous substances: respiratory problems, cardiovascular problems, brain and nervous system problems, damage to the blood and bone marrow leading to anemia and

immunological problems, reproductive system effects, effects on fetal and child development, cancer, and premature mortality (Rotkin-Ellmann, 2014).

#### **2.4.2 Effects on Human Capital Investment**

Fracking helps the oil and gas industry become one of the driving factors of Texas' economy, as it accounts for the third largest part of the state's GDP (Bureau of Economic Analysis, 2022a). However, a working environment that might not require the highest education and relatively high wages for this comparatively unskilled work raises the presumption that working in the oil and gas industry harms human capital investment, causing economic difficulties, especially in the long run. Indeed, research found that the drilling manufacturing process does interfere with the educational process. During periods of oil booms, when real wages decreased in non-oil sectors, companies in the oil sector were able to increase the real wage. In areas with high concentrations of the energy industry, the school dropout rate rose, primarily that of immigrant students. The reason for this relation could be that "[...] immigrant children in the United States are disproportionately likely to be Latino, and Latino high school children are disproportionately likely to need to work to support their family economically" (Carpenter et al., 2019, p. 203), and therefore chose work over education. Together with the fact that foreign students are more mobile and more likely to drop out, this causes underinvestment in human capital.

The boom brought many drilling companies forward, which led to an abundance of jobs that pay a higher wage, increasing the opportunity costs of additional schooling and giving an incentive to not only leave school but also not enroll at all. This was mainly observed for young adults at the decision point of whether to undergo further education at college. The share of higher-educated workers grew in non-oil and oil industries. However, the oil industry experienced a less rapid increase in college graduates. Additionally, companies in this field still employ a higher percentage of people with only high school diplomas or no diploma at all. Thus, the share of the highly educated workforce is smaller. This supports the opinion that the oil and gas industry occupies more unskilled work but also has a negative impact on further education. People reaching high school age during periods of oil booms were 1-2% less likely to graduate college (Kumar, 2017).

The economic development of the oil and gas industry does not only directly affect students and their decision whether to start working, leave school, or enroll in another year. It also has an indirect impact on the educational process through schools and teachers. A recent study by Marchand and Weber (2020) implies that the economic boom in shale oil and gas drilling helped the tax base grow and led to a revenue windfall. Though schools spent the additional means on capital projects and debt services instead of investing them in teacher payroll, without raising salaries, schools cannot engage experienced teachers but only inexperienced ones. Moreover, higher real wages increased opportunity costs for teachers as well, giving teachers incentives to quit teaching to work at a better-paid job, causing a higher turnover in

staff. Consequently, employment fluctuation and inexperienced staff reduced the quality of education, student achievements, and human capital investment.

### **2.4.3 Loss of Pride in the Area**

With an advancing environment comes a variation of opinions from those experiencing these changes. Although there is little empirical research on the psychological health of those individuals impacted by fracking, there is evidence linking feelings of fear, anxiety, powerlessness, and more to the presence of fracking in an area. While fracking activities may not directly harm an individual's daily life, people experience negative externalities from the operations and changes occurring. These externalities are the costs communities must bear because of fracking. While there are a number of ways fracking could help a community thrive, without the cooperation and excitement of the residents of the area, the benefits are likely to be limited (Hirsch et al., 2018). So long as the individuals in an area do not see and experience the positivity of the actions, negativity could spread.

Oppositions in beliefs about a topic often bring out arguments, especially when the beliefs are held by highly passionate people. In the case of fracking, it is likely that people are highly spirited in their feelings. In a thesis submitted to Kent State University about the impact of the relationship between rural resistance and fracking, Rose (2017) notes the existence of moral exclusion. Moral exclusion exists when a more dominant group views its group and its ideals as superior to those around them. In the case that Rose observed, there were sporadic instances of this moral exclusion: some people were passionate about the economic possibilities, while others believed more in the importance of the environment. Additionally, it is imperative to note that this community experienced many people being manipulated into believing certain viewpoints the fracking companies pushed (Rose, 2017). This existence of moral exclusion separates the groups with differing views and beliefs, thus creating a crack in the community's relationship.

## **3 Problem Solution**

A process with such a complex structure and many different identifiable issues is complicated to solve. Therefore, it is important to improve the situation by implementing several different strategies that each improve it from different angles. As fracking has become a relevant economic pillar, the most promising way would be the implementation of strategies that positively develop the process itself, rather than trying to outright ban it and confront the powerful gas and oil lobby.

### ***3.1 Implementations for Water Usage***

Unless there is a major innovation that can greatly decrease the use of water and chemicals used in shale energy extraction, stress on freshwater resources will remain. Therefore, it is required to decrease the use of freshwater and environmental pollution. In general, it is important to reduce water usage in Texas and increase the efficiency of its application. One option would be to increase the amount of reused wastewater during the fracking process, which on average requires 2.5 million gallons of water per well (Freyman, 2014). Another option is to replace the water with another substance. It might be more efficient to replace water with carbon dioxide (Andrews, 2020).

To decrease the amount of water used during the fracturing process, researchers tested and developed a new fracking method in five different wells at the Jilin oil field in northeastern China. This new technique comes with promising new features. Firstly, the use of carbon dioxide increases the number of fractures in the shell formation and is therefore able to enhance production by up to 20 times. As its low viscosity can create more three-dimensional fractures, scientists calculated a rise in productivity of 80% over a 5-year period. Another reason for this higher effectiveness is the increased leakage of carbon dioxide within the natural porosity of the formations. Looking at the single steps from a different perspective, there are more benefits that are identifiable. The pressure used to produce little fractures in the rock formation is decreased by 50% during this process. As a result, the cement and steel bracing that is used to isolate the drilled well from underwater aquifers is less likely to break. Therefore, the risk of oil and gas leaks, especially at critical parts, is reduced (Song et al., 2019).

Carbon dioxide is not only used; parts of it are also stored simultaneously in the newly created fracture formations. Therefore, it is enabling the whole process to become much greener. Often, carbon dioxide is also referred to as industrial waste gas,” and so far, the process of capturing it hasn’t been economically profitable. This caused the end of a project called the Boundary Dam CCS, which successfully collected 757,000 tons of carbon dioxide between 2014 and 2016 (Massachusetts Institute of Technology, 2016). However, regarding the company SaskPower, which initiated this project, in the event of a restart of the collection process, they might be able to cut costs by 20 to 30%. Whereas this would lead to a cheaper fracking fluid resource in comparison with water, as related technologies are developing rapidly. At the same time, the use of it during the fracking process could fully compensate for the collection costs of carbon dioxide (Song et al., 2019). This innovation might be a promising solution to save underwater and surface water from contamination as well as to deplete the amount of wastewater and reduce stress on water demand. It would also make fracking more competitive for gas and oil companies. However, there would still be a waste byproduct that needs to be disposed of. Additionally, there are no long-term experiences yet. Therefore, we would have to wait until further research is completed.

It might also be important to introduce standardized rules and regulations which track the water quality of underground aquifers and their quantity. This would prevent farmers and the people would use contaminated water and could prevent health issues that might occur from health hazard chemicals.

### ***3.2 Regulations of Chemicals***

To improve the situation, it has become mandatory for many companies to disclose their information about fracking chemicals to the Department of Environmental Protection and FracFocus. This platform was created in 2011 by the Groundwater Protection Council and the Interstate Oil and Gas Compact. This non-governmental organization is used by more than 20 states and was designed to provide the public and individual landowners with information about the process of hydraulic fracturing as well as about chemicals being used on or near their property (Frac Focus, [n.d.](#)). As each chemical has several different names on the market, it was an important step to introduce the so-called Chemical Abstract Service numbers, which make every chemical identifiable (Colborn et al., [2011](#)). Nowadays, it has become easier for researchers to track if groundwater or surface water gets contaminated. However, we propose to take the whole process one step further by analyzing the listed chemicals and banning the most hazardous ones.

### ***3.3 Zoning Regulations***

The Texas Railroad Commission is responsible for regulating the state's oil and gas industry. While the Commission has been criticized for lacking transparency, it is provided with the authority to adopt rules, enforce rules, and issue permits relating to the prevention of pollution by the Texas Natural Resources Code. Within the Texas Railroad Commission, the Oil and Gas Division is responsible for regulating fracking in Texas. It enforces regulations as follows: well construction, casing, and cementing; protection of underground and surface water; hydraulic fracturing chemical disclosure requirements – the reporting and disclosure of the types and volumes of fluids used in fracking; and a description of each chemical additive used in fracking; the maximum amount of surface and injecting pressure used during the process; spill prevention and clean-up; and all other information considered necessary for the regulation of fracking for safety and environmental protection. As of March 2017, fracking operators were required to complete and submit a list of chemicals used on the website FracFocus.org, the aforementioned chemical registry developed by the Groundwater Protection Council, and the Interstate Oil and Gas Compact Commission (Ballotpedia, [n.d.](#)).

In November 2014, Denton became the first Texas city to ban hydraulic fracturing. In 2015, the governor of Texas signed a bill that prohibits local laws that ban

fracking, saying it was necessary for Texas to avoid “a patchwork quilt of regulations that differ from region to region, county to county, or city to city.” (Office of the Texas Governor, 2015). The city of Denton had no choice but to withdraw its ban. According to this bill, municipalities cannot ban, limit, or regulate an oil and gas operation because it is subject to the exclusive jurisdiction of the state. Still, they are able to impose an ordinance that: (1) “regulates only aboveground activity related to an oil and gas operation that occurs at or above the surface of the ground, including a regulation governing fire and emergency response, traffic, lights, or noise, or imposing notice or reasonable setback requirements; (2) is commercially reasonable; (3) does not effectively prohibit an oil and gas operation conducted by a reasonably prudent operator; and (4) is not otherwise preempted by state or federal law.” (H.B. No. 40, 2015). In those states that do not prohibit local regulation of fracking, it can be governed through a wide range of local laws (Angeles, 2018). Through this law, municipalities in Texas are left with poor fracking regulation powers. Localities in Texas cannot ban or limit fracking; they can impose reasonable setback requirements, which state how far away the drilling site must be from a building. It is not clear which setback regulations would be considered reasonable by the state, as well as which ordinances would be considered commercially reasonable. This lets us believe that if the economic benefits outweigh the damage caused by fracking, localities are not likely to have a say.

As the government is not believed to withdraw its decision of banning laws against fracking issued by municipalities, we believe it is then the government’s duty to install reasonable regulations of distances—how far from buildings, property lines, and community borders companies are allowed to install drilling wells—in order to protect private people as well as other industries and reduce the negative impacts of fracking on water, real estate value, air pollution, soil, and the risk of earthquakes.

### ***3.4 Strengthening Mineral Rights***

The issue of fracking damages has been further exacerbated by the issue of mineral rights, specifically the common law-derived Rule of Capture. While the conventional wisdom for most people would be that ownership of a property automatically includes mineral rights, that is not always the case. Mineral rights can be held separately from surface rights. Rights concerning minerals held underground are not very strong, differing from strong surface rights, for property owners. The Rule of Capture provides that one is not liable for resources that may be extracted from neighboring properties, so long as the drilling site is still on one’s property. The loose legal framework provided by the Rule of Capture has presented issues. Companies do not necessarily need to get a mineral rights lease from a reluctant property owner if they can drill near enough to their property lines to effectively extract the resources. Furthermore, energy companies have low levels of liability for potential harm to neighboring properties (Shale, 2018).



A landmark case in Pennsylvania concerning fracking in the massive Marcellus Shale provides a legal argument and precedent for greater mineral rights to be protected by the state. In *Briggs vs. Southwestern Energy Production Company*, the Briggs family claimed that Southwesterners' fracking operations on their neighbor's property constituted trespass because the well near the property line was drawing resources from underneath the Briggs family property. The court made a key differentiation between traditional oil and gas extraction methods and fracking, as the Rule of Capture had previously rested on the assumption that it was difficult to hold people liable for how oil and gas reserves might naturally migrate from property to property when extracted by traditional means. However, because fracking involves the forced fracturing of land through the injection of liquid, freeing up resources that otherwise would not be viable, the court ruled that the changes to the ground underneath Briggs property caused by the fracking and migration of fracking liquid constituted trespassing by Southwestern (Silverman, 2018).

### ***3.5 Entrepreneurship and Universities***

As we have seen, the Texan economy relies heavily on only a few industries, with the oil and gas industry accounting for a significant part of that. Not only does dependency on a small variety of businesses hold the potential for economic instability and make them vulnerable to fluctuations in demand, resources, and the economy overall, but also the economy would be remarkably affected if fracking was indeed stronger regulated as we suggested above. To overcome the danger of suffering from economic volatility and to strengthen economic development, new businesses in new industries are undeniably necessary. Indeed, new firms and startups, especially those with high growth, can contribute critically to a state's economy (Haliwanger et al., 2017).

Spillover effects from universities can be considered strong complements in supporting the innovative activity of entrepreneurial firms (Audretsch et al., 2012). Fortunately, Texas is doing well in terms of entrepreneurship. Institutions like the Texas Entrepreneur Network and the Entrepreneurs Foundation of Central Texas prove that a healthy startup culture and fertile ground for businesses to grow already seem to exist. Texas ranks as one of the best five of the 25 largest states by population in terms of entrepreneurial rate of growth (Morelix & Russell-Fritch, 2017). The report also sees Austin as one of the five cities in the United States with the highest rate of entrepreneurial growth. Cities like Dallas have established entrepreneurial centers like the Dallas Entrepreneur Center to improve the quality and quantity of funded businesses and help the economy grow through diversification.

To entirely exploit the potential of entrepreneurship, it is crucial to nurture the talent, ideas, and capabilities of young intellectuals at universities and colleges. Since spillover effects are locally bound (Audretsch et al., 2017), there is a need for the University of Texas at Austin to perform in this regard. Luckily, the

university poses a positive example, as it offers a diverse variety of programs and projects to learn about entrepreneurship (The University of Texas at Austin, [n.d.](#)).

Additionally, there could be other feasible ideas to encourage entrepreneurial thinking despite existing programs. One way to accelerate the founding process could be to create university spaces for entrepreneurship. These are structured and equipped in a way to boost innovation, creativity, the exchange of specifications, and the building of new businesses (Pittaway et al., 2020). Another consideration could be a project-driven approach, as recently proposed by Qin et al. (2019). The basis of innovation is assumed to lie in the hobbies and interests of the students, to which scientific methods and practical training for creation are applied to further develop business ideas. With these proposed projects, entrepreneurial thinking, especially among young adults in Texas, can be strengthened. This would in turn improve the whole economy's stability through increased diversification.

## 4 Conclusion

When it comes to hydraulic fracturing, the state of Texas finds itself in a dichotomy. This is articulated by the economic welfare it experiences through the sheer, inexhaustible resources that can be reached on one side and the environmental and sociological impact and economic side effects for other industries caused by the fracking technique on the other. The oil and gas industry is not merely a main pillar of the Texan economy. It poses as a powerhouse for the economy of the United States as well, contributing 25% to the country's oil and gas extraction (U.S. Energy Information Administration, 2022). However, there is no doubt about the fact that it causes by-products and side effects that harm the environment, people, or other industries. These negative impacts include water contamination, air pollution, an increased risk of earthquakes, deterioration in real estate value, health issues, a decrease in human capital investment, and, after all, a loss of pride in the area. Analyzing Texas as a location for business on the basis of the framework introduced by Audretsch (2015) showed that fracking generates negative impacts on all three subcategories of factors: production, spatial and organizational dimension, and human dimension.

Taking both the positive and negative effects into consideration as well as the current situation of regulations and legislation on fracking, the introduced question "do the negatives outweigh the positives?" in our opinion must be answered with a no. Since fracking is of great importance for the state and the growth of the energy production sector, it would be hazardous to strictly ban this extraction method. Nevertheless, we believe that the current situation can be improved by incrementally changing and innovating the whole process of and around fracking. This could include alternative means of production, for example, carbon dioxide usage; stronger regulations on chemicals and mineral rights for property owners; implementing zoning regulations; and helping the economy absorb losses from fracking through higher diversity in industries due to increased entrepreneurship. In some fields, like

the regulations on chemicals or increased entrepreneurship, Texas is already on the right path. In others, like the zoning regulations and mineral rights, there is a great need for further development and improvement. In terms of alternative means of production, existing research needs to be thoroughly tested before implementing it statewide. Yet, the few existing results indicate the possibility of an improved process. All in all, the imposed strategies can not only have a positive impact on the process of hydraulic fracturing but furthermore help other industries develop successfully in coexistence with the oil and gas industry, building a profound basis for the state of Texas to diversify, stabilize, and thrive both economically and environmentally.

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# The Economic Impact of Air Pollution in Beijing



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**Abstract** High levels of air pollution are causing health problems, premature deaths, crop losses, productivity losses, and a number of other challenges. Over the past few years, Beijing, China, has struggled with high concentrations of PM2.5, extremely fine particles that have caused significant economic loss. This paper evaluates the economic loss Beijing has suffered from air pollution, specifically its impact on health, productivity, and trade potential. Policies that target PM2.5 reduction through incentivizing solar energy use, green space, urban tree canopy, green energy entrepreneurship, and marketing a sustainable business strategy are proposed as solutions to air pollution in Beijing.

## 1 Introduction

Air, water, and soil pollution caused over nine million premature deaths worldwide in 2015; this number exceeds the number of deaths caused by tobacco smoking, AIDS, malaria, and tuberculosis (Landrigan et al., 2018). Over the last few decades, China has experienced rapid economic development and population growth. Unfortunately, this rapid growth has increased fossil fuel energy consumption and air pollution, having a number of negative effects on the labor force, productivity, health outcomes, and quality of life (Fan & Grainger, 2019a, b). Wang Jinnan, the chief engineer of the Chinese Academy for Environmental Planning, said “China’s emissions of all types of air pollutants and carbon dioxide are the largest in the world, which creates unprecedented pressure on air quality” (Jing, 2016).

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Although air pollution can include a number of harmful particles, such as sulfur dioxide and carbon monoxide, this paper will focus on one of the most dangerous pollutants known as PM<sub>2.5</sub>. According to the Environmental Protection Authority Victoria (2018), particularly high levels of PM<sub>2.5</sub> in the air can travel deep into the respiratory system and cause a number of poor health outcomes. China has been experiencing exceptionally high levels of PM<sub>2.5</sub>, which is not only a health risk but also a risk to a region's economic viability as it impacts workers' productivity, agriculture, tourism, industrial production, and overall quality of life.

In 2015, Berkeley Earth published a scientific paper to collect and measure PM<sub>2.5</sub> to analyze the world's air pollution levels (Rhode & Muller, 2015). The study results were used to compare air pollution to cigarette smoking to better understand the extremely high levels. The results demonstrated that, on average, air pollution in China is the same as smoking 2.4 cigarettes per day. Their study of air pollution in China reveals a particularly high concentration in the largest cities, particularly Beijing. The economic impact of air pollution in China is estimated at 267 billion yuan (US\$38 billion) annually (measured in the number of air pollution-related deaths and crop production losses). Air pollution causes approximately 1.1 million premature deaths in the country each year and a loss of 20 million tons of rice, wheat, maize, and soybeans annually (Kao, 2018).

How does China's air pollution compare to that of other countries? How has it shifted over the years? According to the Global Burden of Disease Study that analyzed pollution data over 25 years, levels of PM<sub>2.5</sub> in China increased through the 1990s and started dropping in 2010 (Cohen et al., 2015). Between 2010 and 2017, China's PM<sub>2.5</sub> levels dropped by 24%. Part of this reduction could be a result of the three-year action plan implemented in 2013 by the Chinese government to combat air pollution. However, these policies have not been sufficient to reduce air pollution to levels below the World Health Organization guidelines (WHO, 2018). There is more work to be done to reduce China's air pollution levels to a healthy standard.

Taking a deeper look at the data presented above, it comes as no surprise that especially Beijing struggles with the problem of air pollution. Comparing the capital, which is located in the northern Hebei region of China, to the southern parts of the country, significant differences within the country can be seen. A popular Chinese saying, "If you want to see China's smog, look to Hebei" (Aunan et al., 2018), helps to depict the actual situation of The Forbidden City. After years of tremendous growth Beijing's population has experienced over the past decades, the capital represents one of the most densely populated cities in China. With over 19.6 million citizens, Beijing is among the eight most populated cities worldwide, with Tokyo leading the pack with 37.4 million residents. With a size of nearly 17,000 km<sup>2</sup>, the capital is estimated to continue expanding at a respectable pace in the future.

Beijing's air quality over the past years came to an alarming level in 2015. Seven years after the Olympic Games had taken place in the capital in 2008, Beijing's air quality plunged. The highest mean value was recorded during the summer in Beijing (Aunan et al., 2018). Apart from the main drivers of pollution that will be discussed later on in the paper, the lack of wind in the city and relatively high levels of



humidity led to a drastic deterioration of air quality in December 2015 (Aunan et al., 2018). On December 16th, the sheer enormity of PM<sub>2.5</sub> and other pollutants led to the public's awareness of the hazardous situation, and the first-ever pollution "red alert" was issued for Beijing (Huang, 2016). For a period of four days, schools and factories in the city had to be shut down (The Economist, 2015). Additionally, severe restrictions on vehicle use were imposed in order to counteract the sources of pollution. During this state of emergency, air pollution was not at its highest, but it was the first time it had reached such high levels since a four-tiered pollution alert system was put into place in 2013. Although China's air pollution has already been addressed and discussed to a great extent before, this incident definitely gave the discussion fresh impetus and exerted huge pressure on the Chinese government and policymakers.

Nevertheless, it is necessary to highlight the interventions that the Chinese government has undertaken to confront the problem of air pollution. Several local clear action plans, "enormous investment of time, resources, and political will" (Kebin et al., 2019) paved the way for significant improvements and made it possible for Beijing to grow from December 2015. According to a UN review of "Air Pollution Control in Beijing," published in 2019, a reduction of about 30% of "fine particle levels" (Kebin et al., 2019) could have been achieved over the past two decades.

Whereas Beijing's action plan could definitely serve as a guideline for other cities, such as Mexico City or Delhi, that are facing similar challenges, it is safe to say that the capital is still struggling considerably with air pollution. In the paper from 2016, Fan clearly highlights the correlation between air pollution and human health damage. Based on his analysis of health losses due to poor air quality in Beijing, the impact air pollution has on health outcomes is truly concerning. Premature death as well as respiratory and cardiovascular diseases are mentioned as the main consequences that placed Beijing's health care system in a markedly difficult situation. Although Beijing's GDP continues growing by 6.5% each year (Kebin et al., 2019), the city's and therefore China's economies suffer substantially from the impact of poor air quality.

In order to better understand the dimension of economic losses, this paper will outline the implications of air pollution on Beijing's economy. After analyzing the problem of air pollution in Beijing in Sect. 2, Section 3 will focus on proposing solutions for effective air quality management that will restore Beijing's productivity and strengthen its human capital. Section 4 concludes.

## 2 Problem Analysis

### 2.1 *Causes of Air Pollution in Beijing*

Before starting to analyze the location of Beijing and the economic implications of air pollution for the city, the following section will provide a short overview of the



causes that have led to the poor air quality in The Forbidden City. Rewinding to 1978, the Chinese government initiated economic reform, a huge twist for the most populated country in the world (Garnaut et al., 2018). 40 years later, China strived to be the second-largest economy and became the world's biggest exporter of goods, creating countless jobs and helping hundreds of millions get out of poverty. China has been having a moderately high average economic growth rate during the economic miracle. At this level of development, China is expected to outrank the US and become the world's biggest economy before 2030 (Colvin, 2017). However, what comes with the great achievement are several critical problems that the Chinese government and people have to deal with, one of which is the alarming air pollution throughout the country, especially in urban cities and its capital, Beijing.

During the past 20 years, the development of this cosmopolitan city has created millions of job opportunities and attracted a great number of talents from not only China but other countries as well. Beijing's population has gone from 13.6 million in 2000 to 21.7 million in 2017, an increase of approximately 60% in 17 years (Beijing Statistical YearBook, 2011 and 2018). In addition, the new economic policy gave way to a significant rise in individual wealth in the city of Beijing. According to local statistics office data, Beijing's per-capita income reached 115,000 yuan (approximately \$17,000) in 2016, up by 40% compared to that in 2011 (Chinadaily, 2017). The increase in both population and wealth resulted in a boost in demand for transportation, both public and private. As of 2017, the motor vehicle population of Beijing was 5.9 million (Beijing Statistical YearBook, 2018), which reportedly contributed to 70% of the city's air pollution (Ye, 2015). Among the emissions, the most dangerous pollutants are carbon monoxide (CO), sulfur dioxide (SO<sub>2</sub>), nitrogen oxides (NO<sub>x</sub>), and particulate matter, e.g., PM<sub>2.5</sub> and PM<sub>10</sub> (Ye, 2015). In addition, along with a great number of existing degraded motorized vehicles, the ones recently presented in China appeared to have a lower emission standard, therefore transmitting a greater amount of contamination into the atmosphere.

The second main contributing factor to Beijing's severe air pollution is the consequence of the habit of energy consumption, which relies mostly on the burning of coal. With the increase in economic activity and city development, energy consumption levels have drastically risen 3.5 times over during the economic miracle (Beijing Statistical Yearbook, 2011).

Part of the pollution lies in the traditional use of coal in rural areas where people are less educated. "Most people spend many hours indoors in their home, and [as a result of that] the burning of solid fuels in traditional stoves leads to high PM concentrations" (Aunan et al., 2018). Although the transition towards the use of biogas or electricity inside houses in rural areas has been quite successful, people without access to alternative fuels or who lack resources "are now most likely the worst off in terms of air pollution exposure" (Aunan et al., 2018). In terms of heavy industries and manufacturing, Beijing suffers from the air pollutants emitted from surrounding areas, where there are a large number of production and manufacturing factories located on the outskirts of Beijing and in the cities of Harbin and Hebei, several of which are outdated and have low energy efficiency.

Combined with its own topography, having mountains around the city in the north and west, Beijing looks like a trap of air pollution as the pollutants are kept inside the city area, unable to disperse (Zhao et al., 2016). Due to its unpropitious location inland of the country, Beijing's "meteorological conditions," such as wind speed or humidity, favor the retention of air pollution from surrounding areas. The air pollution becomes even worse when the monsoon, the seasonal wind, carries the pollutants from the industrialized areas in the south to the city.

## ***2.2 Factors of Production***

### **2.2.1 Physical Resources: Reliance on Coal for Energy Production**

The main cause of air pollution in Beijing is coal combustion. The city has been striving to reduce and regulate coal consumption for 20 years. For decades, coal was the most important source of energy for various sectors in Beijing. In addition to the manufacturing industry, it was also used by many people for heating and cooking. The largest coal consumers were coal-fired power plants. Since 2005, Beijing has pursued a "coal to gas" policy, saving 11 million tons of coal combustion by 2017 (Zhang, 2018). As a result, natural gas consumption has increased continuously. However, reducing the consumption of coal implies a relative increase in the demand for and usage of natural gas, and China is not quite a gas-rich country (Zhang, 2018). In November 2018, the price of liquefied natural gas in Beijing rose roughly 70% from the price point of 4200 RMB/ton in October (Zhang, 2018). Some areas even limited the usage of gas during times of high civilian demand, causing trouble for the industrial sector.

In addition, a lot of rural areas still use standard coal and scattered coal, which creates even more pollution than the normal one. According to Xinhua, in 2018, Beijing had a total consumption of coal of 4.85 million tons, which is a significant number to take into consideration. In addition, S. Chen (2017) reported that with a huge population of more than 30 million residents, Beijing could not meet its own energy needs; therefore, the city had to draw electricity from other coal-fired power plants in nearby cities such as Hebei and Inner Mongolia, areas that have fewer regulations on the environment, which eventually backfired into the urban area with the emissions from the plants. In the winter season of 2018–2019, as the local governments loosened the restrictions on heavy industry operation, the production of several industries plummeted, followed by a 13% rise in coal usage in the period compared to the previous year (Fan & Grainger, 2019a, b).

Despite the efforts of the Beijing local authority to reduce the reliance on coal, the conflict of interest between the authority, suppliers, industries, and local people seems not easy to solve. Coal is still one of the main sources of energy and electricity; thus it remains a problem that the government has to deal with in order to improve air pollution conditions.

### 2.2.2 Human Capital: Health Implications

China has seen astronomical increases in GDP as well as power in the world market in general. Along with these growths and increases in their economy, there have been overwhelming negative side effects that bring with them negative economic impacts. The health implications of air pollution are primarily illnesses associated with the respiratory and cardiovascular systems (Zhao et al., 2016). The World Health Organization estimated that approximately 7 million people have died prematurely due to air pollution-related illnesses, whereas in China alone there are 350,000-500,000 lives lost each year (Zhao et al., 2016). “The annual average population-weighted PM<sub>2.5</sub> level in Chinese cities was 61  $\mu\text{g}/\text{m}^3$  in 2015, three times as high as the global population-weighted mean” (Fan & Grainger, 2019a, b).

According to an up-to-date Air Quality Index, Beijing specifically falls in the “unhealthy” range, with particulate matter averaging extremely high concentrations in the past few weeks (Air Quality Index, 2019). The ranking that Beijing has received states that the concentrations of pollution are dangerous and “active adults, children, and people with respiratory diseases, such as asthma, should avoid prolonged outdoor exertion” (Air Quality Index, 2019). Specifically, in Beijing, the highest concentration of pollutant is PM<sub>2.5</sub>, which has very intense side effects on the human body. PM<sub>2.5</sub> is also sometimes referred to as soot and can take the form of either liquid or solid (Spare the Air, 2019). PM<sub>2.5</sub> has tremendous health implications, such as reduced pulmonary function, increases in the frequency of respiratory diseases, and a “decrease in cell proliferation and damage to [the] human immune system (Gu et al., 2019). Exposure to PM<sub>2.5</sub> over extended periods of time increases the frequency rates of “diabetes, hypertension, neuritis, other cardiovascular diseases, and diseases of the nervous system” (Gu et al., 2019).

The side effects of these pollutants not only have long-lasting effects on health in Beijing but also directly affect the labor supply of the country. The increasing morbidity and mortality rates in Beijing reduce the number of people who are available to work and increase the number of sick days that citizens of Beijing must take. Fan and Grainger (2019a, b) estimated that, annually, “a 1  $\mu\text{g}/\text{m}^3$  increase in PM<sub>2.5</sub> reduces the hours worked by 29 minutes per week for an average worker.” This means, by estimation, a 1% increase in PM<sub>2.5</sub> concentrations relates to a 1% decrease in hours worked (Fan & Grainger, 2019a, b). The loss of productivity resulting from the high concentrations of air pollution has an effect on their gross domestic product (GDP) as well. Health issues associated with air pollution caused a loss of approximately 133 million workdays in 2007 and have increased since this time (China Power Team, 2016). The loss of these workdays was equivalent to a loss of 1.34% of GDP in China as a whole and “lowered total household disposable income by \$90 billion” countrywide (China Power Team, 2016). Another way that economic gains are reduced in Beijing is when red alerts are issued. These red alerts occur when levels of PM<sub>2.5</sub> are above levels that are considered “unhealthy” or “hazardous.” These alerts have been issued multiple times in recent years, meaning that factories are forced to reduce their outputs, vehicles are ordered off the streets,

and overall productivity is held at a standstill (Smith, 2018). When these alerts take place, Beijing loses production time ranging from several hours to several days, which in turn stunts its economic growth for those periods of time (Smith, 2018).

## ***2.3 Spatial and Organizational Dimension***

### **2.3.1 Market Power: China's Role and Commitment in the World Economy**

In order to understand the spatial and organizational dimensions of air pollution in Beijing, it is essential to look at China's market power and to take a detailed look at China's trade relations in a global context. Scientific studies have shown that international trade has consequences for the global distribution of air pollution and public health (Wang et al., 2017). Especially in less developed regions of China, a correlation between air degradation and increased international trade was observed. (Wang et al., 2017). After China opened itself to the world market in 1978 and the "open door" reform policy was implemented, the gross domestic product (GDP) of the country grew with increasing imports and exports. China has been a member of the World Trade Organization since 2001 and is now the second largest economy in the world with a GDP of 13.4 trillion US dollars in 2018. Although global trade is in principle beneficial to all parties, the negative environmental consequences should not be ignored. It has been proven that through international trade, air pollution is outsourced from more developed countries to less developed regions. Through weaker environmental regulations and lower labor costs, expenditures can be saved and capital increased (Frankel, 2009).

In recent decades, China's enormous growth has been driven primarily by the coal industry (Minx, 2011), and international exports have thus become a decisive factor in the rise in emissions (Guan et al., 2014). It is estimated that 15-23% of China's polluting emissions are due to exports for foreign consumption (Zhao, 2015). As a result of the increased emission values, the number of premature deaths was estimated at 1.10 million, of which around 19% (208,500 deaths) are attributable to international exports (Wang et al., 2017). Even in the near future, the status of China as the world's leading exporter will not change much. Projects such as the Belt and Road Initiative further increase China's exports. It can only be in the interest of all states that China's further integration into the world market is not only economically worthwhile but also has no negative consequences for the environment. It is inevitable that China, as the largest emitter of greenhouse gases, will have to make its exports more climate-friendly. However, other countries should be aware that their imports from China also account for a large proportion of air pollution. That is why cooperation between all those involved is necessary. Following the announcement by US President Donald Trump to withdraw from the Paris Agreement in 2020, China could assume a more important role in the fight for global climate protection.

### 2.3.2 Entrepreneurship: Challenges with Green Energy Startups

In 2017, the industrial sector accounted for 15.3% of Beijing's GDP, but 84.5% of the industrial output was from heavy industries, where a large portion of factories still run on coal and low-efficiency fuel (Hong Kong Trade Development Council, 2019). In order to limit the effect of air pollution caused by the operation of the plants, the local government decided to shut them down for a short period of time. The quality of the environment did really improve at the time being, but shortly after the cease-fire was lifted, the situation got back to the same condition as before. The same phenomenon could be observed during the Olympic Games in Beijing in 2008. In order to guarantee a short-term improvement, polluting plants were forced to stop their production (Aunan et al., 2018). As a result of Beijing's latest Clean Air Action Plan, industrial relocation was implemented as a solution in order to considerably reduce the high concentration of air pollutants (Beijing International, 2017). Whereas a small proportion of the city's heavy industries were readjusted structurally or shut down completely, the vast majority of the capital's polluting plants were relocated outside the city (Xie, 2017). According to the paper of Pengfei Xie, "more than 1,200 polluting plants" were relocated to the rural surrounding areas of Beijing.

Although removing heavy industries can have beneficial effects such as a significant emission reduction or the empowerment of rural areas, the associated challenges and problems must not be left out of consideration. According to Bin Chen of Beijing Normal University, industrial relocation has the opposite effect by degrading the Forbidden City's air quality even more. Removed polluting plants can actually take advantage of "lower environmental standards" (Le Page, 2019) in less populated areas. Combined with the lack of highly efficient technologies, emissions from plants in new regions are said to almost double in comparison to their previous location in the city. As mentioned in the causes for Beijing's bad air quality, owing to the city's unfavorable location in the kettle of the Hebei region, bad wind conditions frequently cause pollutants from surrounding rural regions to be waved into the center of the capital. With the existence of more polluted neighboring areas, this removal strategy again results in worse air quality in the capital (Le Page, 2019). On the whole, this way of dealing with Beijing's air quality is only shifting the problem outside the city.

Since the relocation strategy is not really helping Beijing get its air pollution under control, startups with innovative ideas in the field of sustainable business practices or environmentally friendly products could be the right approach. But taking a further look at Beijing's and China's entrepreneurial scenes makes it clear that entrepreneurs there are still struggling. The entrepreneurial sector has grown rapidly from almost zero to more than six million registered private businesses" (Chen, 2017) in China and has significantly contributed to job creation over the past decades. Nevertheless, getting access to public funding is still considered a huge challenge for entrepreneurs in China. "Financial capital is one of the necessary resources required for enterprises to form and subsequently operate" (Ahlstrom & Ding, 2014). But due to the higher risk potential of entrepreneurial ideas as well as

longer payback periods, only a vast minority of China's numerous SMEs have sufficient resources. Despite the fact that Chinese startups annually receive a huge amount of funding from angel investors, venture capitalists, etc. (Xinhua, 2018a, b), only a small portion of that funding is granted to entrepreneurs, even though they are often creative with new green solutions that can tremendously help improve the air pollution situation in the city and surrounding areas.

## 2.4 *Human Dimension*

From a western perspective, the political system of the People's Republic of China has an ambivalent image. China-critical politicians, journalists, and human rights activists see China as a dictatorship with an "iron fist" at work. On the other hand, China-friendly politicians and businessmen point to the country's extraordinary economic dynamism and trust in the effects of the market economy. The Chinese government itself has so far firmly rejected western-style democracy as an unsuitable model of order for China. The Communist Party of China (CCP) is maintaining its monopoly on power, does not allow independent political control bodies, and suppresses organized opposition activities. The problem of air pollution was denied by the government for years, which led to the fact that soldiers and guards were forbidden to wear protective masks during service (Kolonko, 2017). Although the government has, in the meantime, recognized the problem and officially declared war on pollution, critics continue to accuse the government of trivializing the problem and sharing falsified data with citizens. One reason for the concern of the Chinese population is that, in China, the reference values for measuring air pollution have been greatly increased compared to other systems in the world. While in the American system, an air quality index of 150 is considered "unhealthy," this value is still "moderate" according to the Chinese system. This improves the air quality index by about 25–40% in most regions (Kolonko, 2017).

There are also big differences with smartphone apps that display the AQI value. Many Chinese smartphones have the weather app pre-installed, which also indicates air pollution. A sample (conducted on 06/12/19) showed that the value on a Xiaomi smartphone was 102 in a region of Beijing, but the value on the website [www.aqcin.org](http://www.aqcin.org), which calculates the values according to international standards, was 117 at the same time. The censorship of the socialist government is also no exception when it comes to air pollution. A very prominent case is the documentary film "Under the Dome" by former CCTV reporter Chai Jing from 2015. The self-financed environmental report was published on the Alibaba streaming platform Youku. It shows the negative effects of particulate pollution, especially in the poorer regions of China. After a few hours, the video had already recorded more than 200 million views before it was censored. The hoped-for echo failed to materialize, and the appeal to turn viewers into environmental activists failed.

In addition to censorship, corruption is also a major obstacle to a transparent and open fight against air pollution. In order to increase profits, it is usually easier to

bribe local politicians than to modernize companies and equip them with more environmentally friendly technologies. It is also common to falsify annual reports in order to receive subsidies from the government. A famous example is the vaccine scandal around Changsheng Biotechnology Co., Ltd., in which around 500,000 ineffective vaccines were sold, although these were "tested" by state-owned companies (Zhang & Yee, 2018). Since there is no nongovernmental review body that could provide transparency, this problem will not be resolved in the near future. The fact that approximately 40% of the gross domestic product is achieved by state-owned enterprises (SOE), even though they make up only a fraction of the corporate landscape in China with around 15,000 companies, cannot be good for transparency either (University of Alberta China Institute, 2018).

### 3 Problem Solution

#### 3.1 *Policy Recommendations: Factors of Production*

##### 3.1.1 Physical Resources Incentivize Solar Energy

A policy that could motivate the Chinese government to take further action in regard to air pollution would be to incentivize solar energy in order to diversify its energy portfolio. Consumer Energy Alliance states that investing more money into solar energy would "further reduce energy prices, improve individual and national energy security," and help to expand an energy revolution in China ("Incentivizing Solar Energy," 2018). This policy's implementation should be carried out gradually in order to keep expenses at an affordable level.

This policy would need to be government-funded. This policy solution is modeled after one in the United States, the Consolidated Appropriations Act (U.S. Department of Energy, 2016). This act was passed into law in December 2015 and extended federally funded tax credits to different areas of renewable energy (U.S. Department of Energy, 2016). The extension of tax credits in the United States was created to incentivize both solar and wind energy, but because Beijing is not in a land area that would produce sufficient wind power, solar would be the focus. The policy utilized in the United States gives companies and individuals up to a 30% tax break, along with other possible incentives, in order to lessen the financial burden on them when paying for these new technologies ("Incentivizing Solar Energy," 2018). With these incentives, corporations and individuals could receive up to a 35% tax break, or an "x" dollar decrease in taxes, if they install solar panels to generate enough power for 40% of their current emissions, and a potentially higher reduction if they generate more electricity. In the United States, the policy that has been implemented has played a vital role in the rapid growth and expansion of their renewable energy industry, and a similar return could be expected in Beijing (U.S. Department of Energy, 2016).



It is understood that there may be hesitation by the Chinese government at the beginning. This would be a big financial obligation, but in order to rationalize this policy, one can look at the success and other opportunities that this industry would bring with it. The expansion of the solar industry in the United States has brought economic development and growth, “energy security, job creation, energy price stabilization, and health and environmental co-benefits” alike (U.S. Department of Energy, 2016). Besides these benefits, the solar industry also employs more people than the current coal industry and could potentially lower the unemployment rate and stimulate the economy through job expansion (“Incentivizing Solar Energy,” 2018). In the long run, investing in solar energy would increase China’s influence on the world market and bring higher revenue returns than coal. This is a policy that would benefit Beijing long-term and would be worth the upfront financial sacrifices.

### **3.1.2 Human Capital Preserve and Build Ecological Environment**

A number of studies have demonstrated how urban green spaces can reduce air temperature, filter air pollution, improve soil and water quality, and reduce noise (Zhang et al., 2014). Specifically, trees planted along the curbside in residential neighborhoods have seen up to a 50% reduction in PM pollutant concentrations (Zupancic et al., 2015). The Clean Air Action Plan (2013-2017) included eight projects, one of which was ecological environment construction. The main goals were to increase green coverage to 60% in Beijing. Additionally, wetland parks and reserves were to be built, and more space was to be dedicated to water areas. These goals were a good start to addressing air pollution through the natural environment; however, there is room for more ecological policy solutions that will not only impact the central business district but also the residential areas.

It is critical that Beijing expand the Clean Air Action Plan and invest \$2.9 million in street trees throughout residential neighborhoods. By investing this amount, approximately 2.2 million residents could see a reduction in PM<sub>2.5</sub> between 1 and 10 micrograms per cubic meter per day (McDonald et al., 2016). The Beijing Municipal Ecology and Environment Bureau could manage the \$2.9 million tree fund and offer local organizations and neighborhoods grants for planting specific types of trees in strategic locations. The timeline for implementing this policy would be between 1 and 3 years. If this policy is prioritized, much can be completed in a short period of time and then continue at a slower pace as the city continues to grow.



### **3.2 *Policy Recommendations: Spatial and Organizational Dimension***

#### **3.2.1 Market Power: Strengthening Interprovincial Trade and Interior Regions**

The open-door reform policy of 1978 made it possible to trade with other countries. The increasing number of imports and exports in the country has not only boosted the economy but also increased harmful emissions. The impact of international exports of Chinese goods on air pollution and public health in China is unevenly distributed. China is a country with disparities between the modern coastal regions and the agricultural interior regions in terms of energy and resource endowments, population densities, economic development, and lifestyles (Wang et al., 2017). While air quality continued to deteriorate in the inner regions due to the export of emission-intensive products (e.g., raw materials or energy) (Feng et al., 2013), air quality in the coastal regions remained constant and even improved in some regions thanks to an advantageous export structure and the use of more advanced production and air pollution control technologies (Liu et al., 2012). The coastal regions of Shanghai and Guangdong accounted for 40% of export values in 2007, but only 11% of the country's total mortality from emissions from international exports (Feng et al., 2013). While international exports clearly have a negative impact on air pollution, national transport is ambivalent. While it also leads to air degradation in inner regions, domestic trade has improved air quality in coastal regions. This has prevented 78,500 deaths nationwide since 2007 (Wang et al., 2017).

The reason for this is that large quantities of emission-intensive goods for the direct consumption of coastal provinces are produced inland or exported in indirect form as raw materials to coastal cities. For example, over 60% of the consumption-dependent SO<sub>2</sub> emissions of Beijing were generated outside the provincial borders (Wang et al., 2017). Inland production can be explained both geographically and economically. Export goods often require the use of raw materials (e.g., metals, mining, refined oil), whose deposits are concentrated in the interior of the country (Feng et al., 2013). Furthermore, the average income in provincial regions is less than \$3000, while the income of the coastal inhabitants is on average twice as high.

An effective policy solution is to further expand domestic trade, as the inner provinces will also benefit in the long term. It is essential that the coastal regions support the provinces from which they import. The government should initiate possible legal regulations to ensure a fair balance: political measures could be developed to promote the transfer of advanced technologies for production and emission control from coastal regions to the inner regions. So far, campaigns for improved air quality have generally focused only on cities in the east of the country. In poorer provinces such as Henan or Hebei, for example, environmental regulations are not at the same level as in the more developed provinces.

A spread of these measures, such as the “Action Plan for Air Pollution Prevention and Control” in 2013, to the inner regions would help the whole country in the long

run. However, in the short term, this problem is difficult to solve, as the reforms must come from the government, and without its willingness, it is very difficult to implement the changes. Therefore, it is very important to provide incentives to the government in order to execute these new regulations.

### **3.2.2 Entrepreneurship Support Opportunities for Green Energy Startups**

The following solution focuses on establishing an environment for cleaner businesses instead of keeping polluting industries within the scope of the capital. Fostering the green entrepreneurship scene in Beijing can serve as an effective way of boosting Beijing's and therefore China's economy. The capital could grow sustainably without restricting its market power or economic potential. Green entrepreneurship, often referred to as "ecopreneurship," follows an entrepreneurial path that fulfills the need for a greener and more environmentally friendly approach to business, providing practical and innovative solutions for social and environmental concerns (Demirel et al., 2019). In consideration of the fact that environmental issues are becoming more relevant, green startups are increasingly gaining momentum as a way to approach the challenges. According to McEwen (2013), "entrepreneurship may be the solution to many of our social and environmental problems and could be the action needed to put us on the path to a more sustainable future." Since a consistently positive perception of ecopreneurship in the field of the latest research is obvious, there is doubt about it that "greening" Beijing's economy would enhance the city's air quality.

Although the potential of ecopreneurship is high, the idea of establishing a green cluster in China's capital requires a few factors in order to serve as an attractive hub for green entrepreneurs. According to McEwen, guaranteeing better access to funding is essential owing to the fact that the "availability of funding and other incentives is critical for environmental innovation" (McEwen, 2013). Since sufficient resources are considered a huge barrier for startups to become independent and successful, this solution focuses on offering entrepreneurs in Beijing a better perspective in terms of financial aspects. Extraordinary high R&D costs from investing in technological innovations as well as costs to win recognition of new products and services make it more difficult for green entrepreneurs to put their vision into action. For this reason, Beijing's policymakers should provide a framework for subsidies in the form of tax incentives or grants. Since innovative startups are always linked to higher political and technological risks, "their lower scalability and long pay-back periods make them less attractive ventures for finance providers" (Demirel et al., 2019). Thus, the Chinese government is also in need of offering green startup loans with fixed low-interest rates. Furthermore, "ecopreneurs" must have the possibility to pay back the loans within a longer period in order to have enough time for amortization.

Where should the money come from? Instead of investing huge amounts in the distribution and allocation of heavy industries outside Beijing as well as in the

modernization of existing plants in the city, Beijing's policymakers could take advantage of those resources to boost the green entrepreneurship scene in China's capital. This would not let costs spiral out of control in spite of higher financial losses. In addition, establishing a green cluster in Beijing would also have other benefits beyond improving the city's air quality. According to a paper by Si (2016), smaller companies could take advantage of shared costs and newer technology. This would not only lead to higher efficiency but also to a more "specialized division of labor" (Si, 2016). This solution can also support the creation of more job opportunities since a green cluster considerably depends on highly specialized human capital. This results in an overall enhanced regional and therefore international competitiveness for Beijing. (Si, 2016)

Nevertheless, this solution is not feasible in a short period of time. Fostering ecopreneurship can only work in the long term period of time. Fostering ecopreneurship can only work in the long term. As green business strongly depends on "high quality, professional, and versatile human resources" (Si, 2016), a temporary lack of human resources can also become relevant. Setting incentives for starting a green business in Beijing might not immediately give entrepreneurs the last impetus to offshore to China's capital. Such a step demands a lot of courage and a low level of uncertainty avoidance. That is definitely something policymakers should take into account. Additionally, Beijing's and China's dependence on international exports must be named in this context. Although China is among the top five largest exporting countries worldwide, "China's economic boom has been fueled primarily by coal, using less advanced technologies for production and emission control" (Wang et al., 2017). For this reason, and as the other challenges have made clear, immediate implementation of this solution might be difficult. Moreover, long-term interventions by Beijing's government in fostering "ecopreneurship" in the city will be necessary.

### ***3.3 Policy Recommendations: Human Dimension***

#### **3.3.1 Leadership: Fighting Corruption on a Sustainable Scale**

As described earlier, the high rate of corruption in China has a strong indirect impact on air pollution in the country. Weaker regulations enable higher profits, and old factories with polluting working routines continue to generate short-term revenues. If corruption had less impact, the entire industry would be more environmentally friendly and even more profitable in the long run (Dong & Torgler, 2010). But for people in key positions, short-term economic success is more important. Therefore, it should be the aim of reforms to educate people in order to provide a broad understanding of the negative economic impact of corruption. New generations should be aware of the correlation between corruption and its consequences for the entire labor market and the environment they live in. Therefore, it is suggested that the government invest more than ever in preventive measures. Corruption and its

consequences should be implemented as part of the national education program. Anticorruption campaigns have been carried out regularly in China, most recently at the end of 2012 under Xi Jinping (Yuen, 2014). Although a considerable amount of high-ranking members of the communist party have been charged for corruption-related issues, China still was ranked behind controversial countries such as Saudi Arabia or Belarus in the Transparency Corruption Index from 2018.

Nevertheless, it is extremely challenging to adjust long-established structures in an authoritarian political system, such as in China. Changing the mindset of people in charge will not be a successful approach due to the fact that they still profit significantly from corruption. For this reason, the solution can only work from a long-term perspective by trying to collaborate with younger managers.

## 4 Conclusion

Taking the above into consideration, it comes as no surprise that air pollution has a significant impact on Beijing's, and therefore China's, economy. In spite of considerable improvements as a result of Beijing's Clear Action Plans, the city's air quality is still not meeting the required safety levels prescribed by the WHO. For this reason, the long-term-oriented solutions proposed in this paper address Beijing's air pollution through various approaches. Strengthening interprovincial trade, supporting green energy businesses, solar energy, and the ecological environment in Beijing, as well as fighting the battle against corruption, should be able to enhance the city's air quality in terms of effective air quality management. Furthermore, education is the key to the implementation of every solution since, as mentioned in the introduction, it is the "people and individuals [that] can make a key difference in how well a place performs" (Audretsch, 2015).

Nevertheless, it should be taken into account that China is still considered a country in the middle of the industrialization process. Every developed country worldwide, such as Germany or the U.S., has taken considerable advantage of polluting industries. Why should China not be allowed to benefit from industries that affect the country's air quality negatively? As the worldwide leader in global exports, you cannot expect China to feasibly get rid of polluting plants immediately. Taking this into consideration, these solutions cannot be implemented within a short period of time, but are looking towards the future.

It will be interesting to trace Beijing's progress with air pollution as time goes on, especially when the Chinese capital continues to host worldwide events. Will they again only shut down polluting plants or ban the vast majority of vehicles on the streets for short-term success, as was the case during the Olympic Games 2008 in Beijing? Or will they come up with innovative, effective ideas in terms of sustainable air quality management? Time will tell.

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# The Intersection of Environmental Policy, Public Health, & Economic Performance in Shanghai



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**Abstract** Air pollution, energy inefficiency, and illnesses due to heat and poor air quality are the main focuses of the paper, which will be centered in the city of Shanghai, China. These issues are impacting Shanghai negatively in terms of human health and economic efficiency. However, all three of these issues can be solved with the implementation of various techniques, such as renewable energy resources, the use of environmentally conscious materials, passive building design, and strengthening environmental regulators. However, only one solution can solve all three of these issues simultaneously. The addition of green spaces in urban areas improves both the economic performance of a city through cost efficiency and the reduction of air pollutants, as well as public health in Shanghai.

## 1 Introduction

Although cities are sources of significant economic growth, they also account for large amounts of environmental degradation, including loss of natural habitat and decreases in species diversity (Zupancic et al., 2015). Because Shanghai has the highest level of economic growth in China, one could assume that it also accounts for a large amount of environmental degradation (Xi, 2016). Additionally, cities are associated with increased negative human health effects, ranging from illnesses caused by pollution, heat, noise, and overcrowding (Zupancic et al., 2015). Currently, Shanghai is experiencing many of the aforementioned issues. For example, due to extreme overcrowding and the overall growth in housing demand, there has been a sharp increase of 250% in housing costs in Shanghai from 2000 to 2010

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(Youqin, 2013). Although overcrowding is a major issue in Shanghai, pollution, heat, and building inefficiency are three of the concerns that will be addressed in this paper. Additionally, illnesses related to both heat and pollution will be examined due to the impact that illnesses have on human capital and other factors of production that influence the economy. An analysis of these problems is necessary because their effects will be heightened as the impacts of climate change become more evident. Fortunately, all of the concerns that will be addressed, including heat, pollution, building inefficiency, and related illnesses, can be resolved and mitigated with the addition of green spaces, specifically green roofs, in urban areas (Bowler et al., 2010). In the long term, these issues must be resolved in order to preemptively respond to the impacts of climate change and adopt more sustainable practices for the future growth and well-being of all societies. Additionally, mitigation strategies are still necessary to prevent the worst-case climate change scenarios. In the short term, there have been extreme impacts on the environment, human health, and the economy. With the addition of green spaces, Shanghai's economic performance will increase through a decrease in spending on pollution reduction techniques, air conditioning, and healthcare. Therefore, the proposed solution should be implemented to increase the number of green spaces in Shanghai in order to increase the city's economic performance.

## **2 Problem Analysis**

### ***2.1 Factors of Production***

#### **2.1.1 Physical Resources**

In terms of Audretsch's framework, the problem of air pollution falls into the category of "factors of production (2015). In particular, it falls into the subcategory of physical resources. Air pollution falls under physical resources because it is the process of exploiting natural resources (Audretsch, 2015). There are several types of air pollutants that affect Shanghai, such as particulate matter (PM), ground-level ozone (O<sub>3</sub>), nitrogen dioxide, and sulfur dioxide (Zupancic et al., 2015). In terms of particulate matter, there are two main types, including coarse particulate matter (PM<sub>10</sub>) and fine particulate matter (PM<sub>2.5</sub>). Coarse particulate matter is emitted the most from residential heating sources and power plants (Zupancic et al., 2015). Comparatively, fine particulate matter emanates from cars, utilities, and wood burning (Zupancic et al., 2015). PM<sub>10</sub> is typically filtered through the nose and throat via cilia and mucus, while PM<sub>2.5</sub> has the ability to penetrate through the bronchi and habitat within the lungs (Measuring Dust Levels, 2017). Because of their ability to infiltrate the lungs, fine particulate matter is estimated to account for 800,000 premature deaths every year in cities (Zupancic et al., 2015). According to the Shanghai Environmental Protection Bureau, the average level of PM<sub>2.5</sub> in 2014 dropped by 16.1% compared to its 2013 levels (Shanghai Air Pollution, 2014). Even

though 2014 witnessed a large drop in PM<sub>2.5</sub>, particulate matter levels rose again in 2015. Since 2015, there has been extreme pressure on authorities to reduce the average PM<sub>2.5</sub> density by 2017 (Shanghai Air Pollution, 2015). Unfortunately, few reports were released on fine particulate matter data for 2017. However, researchers found that the average fine particulate matter density levels were similar on a month-to-month basis to the 2015 levels (Shanghai Air Pollution, 2015).

Unfortunately, air quality continues to be poor due to an increase in ground-level ozone (Ozone, 2018). Researchers have found that exposure to ground-level ozone is more hazardous to human health than PM<sub>2.5</sub> (Ozone, 2018). Ground-level ozone forms through a photochemical reaction when pollutants, such as nitrogen oxide and volatile organic compounds, are emitted from vehicles or industries and are then exposed directly to sunlight (World Health Organization, 2018). During the summer season, ground-level ozone is increasingly hazardous because O<sub>3</sub> levels are positively correlated to temperature and solar radiation levels (Xu et al., 1997). Therefore, more humans are exposed to O<sub>3</sub> during the summer than in any other season. Another impact that ground-level ozone has on Shanghai is the formation of smog. Smog is formed from the chemical reaction between sunlight and ground-level ozone (West, 2018). Smog is characterized by the heavy haze that falls over cities, especially in industrial areas (West, 2018). Smog is heaviest in industrial areas due to increased emissions from cars, buses, trucks, and boats (West, 2018). Other factors that influence smog formation include weather and temperatures (West, 2018). Weather and geography have an impact on the location and severity of smog in urban areas. Additionally, temperatures determine the length of time that the smog will remain in the city (West, 2018).

According to Swart, areas with higher amounts of economic development have higher levels of greenhouse gas emissions (2003). Because Shanghai has the most economic growth in China, Swart would argue that the city would contribute to higher levels of greenhouse gas emissions and pollution compared to other Chinese cities. Wang et al. similarly argues Swart's point by stating that "economic expansion in China is driven by an increasingly higher consumption of fossil fuels" (2007). Within the past decade, air pollution in Shanghai has been documented at its worst between late 2012 and early 2013. There are both internal and external factors contributing to these high levels of air pollution in Shanghai. Externally, cold fronts coming from northern Chinese industrial cities are transporting air pollutants to Shanghai (What Causes Air Pollution, 2018). The wind coming from the North-western region of China carries the highest level of PM<sub>2.5</sub> (Talhelm, 2017). Internally, there are sources of air pollution in the city of Shanghai (What Causes Air Pollution, 2018). The largest sources of internal air pollution in the city are vehicle and industrial emissions, which account for 50% of Shanghai's air pollution levels. The remaining sources of air pollution are construction sites (10.5%), straw burning (10%), power stations (7.3%), and surrounding provinces (Jian, 2014). After examining the emissions from Shanghai's industrial sector, a large portion of their pollution contribution comes from the production of consumer goods. Specifically, 25% of all Chinese carbon emissions are from the production of consumer goods that

are exported to various countries across the globe (Composition of Shanghai Air Pollution, 2018).

In 2017, China produced 23.12 trillion USD and gained the title of the world's largest economy (Amadeo, 2018). China not only has the world's largest economy but also is the largest exporter of consumer goods in the world (Amadeo, 2018). Although consumer goods consumption accounts for a fourth of China's air pollution, the exportation of consumer goods contributes 2.2 trillion USD to China's economy (Amadeo, 2018). The Chinese economy is able to thrive because their standard of living is low compared to the United States (Amadeo, 2018). This allows Chinese companies to pay their workers lower wages and produce products at lower costs (Amadeo, 2018). With this in mind, China has a comparative advantage in trade due to the prices it can offer. However, the people of China are suffering from the impacts that industrial production is having on their health. For example, levels of asthma mortality and general breathing problems, such as reductions in lung function and lung diseases, are impacting the residents of Shanghai (Effects of Air Pollution, 2018). There are many days with extremely poor air quality (Jaipragas, 2018). During the pollution peak in 2012 and 2013, many residents of Shanghai considered leaving the city for their health and the health of their families (Shanghai Expats, 2018). Therefore, a solution must be found that reduces the amount of air pollution without negatively impacting Shanghai's economy.

### 2.1.2 Physical Capital

In terms of Audretsch's framework, the problems of heat and energy inefficiency fall into the category of factors of production. Specifically, it is based on physical capital and "investing in infrastructure to generate a competitive advantage" (Audretsch, 2015). Although cities only occupy about 2% of the Earth's surface, the actions of residents in urban areas account for 75% of the world's energy consumption (Gago et al., 2013). As the effects of climate change become more evident, cities are being highly impacted by these changes. Some changes to the Earth's climate related to cities include the impacts that urban heat islands have on the atmosphere. Urban heat islands, or UHI, exist when an urban area has a different, typically higher temperature than its rural surroundings (Bowler et al., 2010). Urban heat islands are created through the accumulation of heat captured by urban structures in a city (Gago et al., 2013). Heat accumulates the most between urban structures that are tall and close in proximity, especially when the streets next to the buildings are narrow (Gago et al., 2013). Because the heat becomes trapped between the buildings, temperature levels are forced to rise, especially in densely populated areas (Gago et al., 2013). With the increase in temperatures and the effects of urban heat islands, Arifwido found that there is a direct positive correlation between energy consumption and UHI intensity (2015). Therefore, as UHI intensity increases, the amount of energy consumption also increases (Arifwido & Chandrasiri, 2015). Additionally, Radhi found that the use of air conditioning and cooling systems has grown by 17-19% in cities (Radhi & Sharples, 2013). The variation in consumption

was attributed to the difference in land use throughout urban areas (Radhi & Sharples, 2013). For example, industrial districts had the highest air conditioning usage because of the thermal properties of the buildings in those areas (Radhi & Sharples, 2013). Comparatively, residential districts had the lowest amount of air conditioning use due to the implementation of greenery in domestic zones (Radhi & Sharples, 2013). Because manufacturing goods is a major source of revenue for the Chinese economy, there should be interest in reducing the costs associated with using air conditioning systems.

### 2.1.3 Human Capital

In terms of Audretsch's framework (2015), public health fits into the subcategory of human capital since the overall health of a place heavily shapes the capabilities of the local workforce. Public health issues are then inherently economic issues as well. As previously stated, Shanghai has the highest air pollution rates in China. This is a major issue because air pollution has been classified as the "deadliest form of pollution" and the fourth biggest risk factor for premature deaths in 2016 (WHO, 2018). As a result, residents of Shanghai have developed a multitude of illnesses due to excessive air pollution exposure. Excess exposure to PM<sub>2.5</sub> puts individuals at an increased risk of adverse side effects. For example, diseases such as diabetes, increased hypertension, cardiovascular disease, cardiopulmonary disease, and lung cancer have all been related to prolonged PM<sub>2.5</sub> exposure (Cao et al., 2017). Air pollution not only affects the physical health of people living in Shanghai but also impacts their mental health (Cao et al., 2017). Air pollution can affect an individual's mental health by impairing neurocognitive functions, which increases the likelihood of developing depression and causes an increase in suicide rates (Cao et al., 2017). Overall, a study conducted by Giovanis and Ozdamar found that air pollution can lower life satisfaction and subjective well-being for individuals. (Cao et al., 2017). Additionally, the majority of healthcare costs from air pollution illnesses go towards treating preventable non-communicable diseases, like mental illnesses, cardiovascular diseases, type 2 diabetes, and cancer (Jourdan, 2016). Researchers found that these preventable illnesses result in a loss of productivity in the workforce, which cost the global economy 225 billion USD in 2013 (WHO, 2016).

Cancer death rates in Shanghai are the highest in China, have doubled over the past 25 years, and are believed by scientists to be caused by exposure to industrial pollution (Shanghai, 1988). Specifically, research has shown that lung cancer rates in China over the last 10-15 years have substantially increased (Shanghai, 1988). A specific type of lung cancer is impacting Chinese citizens, and relations to smoking have been ruled out; thus, researchers have determined that it is related to poor air quality in China (Cao et al., 2017). In order to correlate specific adverse health effects from prolonged exposure to air pollution with specific PM levels, an epidemiological study was conducted with stratified analyses of PM levels (Sacks et al., 2011). Specifically, PM levels were compared with health effects in different population subgroups throughout various locations that have high and low PM

levels (Sacks et al., 2011). The researchers concluded that some characteristics may cause some exposed individuals to be more susceptible to PM-related health conditions compared to others (Sacks et al., 2011). Characteristics that make people more susceptible to PM-related health complications include life stage (age), genetic polymorphisms, preexisting cardiovascular and respiratory diseases, and socioeconomic status, also known as SES (Sacks et al., 2011). For example, air pollution is more harmful to children whose lungs are still developing and can permanently stunt lung capacity (Air Pollution, 2016). Additionally, women have been found to have health complications during pregnancy, such as low birth weight and premature birth, as a result of air pollution exposure (Cao et al., 2017).

A study conducted by Lui et al. researched the correlation between air pollution and mortality rates across 120 cities in China (Cao et al., 2017). The researchers used a spatiotemporal analysis and found that “the air pollution index increased from 2012 to 2013, and the change in mortality from 4% to 7% can be explained by the air pollution index [24]” (Cao et al., 2017). This study used the air pollution index (AIP) to determine air quality and measure the effects of fine particulate matter, ozone, nitrogen dioxide, sulfur dioxide, and other pollutants in relation to mortality (Cao et al., 2017). In this study, PM<sub>2.5</sub> was determined to be the largest disease-causing pollutant in China (Cao et al., 2017). Specifically, PM<sub>2.5</sub> causes more respiratory illnesses in China than any other pollutants, including sulfur and nitrogen oxide (Cao et al., 2017). In addition to these findings on fine particulate matter, researchers discovered that the mortality rate of respiratory diseases was positively correlated to per capita income and population density (Cao et al., 2017). For example, areas with high population density rates were found to have higher mortality rates compared to areas that were not clustered together (Cao et al., 2017). These findings came from the spatial model, which took the level of PM<sub>2.5</sub> in the atmosphere (Cao et al., 2017). With these findings, Cao et al. (2017) concluded that respiratory disease mortality also impacts surrounding areas where mortality rates from pollution are high.

### 3 Problem Solution

#### 3.1 *Personal Prevention Methods*

There are several personal solutions the citizens of China take to prevent exposure to air pollution. Personal solutions are extremely popular throughout the country. Because these solutions are so popular, they are easily accessible and relatively inexpensive compared to the costs of not protecting yourself. One solution is the use of an indoor air purifier, which is available throughout the country. They can protect people from fine particulate matter and ground-level ozone, as long as they include carbon filters (Air Purifiers, 2018). It is suggested that citizens should have an air purifier in their bedrooms in order to keep the air clean throughout the night (Air Purifiers, 2018). Another solution is the addition of electronic pollution monitors,

which continuously monitor indoor air quality (More Indoor Air Pollution Solutions, 2018). The final popular personal solution in China is the use of masks. There are standards for these masks to include carbon filters to protect the user from particulate matter and ground-level ozone exposure (Pollution Face Masks, 2018). Masks are typically worn on smoggy days and near roadways since ground-level ozone is formed by the chemical reaction of motor vehicle exhaust exposure to sunlight (Pollution Face Masks, 2018).

### ***3.2 Renewable Energy Resources***

In 2005, measures to fight air pollution were costing China 112 billion USD (Popp, 2017). The amount paid increased to 220 billion USD in 2009 (Popp, 2017). In 2011, there were also 542 environmental accidents, which caused economic loss, an increase in air pollution, and additional costs to repair the damages (Popp, 2017). The Chinese government agreed that air pollution expenses were too high; therefore, goals were created to reduce emissions throughout the country (Popp, 2017). Not only were they worried about air pollution expenses but also about protecting the environment (Popp, 2017). In order to meet the government's new goals, illegal coal mines, and highly polluting factories were shut down (Popp, 2017). Other initiatives included the regulation of vehicles, the diversification of fossil fuels, and the development of clean energy sources such as solar or wind energy (Popp, 2017). Since January 2015, which is when the emissions regulations began, PM2.5 levels have declined (Popp, 2017). In Shanghai, fine particulate matter fell from 61 micrograms per cubic meter to 50 micrograms per cubic meter (Popp, 2017). Unfortunately, these levels are still higher than the World Health Organization's upper safety limit, which is 35 micrograms of PM2.5 per cubic meter (Popp, 2017).

In terms of renewable energy initiatives, China has invested 102 billion USD since 2015 (Popp, 2017). This huge investment in renewables was motivated by a desire to ease the atrocious air pollution levels, which have been estimated to kill 1.1 million people every year (Gardiner, 2017). Because of China's physical and natural resources, they have the comparative advantage to invest in renewable resources (Popp, 2017). Specifically, China has vast deserts and long periods of sunlight, making it a powerful source for solar and hydraulic energy (Popp, 2017). Since the government's investment, results have been positive; however, some researchers are concerned about its cost and impact on economic growth (Popp, 2017). Since the implementation of renewables in China, 19% of their wind power has been wasted in one year (Popp, 2017). This was due to the location of wind turbines in the northwest part of the country, which was far from the cities where clean electricity was most needed (Popp, 2017). Positioning wind turbines far from cities is typically not an issue; however, some of the transmission lines that carried the energy to the cities failed (Popp, 2017). Due to this, leaders are now installing new power lines and focusing on building smaller wind and solar farms in populated areas (Gardiner, 2017).

### ***3.3 Energy Efficiency and Building Materials & Design***

In order for Shanghai to become more energy and economically efficient, researchers suggest using materials that do not require high amounts of energy to be produced (Chel & Kaushik, 2017). The amount of energy used to create a product is referred to as embodied energy (Chel & Kaushik, 2017). Currently, embodied energy accounts for 15-20% of the energy used within the first 50 years of a structure's existence (Chel & Kaushik, 2017). By using materials with low levels of embodied energy, a structure's environmental impacts and energy inefficiency can be reduced dramatically. Changes like this can occur easily by requesting that contractors use environmentally conscious products. Examples of building materials with medium levels of embodied energy include lime, clay bricks and tiles, and concrete (Chel & Kaushik, 2017). On the contrary, materials with extremely high embodied energy that Chel suggests builders do not use are aluminum, plastics, copper, and stainless steel (2017). The third suggestion is installing efficient appliances in residences that do not require large amounts of energy to generate a product (Chel & Kaushik, 2017).

Currently, energy used to maintain buildings in western countries accounts for 50% of each nation's carbon dioxide emissions (Chel & Kaushik, 2017). As Bulkeley & Betsill suggest energy conservation must be implemented in design (2005). Energy conservation can be achieved through increased standards of energy efficiency and renewable technologies in residential design (Bulkeley & Betsill, 2005). Researcher Arvind Chel offers similar suggestions as Bulkeley & Betsill on how to mitigate carbon dioxide emissions from buildings. Chel suggests that cities must implement passive building designs into their infrastructure, which will capture solar energy more efficiently than current building orientations (2017). Passive design institutes a method of situating a building so that the sun's energy enters the building when necessary. In order to properly implement the passive design in the northern hemisphere, the buildings must have south-facing glass or windows (Chel & Kaushik, 2017). Additionally, solar infiltration should be controlled through the proper installation of an overhang. This also entails a thermal mass design, which will absorb heat during the day and release it at night (Chel & Kaushik, 2017). The use of passive design will reduce the need for air conditioning and lower energy costs in the city of Shanghai.

### ***3.4 Cap and Trade***

A strategy to reduce pollution and its related illnesses is the installation of a cap and trade solution. Cap and trade policies create limits, or allowances, on the amount of greenhouse gasses that a company is allowed to emit (Environmental Defense Fund, 2018). If the company exceeds these limits, penalties are assessed, and the company will receive a fine (Environmental Defense Fund, 2018). The trade aspect of this policy is centered on the potential fiscal benefit of reducing greenhouse gas



emissions (Environmental Defense Fund, 2018). Trade occurs when one company emits less than its allotted amount, creating a surplus of potential emissions. Then, that company is able to sell its remaining allowance to a business that will exceed the legal limit (Environmental Defense Fund, 2018). With the potential to trade, companies that are under their allowance benefit by receiving a profit for producing lower emissions (Environmental Defense Fund, 2018). Another aspect of the cap and trade system is that allowances continue to decrease over time (Environmental Defense Fund, 2018). This forces companies to innovate and find new ways to reduce their emissions in order to stay within the reduced allowances. By reducing limits over time, overall emission levels and pollution-related illnesses decrease (Environmental Defense Fund, 2018). Cap and trade systems are effective because allowances and fines are set based on specific industries and determined by the government. Additionally, this policy allows governments to target specific pollutants that have the highest correlation rates to environmental degradation and illnesses (Environmental Defense Fund, 2018). In California, this policy was implemented in 2013, and emissions were reduced by 4% in 2015 (Environmental Defense Fund, 2018). This suggests that cap and trade policies are effective at reducing emissions and thus pollution levels; however, this solution does not address heat-related issues, such as urban heat islands and building inefficiency.

### **3.5 Green Spaces**

Green spaces were originally thought of as just areas of vegetation and included parks, forests, and wetlands (Zupancic et al., 2015). Now, green spaces can include any sort of infrastructure that promotes sustainable and healthy living, such as white roofs, permeable pavements, urban agriculture, and green roofs (Zupancic et al., 2015). Green spaces meet a city's sustainability goals and improve health by removing pollutants from the air and reducing air and ground temperatures within urban settings (Zupancic et al., 2015). Currently, green spaces only account for 3% of Shanghai's total area, which could explain the increased levels of air pollutants and extreme heat waves (Kelley, 2017). However, not all green spaces both remove pollutants and reduce temperatures. Although not all green spaces meet both of these criteria, they have far-reaching impacts that affect entire regions and nations (Zupancic et al., 2015). The impacts that green infrastructure has can be measured by land value, quality of life, public health, hazard mitigation, and regulatory compliance (Zupancic et al., 2015). For Shanghai, quality of life, public health, and hazard mitigation are the most influential impacts that green infrastructure can have on the city. In order to fully calculate the total net benefit of green infrastructure, both direct and indirect benefits must be analyzed. An example provided by Zupancic states that in order to understand the benefit of planting a tree, the positive effects of a tree filtering water, slowing down runoff, cooling local and regional UHIs, and providing clean air must be taken into account (2015). However, in order for a green space to be as effective as possible, several aspects must be analyzed to



generate the highest net benefits. The first characteristic that must be analyzed is the size and type of green space (Zupancic et al., 2015). The size of the green space is positively correlated with the level of effect the space will have on its surroundings (Zupancic et al., 2015). The type of green space must be evaluated because various types of green spaces exist and provide different benefits, such as heat reduction or air pollution mitigation (Zupancic et al., 2015). The impacts of green space type are related to the vegetation and the effects that certain plants have on various spaces (Zupancic et al., 2015). Another characteristic that impacts the effectiveness of green spaces is the presence of modifying factors. Modifying factors include seasonality, wind speed and direction, time of day, and the space's surroundings (Zupancic et al., 2015). Additionally, there can be negative impacts or trade-offs with the implementation of green spaces that must be analyzed before putting in a green space, such as reduced road visibility and cost efficiency (Zupancic et al., 2015). Shanghai has the second-lowest total area percentage of green spaces compared to the top 10 most populated world cities. Therefore, prior to making a large change in infrastructure by implementing green spaces in the city, an analysis must be done on the positive and negative impacts that the spaces would provide.

### **3.6 White Roofs**

Most buildings, especially roofs, are made of dark materials, such as tar. Darker surfaces innately have lower albedos, which forces the roofs of buildings to absorb more solar radiation and trap more heat (Pearce, 2018). Research conducted by Haider Taha found that when buildings are made of high-albedo materials, the solar radiation absorbed by buildings decreases by as much as 4 degrees Celsius (Gago et al., 2013). In 2012, New York introduced new urban planning policies that required any future construction to implement white roofs in order to increase the structure's albedo levels (Pearce, 2018). In addition to these building codes, there are volunteer efforts in the city to paint tar roofs white in order to increase albedo and reduce the amount of solar radiation that can be trapped within a city (Pearce, 2018). Since this initiative, nearly 7 million square feet of tar roofs in the city have been painted over; however, this is only about 1% of the roofs in New York City (Pearce, 2018). Because of New York's building codes and volunteer initiatives, various cities throughout the United States have begun their own white roof programs. In 2017, Los Angeles began painting all asphalt roads with light gray paint in order to change their albedo (Pearce, 2018). Based on research conducted by Keith Oleson at the National Center for Atmospheric Research, it was found that if every large city in the world painted their roofs white, albedo would change from its current 32% to as high as 90% (Pearce, 2018). With these changes in albedo, the current UHI would decrease by a third and reduce daily maximum temperatures by an average of 0.6 degrees Celsius (Pearce, 2018). However, white roofs do not impact pollution levels and would not be the most viable urban planning solution for Shanghai.

### 3.7 *Green Roofs*

In terms of green spaces, a green roof is defined as a roof that is covered with plants, trees, or other types of vegetation (Zupancic et al., 2015). When creating a green roof, vegetation that is suitable to the local climate must be grown in order to produce the highest benefits (Zupancic et al., 2015). Green roofs can even be implemented on top of older buildings by retrofitting the roofs to hold the weight of the vegetation (Zupancic et al., 2015). There are two types of green roofs: those that are intensive, which range from 80 to 100 pounds per square foot, and those that are extensive, which range from 15 to 50 pounds per square foot (Zupancic et al., 2015). Intensive roof costs range from 20 to 85 USD per square foot and are typically filled with deeper soil and more tolerant plants that can adapt to a variety of water levels (Zupancic et al., 2015). Extensive roofs are typically made with aesthetics in mind by growing on more shallow surfaces (Zupancic et al., 2015). Extensive roofs cost \$6-43 USD per square foot to install (Zupancic et al., 2015). Costs for vegetated roofs vary depending on whether they are intensive or extensive and the climate (Zupancic et al., 2015). Additionally, costs vary based on the labor rates in the area, but Zupanic found that the annual costs of maintenance range from 2% to 3% after the vegetation roof has been established (2015). Since annual maintenance costs are so low, green roofs are relatively sustainable in terms of the economy and the environment.

In addition to being relatively low in cost, green roofs also protect roofs from wind damage and UV rays and regulate temperatures, even with the effects of urban heat islands (Zupancic et al., 2015). All of these benefits of green roofs allow for roofs to have a lifespan of two to three times higher compared to regular roofs (Zupancic et al., 2015). Other benefits of green roofs include the reduction of annual stormwater runoff, on average, by 50-60% (Zupancic et al., 2015). Additionally, intensive roofs are about two times more efficient at managing stormwater runoff compared to extensive roofs; however, this is dependent upon seasonality and evapotranspiration rates for the plants that are on the roofs (Zupancic et al., 2015). The reduction in stormwater runoff is important because intensive green roofs have the potential to reduce pollutants infiltrating water sources by up to 85% (Zupancic et al., 2015). Specifically, in Washington, D.C., researchers have estimated that green roofs can reduce sewage overflows into local rivers by 6-15% (Zupancic et al., 2015). Additionally, researchers found that in New York City, if one 40-square-foot green roof were to be installed, up to 810 gallons of stormwater could be captured per roof annually (Zupancic et al., 2015). Zupanic found that “if each installation cost \$1,000, then a \$100,000 investment could lead to over 81,000 gallons of stormwater captured” (2015). In addition to capturing stormwater pollutants, green roofs also filter and remove many air pollutants, including particulate matter and ground-level ozone (Zupancic et al., 2015). Zupanic found that every 1,000 square feet of a green roof could remove approximately 40 pounds of particulate matter from the air, which is equivalent to the amount of emissions produced by a 15-passenger car per year (Zupancic et al., 2015). Green roofs are

able to reduce ground-level ozone formation because O<sub>3</sub> formation is associated with air temperatures (Reduce, 2017). Therefore, as temperatures decrease due to green roofs, so does ground-level ozone formation (Reduce, 2017).

Other benefits of green roofs include temperature reductions, declines in the effects of UHIs, and climate change (Zupancic et al., 2015). The effects of climate change are reduced because the vegetation is a carbon sink (Zupancic et al., 2015). Because plants store carbon, carbon is prevented from entering the atmosphere and adding to the greenhouse effect (Zupancic et al., 2015). Unfortunately, because green roofs typically only have a thin layer of vegetation, they are not able to store as much carbon as trees and urban forests (Zupancic et al., 2015). In terms of temperature reductions, Zupancic found that green roofs have the ability to reduce energy consumption in buildings by 2–6% (2015). Additionally, green roofs are able to reduce the surface temperatures of roofs by 30–60 degrees Celsius. Also, vegetation on roofs can reduce surrounding air temperatures by 5 degrees Celsius due to evapotranspiration (Zupancic et al., 2015). One group of researchers found that a neighborhood in Portland with all green roofs is able to reduce UHI effects by 50–90% (Zupancic et al., 2015). Not only would a community experience the benefits of UHI reductions, but studies showed that regional UHI effects could be reduced by up to .4 degrees Celsius with the installation of vegetation on only 50% of eligible roofs in the city (Zupancic et al., 2015). In terms of specific temperature reductions, the shading provided by green roofs reduces the surface temperatures underneath the plants (Reduce, 2017). Cooler surfaces on roofs reduce the amount of heat transmitted into buildings or emitted back into the atmosphere, which reduces the amount of energy needed to cool the buildings (Reduce, 2017). Roofs with green spaces are around 74 degrees Fahrenheit (Reduce, 2017). Comparatively, roofs without green spaces can be as warm as about 150 degrees Fahrenheit (Reduce, 2017).

Overall costs and benefits of green roofs throughout their life span vary per roof but are estimated to be 10–14% higher than conventional roofs (Zupancic et al., 2015). When taking into account the net benefits of reducing stormwater runoff, reducing electrical costs, and improving air quality, green roofs have 40% more value than conventional roofs (Zupancic et al., 2015). Zupancic notes these percentages do not take into account the net financial benefits of “extended roof-life, insulating value, reduced urban heat island effects, local and regional water quality improvements, fewer combined sewer overflows (CSOs), urban biodiversity, noise dampening, increases in aesthetic and property values, or from nominal carbon sequestration” (Zupancic et al., 2015). Even though green roofs have higher upfront costs compared to conventional roofs, the benefits that they provide when applied on a large scale within a city are economically worth it (Zupancic et al., 2015). Substantial monetary benefits of green roofs would be applied to the city of Toronto if all eligible roofs made the transition to green roofs (Zupancic et al., 2015). In total, the upfront savings for green roofs are \$313,100,000 (Zupancic et al., 2015). Total annual cost savings are as high as 37,130,000 USD (Zupancic et al., 2015). With these economic savings in mind, Shanghai could cost-effectively implement green

roofs in order to reduce the effects of air pollution, heat, energy inefficiency, and illnesses that are currently negatively impacting the city.

### **3.8 *Urban Agriculture***

Another way to reduce urban temperatures is through the implementation of urban agriculture. Urban agriculture is defined as the process of naturally grown food and other crops within cities (Clinton et al., 2018). Green roofs and urban agriculture can have a remarkable impact, especially because roofs account for 20-25% of land cover (Reduce, 2017). Based on a study conducted by Peter Irvin, who researches geoengineering and climate at Harvard University, crops should be chosen before planting based on their albedo potential (Pearce, 2018). Although Irvin's research was based on plants used in traditional agriculture, his findings could be applied to the vegetation used in urban agriculture. For example, in Europe, Irvin found that if barley were replaced with sugar beet, there would be a 3% change in reflectivity throughout the crop's lifecycle (Pearce, 2018). With the reduction of solar radiation absorption, the effects of urban heat islands have the potential to decrease in urban areas. From these analyses, the researchers estimate that current vegetation in cities generates \$33 billion annually in ecosystem services, including such things as "biocontrol, pollination, climate regulation, and soil formation" (Clinton et al., 2018). The researchers project that annual food production from urban agriculture could range from 100 to 180 million tons per year (Clinton et al., 2018). In the United States and China alone, about 2.4 billion kilowatt hours of energy savings could occur by implementing urban agriculture on roofs (Clinton et al., 2018). Globally, there could be energy savings of 14-15 billion kilowatt hours with the use of urban agriculture (Clinton et al., 2018). In addition to other forms of savings, such as nitrogen sequestration and storm runoff, that green roofs and urban agriculture generate, the combined fiscal benefits could be as much as \$80-160 billion annually in a scenario of intense execution (Clinton et al., 2018). Therefore, over time, this change in reflectivity and the other benefits from urban agriculture will reduce the effects of urban heat islands, including heat-related illnesses, and generate economic advantages. However, certain plants are more likely to absorb pollution compared to others. In order to maximize the benefit of urban agriculture, plants with the ability to absorb large amounts of pollutants and have high albedos would be necessary to utilize. Finally, the maintenance costs of these types of roofs would be higher because of the necessity to harvest the crops in order to produce food.

### **3.9 *Permeable Pavements***

One method for reducing temperatures and counteracting the effects of UHI is through the implementation of new paving materials. Conventional paving

materials, such as concrete and asphalt, absorb large amounts of solar radiation throughout the day but release it into the surrounding air at night, which worsens the effects of UHIs (Musco, 2016). Another issue with current paving materials used in cities is their limited permeability to water. Limited permeability in the pavement is an issue because without the absorption of water into the pavement, the evapotranspiration potential decreases drastically (Musco, 2016). Having a high evapotranspiration potential reduces surrounding air temperatures because the heat in the air evaporates the water that is also in the air (Reduce, 2017). This effect cools the surrounding air while decreasing temperatures and reducing UHIs (Reduce, 2017, 1-3). In order to address the issues with current paving materials, Musco suggests implementing cool pavements and pervious pavements (2016). Cool pavements are built from materials that have a higher albedo and reflect solar radiation more than current pavements. Specifically, cool pavements are lighter in color compared to concrete and asphalt, which allows them to actually reflect solar radiation rather than absorb it (Musco, 2016). The other solution, which is pervious pavements, is made of materials that enable water to drain through the pavement's surface (Musco, 2016). By allowing water to pass through the pavement, the soil beneath the pavement absorbs the water (Musco, 2016). Throughout the day, as the pavement is heated by the sun, the water evaporates and cools the surface of the pavement (Musco, 2016). In addition to reducing the effects of UHIs, pervious pavements absorb stormwater, which prevents flooding (Musco, 2016).

Although these changes from dark to light pavements would provide the largest amount of temperature reductions, the implementation of these changes is difficult compared to other solutions (Rosenzweig et al., 2018). Currently, 64% of New York City's surface area is covered in dark, impervious surfaces. Any changes to pavements would call for a large amount of construction in the area, which would also disrupt the flow of the city (Rosenzweig et al., 2018). Because of these difficulties, the addition of vegetation to the city is more feasible than changing all of the pavement in the city (Rosenzweig et al., 2018). Rosenzweig et al. found that if trees were to be planted along the streets of the city, eventually they would account for 17% of the city's surface area, compared to changing 64% of the city's infrastructure (2018). Not only does the implementation of vegetation reduce energy demand through the benefits of shading, but it has the potential to improve the city's air quality, the public's health, and the total greenhouse gas emissions contributed by the city (Rosenzweig et al., 2018). However, in order for these benefits to have the greatest impact on reducing UHIs, they must be implemented to their full extent (Rosenzweig et al., 2018).

## 4 Conclusion

As China looks towards the future as a world market leader, they must implement sustainable practices in their urban designs. Shanghai is known for its high levels of economic performance; however, they are less known for their extremely high levels

of air pollution, energy inefficiency, urban heat islands, related illnesses, and increased mortality rates. In the past, China attempted to reduce air pollution by banning corporate leaders and factories from burning coal for energy (O'Brien et al., 2017). This created a switch toward natural gas use by Chinese companies. Unfortunately, this switch led to a shortage in the natural gas energy supply due to the country's lack of natural gas infrastructure (O'Brien et al., 2017). Additionally, the shortage in natural gas forced total energy prices to increase for Chinese residents (O'Brien et al., 2017). With this amplified economic burden, many residents were left without heat throughout the winter season (O'Brien et al., 2017). To compensate for this, the government was forced to permit areas that were short on natural gas to burn coal for heat throughout the winter months (O'Brien et al., 2017). China must rely on innovation and development if they want to successfully reduce the aforementioned issues. Another issue that the Chinese government must face is their lack of an environmental monitoring group that would analyze air pollution levels that are produced by industries. If China does not strengthen its pollution regulations, the citizens of China will continue to suffer from poor air quality, heat, and related illnesses. However, the addition of green spaces in the city of Shanghai can resolve all the aforementioned issues. The World Health Organization, or WHO, suggests that in order to receive the maximum benefits from green spaces, they must be cross-sectional (2016). A cross-sectional green space engages the community while attracting multiple groups of people and providing a variety of functional opportunities (WHO, 2016). In 2010, a report was published by the WHO, and the researchers found that green spaces can have a positive impact on physical activity and the potential to reduce public health inequalities (WHO, 2016). Specifically, the researchers found that public green spaces "with appropriate recreation facilities for all age groups are needed to support active recreation" (WHO, 2016). The report also discusses the importance of intersectionality and the necessary support that disadvantaged groups need when it comes to physical activity levels and time spent outdoors (World Health Organization, 2016). Green spaces should be implemented because they are proven to reduce air pollution, increase electric efficiency, and improve human health. In Shanghai, many residents are impacted by cardiovascular diseases, such as hypertension and cardiopulmonary diseases, lung cancer, and poor mental health. With the addition of green spaces, not only will health, air quality, and electricity efficiency improve, but so will the economic efficiency of the city. Economic efficiency will increase because green spaces reduce the need for air pollution reduction tactics, air conditioning needs, and medical bills. Prior to implementing green spaces, the anticipation of companies pushing back on this solution is necessary. In order to combat their potential disagreements, an examination of the overall cost-benefit analysis must be completed. Because the total upfront savings for green roofs are 313,100,000 USD and the total annual cost savings are as high as 37,130,000 USD, it seems that the addition of green spaces is more economically advantageous compared to all the other solutions proposed throughout this paper. Finally, Shanghai companies must understand that this is the only solution that reduces air pollution, energy inefficiency, the UHI effect, and related

illnesses or deaths while decreasing spending on other solutions that only resolve one of those issues.

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## **Part IV**

# **Strategic Challenges and Outlook for Places**

# The Past, the Present, and the Future in Vorarlberg and Tyrol



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**Abstract** This paper aims to assess the development of the Alpine region of Austria according to Audretsch's (2015) framework of strategic management of places. We specifically address the problems of Vorarlberg and Tyrol and further provide an analysis of possible solutions. One of the main aspects pointed out in this paper is that the small university and research network have negative effects on entrepreneurship and skilled labor, with the added negative impacts of climate change on the tourism industry. As a result, a recommendation is to introduce specialized training programs in rural areas along with an improvement of procedures and support for entrepreneurs. In order to address climate change and the economy, existing environmental policies need to be extended, and tourist-attracting events could be created to prevent a revenue loss in winter resulting from global warming.

## 1 Introduction

In today's globalized world, relationships across countries do not only revolve around the import and export of goods. The interconnectivity of regions goes way beyond, showing that even the tourism industry is undergoing a process of globalization itself (Hjalager, 2007). As cheap airlines and decreasing barriers make traveling more accessible, the tourism industry is becoming increasingly important for numerous countries' economic performance. However, building an economy around tourism does not come without risk. Events like natural disasters, financial crises, pandemics, and global changes increase concerns about the stability of the tourism industry (Aliperti et al., 2019). One region that perfectly fits into this scheme

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is the Alpine region of Austria, or more specifically Vorarlberg and Tyrol, as this region is reliant on tourism. Due to its geographical characteristics, it is a popular holiday destination in both the summer and winter seasons (Gühnemann et al., 2021). However, in recent years, this region has faced issues connected to climate change, especially affecting the winter tourism industry due to environmental degradation. In addition, the COVID-19 pandemic further resulted in an immense decline in the number of tourist visits (ibid.). As more challenges emerge, the Alpine region needs to undergo a strategic change to build a stable economy. The aim of this paper is to apply the framework of ‘Strategic Management of Places’ by Audretsch (2015) to said region. A detailed analysis of the region’s current problems in the three main dimensions of the framework will follow. Further recommendations on how the Alpine region of Austria could improve its strategic performance in the future are pointed out.

## 2 Problem Analysis

Economic growth takes place within places. This raises the question of what promotes growth and what slows down an economy. In the following sections, we leverage the framework of Audretsch (2015) to explain the regional challenges in Vorarlberg and Tyrol in the three main dimensions of the framework.

### 2.1 *Physical Assets: Land of Mountains*

The Alpine region is renowned for its landscape of breathtaking mountains and valleys. This is the basis for a high recreational value and also for widespread agriculture and tourism. A consideration of the period from 2005 to 2015 shows that the number of overnight stays in accommodations in South Tyrol has risen rapidly in comparison to other regions like Bavaria or Switzerland (WKO Tourismus Freizeit, 2019). In 2018, the number of arrivals in the province of Tyrol amounted to 12,298 million and in Vorarlberg to 2495 million (ibid.). This development shows that the tourism industry accounts for a remarkable position in Tyrol’s economic growth.

However, other industries have a strong impact on the economic success of the region as well. The industries located in Tyrol are multifaceted. Regional manufacturing is characterized by the chemical and pharmaceutical industries, the glass industry, mechanical engineering, steel, construction, electrical, and metal industries. Well-known companies such as Swarovski, Plansee, Sandoz, Tyrolit, and Med-El are located in the surrounding area (European Commission, 2020a).

Therefore, the importance of infrastructure for productive economic activities is vital. A strong infrastructure system enhances access to business locations, reduces costs, increases competitiveness, and improves the quality of life (Shi et al., 2017).

After the Second World War, the province of Tyrol experienced dynamic structural changes from mountain agriculture to an industrial and service area (European Commission, 2020a). Followed by an increase in both the volume and value of physical capital. Since the nineteenth century, Tyrol has been considered a “*land of mountains*,” and mobility in the province has been greatly improved by the influx of tourists (Brida et al., 2014). The value of the infrastructure has increased further by creating 8800 km of road and rail network in Tyrol. Besides the fact that the infrastructure is of utmost importance for the tourism industry, it is crucial for the transportation of goods by several enterprises as well. Major projects in connectivity and mobility are the Europe Bridge, the Brenner Motorway, and the Brenner Base Tunnel, which is under construction until 2025 (ibid.). Vorarlberg is endowed with 614 bridges, 37 tunnels, 47 galleries, and 25 underpasses (Vorarlberg unser Land, 2019). Because of its borders with Switzerland, Liechtenstein, and Germany, Vorarlberg is a traditional commuter province (European Commission, 2020c).

In general, it can be stated that the infrastructure in both federal states Tyrol and Vorarlberg is well developed in terms of economic success. Nevertheless, with an increase in industrialization and construction measures, environmental damage occurs. Building transportation networks and their subsequent usage still count as one of the major sources of environmental pollution. Needed resources, pollution, noise, and the impairment of natural and cultural landscapes are particularly harming Alpine ecosystems. Low vertical air exchange in inversion weather conditions, increased sound reflection, and the limited space available are characteristics of serious consequences caused by traffic in Alpine valleys (Brida et al., 2014).

## ***2.2 Spatial and Organizational Dimension: Large, Vibrant Economics in Vorarlberg and Tyrol***

### **2.2.1 Competition & Diversification**

Due to globalization, the Alps region of Vorarlberg and Tyrol is facing more competition around the world. As a result, regional enterprises need to adapt and rethink their business models. As a result of its location, especially the economy of Vorarlberg, it is suitable for international trade and export (Brida et al., 2014). The federal states of Switzerland, Liechtenstein, and Germany rank among their five most important export partners (Vorarlberger Wirtschaftsbund, 2019b). As demonstrated by the value of exported goods, Tyrol and Vorarlberg both perform very well in the international context (European Commission, 2020a, 2020b). The distribution of power within Vorarlberg and Tyrol itself is equal because there is no monopoly on certain goods. Even though the textile industry has been the dominant industry in Vorarlberg for many decades and the federal state still ranks as the fourth biggest region for embroidery in the world (Vorarlberger Wirtschaftsbund, 2019b), it has developed a well-diversified portfolio. The highest value creation in Vorarlberg and Tyrol is conducted in industries focusing on the production of goods (e.g.,

Swarovski, Plansee, and Sandoz), followed by trade and maintenance (Wirtschaftskammer Vorarlberg, 2018d; Wirtschaftskammer Tirol, 2019c). Administration, hospitality, and leisure also significantly contribute to the region's value creation (ibid.).

Besides the presence of said industry clusters, the economic structure is defined by a high number of small and medium-sized businesses (SMEs), with the majority being family owned. In Vorarlberg, around 80 percent of the gastronomy and accommodations are family businesses (Wirtschaftskammer Vorarlberg, 2018b). However, as pointed out by Lambrecht and Donckels (2008), the average lifespan of such family businesses is 24 years, indicating that most businesses are not getting passed on to the second generation. Analyzing all companies, one may find that around 80% have fewer than 10 employees. (Wirtschaftskammer Vorarlberg, 2018a; Wirtschaftskammer Tirol, 2019a). Only two percent of all enterprises employ more than 49 people (ibid.). Two-thirds of the region's employees work in SMEs, which decisively shape the region's economic structure. Those potential "hidden champions" are often established in rural regions and perform very well in their domain, even though they are rarely listed in public (Lehmann et al., 2019).

To conclude, there are two problems arising in the current economic situation. Firstly, especially the industries of the manufacturing and production sector suffer from a lack of skilled labor. Due to the strong economic growth, skilled labor with technical abilities, like engineers or bricklayers, is missing in the region, as indicated on their national list, "Mangelberufsliste" (Vorarlberger Wirtschaftsbund, 2019a; Mangelberufsliste, 2021). Secondly, a workforce with managerial skills is required (ibid.) to prevent family businesses from discontinuation when junior generations leave the region. This might lead to an economic decline due to the high importance of those SMEs.

Additionally, tourism plays a crucial role in Tyrol. In 2017, tourism accounted for 4335 million euros of value created in Tyrol and for 1110 million euros in Vorarlberg (Wirtschaftskammer Vorarlberg, 2018b). On the one hand, tourism itself creates value and workplaces within the region as tourists desire board and lodging as well as entertainment. On the other hand, one shall not forget the opportunities for craftsman services in accommodations and the supply of gastronomy by local farmers. This implies that employment greatly depends on tourism, not only within the tourism sector itself but also in other fields. In general, the direct and indirect effects of tourism accounted for 25% of the gross value added in Tyrol in 2015 (Tirol Tourism Research, 2020). Adding the recreational use of locals, the number even increases to 33 percent (ibid.). This reliance on tourism should be regarded as critical because tourism weakens in times of crises like the COVID-19 pandemic.

### 2.2.2 Entrepreneurship

However, to truly explore the future of a place, it is crucial to pay attention to the smaller elements. In particular, new ventures are considered the cornerstone of tomorrow's economic development. The number of new founders has remained

unchanged during the past years, stagnating at approximately 4100 new ventures each year. With a view to all of Austria, the government also seems to be a barely existing parameter in start-up networks. Entrepreneurs wish for more support regarding incentives for venture capital, reducing bureaucratic hurdles, and greater transparency in the funding system (Leitner et al., 2019). Moreover, entrepreneurs prefer “*large, vibrant economies*” over remote places (Low et al., 2005), making cities like Vienna more attractive for their start-ups than the Alpine region. The rural areas do not sufficiently incentivize entrepreneurs, which leads to a lack of entrepreneurial networks and innovation. Consequently, the region needs to act on attracting entrepreneurs, to prevent a decline in available funding and to strengthen the economy of Vorarlberg and Tyrol.

## 2.3 *Human Dimension: The ‘it’ Factor*

### 2.3.1 Networks and Linkage

Networks and linkages are neither a question of skills nor human capital or knowledge; rather, it is the people’s interactions, values, and personalities that shape economic performance (Audretsch, 2015). They are core elements that foster the success of a place; they provide intersections for people to get together and result in facilitated cooperation, knowledge spillovers, and idea creation. Consequently, a place may benefit from innovation and outcomes that could not be achieved on individual levels (ibid.).

Austria established a great network between schools, federal ministries, training companies, and employees as well as employer associations by means of vocational schools (VET). Austria’s education system provides students the option of attending VET schools after completing grade eight. By combining general education with vocational training, graduates have the possibility of obtaining a double qualification. This permits students to enter not only higher education but also the labor market (Bundesministerium für Bildung und Frauen, 2015; Graf, 2015). Through mandatory periods in training companies, students acquire industry expertise and hands-on learning experiences. The network built around VET is mutually beneficial for students and companies. The former group gains work experience, while the latter group benefits from the facilitated recruiting of qualified staff, cost savings, and higher competitiveness (Chamber of Commerce, Industry, and Services, n.d.). However, the Alpine region suffers from a small university network. One can find two public universities within the area, both located in Tyrol. Vorarlberg, on the contrary, solely provides one university of applied sciences (Bundesministerium Bildung, Wissenschaft, und Forschung, 2020), and hence a lack of academic opportunities and research. As a result, students might be obliged to move to other federal states with a broader range of study options and larger educational networks.

Another problem could be identified in a missing startup culture. Although few start-up centers are located in the area (Startup.tirol, 2020; Startupland Vorarlberg,

2020), nine out of ten entrepreneurs decide on other federal states to establish a business (Leitner et al., 2019). This could be traced back to the lack of academic research and skilled labor. Moreover, it is an indication of a missing entrepreneurial mindset within the Alpine region, the absence of network opportunities, and thus a challenging access to knowledge and venture capital.

### 2.3.2 Social Capital

According to Audretsch (2015), social capital is a contributor to the “‘it’ factor” of a place. In general, social capital can be described as “*social organizations and other groups that help people act collectively*” (ibid., p. 8). Therefore, the importance of social capital can be seen in its contribution to relationships between residents and their interactions. Social capital within our setting is highly driven by tourism. One can find numerous cultural events such as cattle drives and folk dances, yet, to an increasing extent, they serve as tourist attractions with the actual purpose of culture being overshadowed (ORF Tirol, 2006; Holtkamp, 2022). However, there are opposing opinions stating that the tourists’ appreciation of customs fosters culture preservation and a feeling of togetherness (Mayer et al., 2011).

Aiming to counteract the declining sense of unity and create social capital, Vorarlberg’s federal government established an “Office for Future Related Questions” (Vorarlberg unser Land, 2020). Furthermore, a municipality in Vorarlberg created the initiative “Zämma leaba z’Götzis,” whose purpose is to encourage residents to actively participate in community life (Häuser der Generationen, 2020). The Alpine region is endowed with a high supply of leisure services and sports associations (for instance, Sport Austria, 2020; Tirol Werbung GmbH, 2020; Vorarlberg Tourismus GmbH, 2020) that bring people together. Especially recreational activities are partly influenced by tourism with the aim of providing attractive destinations. Nevertheless, locals also benefit from the broad variety of leisure opportunities.

### 2.3.3 Identity and Image

From an outside perspective, the image of the Alps region can be described as simple and peaceful. The region is associated with a scenic and green landscape, mountains, farmhouses, small villages, and tradition (Kariel & Kariel, 1982; Wodak et al., 2009). In general, Austrians are perceived as welcoming and charming (Schweiger, 1992; Tockner, 2009). Moreover, sports, especially winter disciplines and hiking, are related to the reputation of the region (Tockner, 2009). The Alpine region is perceived as a desired place of residence, a society that decelerates everyday life, and a benchmark for a fulfilled existence (ibid.). However, from a different angle, this could be associated with a lack of drive and diligence (Schweiger, 1992), which seem crucial for establishing successful companies. Regional identity is characterized by dialects, customs, and traditions. While local languages strengthen a sense of



belonging, the predominant use of High German for tourist communication bears the risk of replacing dialects (Kariel & Kariel, 1982). Also, national pride plays a major role. Citizens are proud of their landscape, culture, security, and sporting events (Wodak et al., 2009). However, the increasing influence of visitors can lead to a loss of traditions, values, and authenticity (Mayer et al., 2011).

### **2.3.4 Leadership**

With a view to Hofstede's dimensions, Austria's culture is influenced by a high level of uncertainty avoidance and, hence, less risk-taking (Hofstede Insights, 2020; Szabo & Reber, 2007). Another finding is that Austrians typically maintain long employment relationships (Szabo & Reber, 2007). Both considerable loyalty toward the employer and the preference for secure jobs could result in greater hesitation to become an entrepreneur. Moreover, a medium level of future orientation predominates in the area (ibid.). As long-term orientation is recognized as a core personality trait for leaders and a higher future orientation favors the choice of founding a business, the area certainly has potential for effective leadership, but there is room for improvement (Szabo & Reber, 2007; Wanasika, 2009).

### **2.3.5 Current Crises: Climate Change and the Economy**

Climate change is a direct result of human activity. The release of carbon dioxide and further climate gases (CO<sub>2</sub>e) by industry and agriculture has increased the natural greenhouse effect and caused the Earth's global temperature to rise critically. Since 1900, CO<sub>2</sub>e levels in the atmosphere have risen by 27% (Ziesing, 2006). Due to the magnitude of human activity, it would take hundreds of years for the Earth to return to pre-industrial levels. Along with the increase in CO<sub>2</sub>e, sea levels worldwide have risen due to melting ice and snow in the southern hemisphere (NASA, 2020). The impacts of climate change go well beyond temperature increases; they also affect water, energy, transportation, wildlife, ecosystems, agriculture, and human health. Each of the previously mentioned sectors cannot exist without the others. We believe that it is important to highlight the impacts of climate change on the Austrian economy, specifically regarding tourism. Climate change is a significant threat to the economic stability of Austria. Global warming threatens biodiversity and decreases the amount of annual rain and snowfall. Austria's economy heavily relies on tourism, which directly makes up 4.3 percent of the GDP and indirectly contributes to around 15 percent (ClimateChangePost, 2020).

Higher temperatures during the winter will decrease the surface area covered by snow. Less surface area combined with less snowfall will lead to the once-thriving ski resorts of the Alps region becoming more vacant. Although winter tourism may decrease, summer tourism is expected to increase (COIN, 2020). Whereas the lack of snowfall in the winter months will reduce tourism, increased temperatures and an absence of precipitation will boost the region's attractiveness during the summer

(COIN, 2020). The revenue collected during the summer months, however, will not outweigh the revenue loss from the winter. Thus, a significant net loss in revenue may follow. As previously mentioned, Austria's many different economic sectors are interconnected. Less winter tourism will jeopardize seasonal employment and have negative impacts on food, transportation, and further industries. Overall, the alpine region strongly relies on tourism, and the negative effects resulting from climate change may be detrimental to Austria's economy.

### 3 Problem Solution

#### *3.1 Strengthen the University Network and Retain Talents*

One of the issues in Tirol and Vorarlberg is the small university and research network and its adverse effects on entrepreneurial activities that are based on networks and skilled labor. To increase this network, we recommend creating new and innovative study programs that cannot be found elsewhere in Austria. By doing so, talents growing up in the area could be retained, and young academics who are simultaneously motivated could move to the Alpine region.

The University of Innsbruck has already implemented a master's program in "Environmental Management of Mountain Regions" (Universität Innsbruck, 2020). Higher education institutions in the Alpine area should build on this opportunity and expand innovative study programs through closer collaboration and joint research, not only in environmental studies but also in other fields.

Regarding the university of applied sciences in Vorarlberg, we propose establishing at least one additional faculty. A promising area could be architecture and interior design, as this is a barely present field of study within the Alpine region. Also, this could be further expanded with landscape architecture, a subject that so far can only be found in Vienna (Universität für Bodenkultur Wien, 2020; Technische Universität Wien, 2020). Moreover, offering more dual study programs could be beneficial as there is a high demand for specialized training in the area (Land Vorarlberg, 2019).

Due to their hybrid nature, dual study programs would create a bridge between already established vocational education and universities (Graf, 2014). With the close cooperation of companies and the university, earning money and studying becomes less of a challenge. Separate study and work phases are perfectly coordinated and facilitate organizational hurdles as well as the financing of higher education. However, the federal government must also consider other components related to higher education. As rent in western Austria is relatively high, students might hesitate to move to the Alpine region for university education (Land Vorarlberg, 2019). To minimize hurdles, local governments must contribute to a greater supply of affordable accommodations. By providing additional student residences and negotiating with local homeowners, more young talents could be attracted to or retained in the respective region. In summary, expanding the university and research

network would lead to a larger number of immigrant students and reduce the lack of qualified labor. In addition, more comprehensive research and extended networks could drive the entrepreneurial mindset and contribute to the overall increased reputation of the Alpine region.

### ***3.2 Secure Tourism by Combating Climate Change***

As the tourism industry will be at a loss due to climate change, it is necessary to evaluate specific sectors, address the problems, and create solutions (i.e., policy change and a decreased ecological footprint). Austria first needs to continue current research projects and policies that regard climate change and will thus indirectly aid tourism. In 2012, Austria implemented the BMLFUW 2012 (Austrian Strategy for Adaptation to Climate Change). This strategy divides the areas of climate change impact into different fields to assess spatial planning, water management, tourism, infrastructure, agriculture, and energy management. If furthered and with more funding, this project could evaluate climate change impacts in Austria, specifically in the Alps region. The Austrian government, and local governments as well, could leverage this strategy as a framework to separate and particularize the impacts of climate change on the Alpine region – to gain a better understanding over multiple years of climate change impacts and to better project future losses. The information gained from a project like the BMLFUW explicitly implemented for the Alps region will permit researchers and government officials to create policies directly targeted to benefit that region. In addition, Austria will need to commit to the goals outlined in the 2030 Agenda, an international plan of action initiated by the UN to address specific issues and congruent solutions regarding climate change in each participating country (Sustainable Development Goals) (United Nations, 2020).

Furthermore, we recommend that Austria incorporate climate change policies independent of this plan to achieve its goals and directly combat climate change. Austria must implement a CO<sub>2</sub>e emission limit for industries. Along with the CO<sub>2</sub>e emission limit, a cap-and-trade program allows companies to buy and sell CO<sub>2</sub>e emissions and permits other organizations to stimulate the economy while also decreasing CO<sub>2</sub>e emissions (Environmental Defense Fund, 2020). Supposing Austria commits to the solutions outlined in this plan, the country will be able to tackle climate change and focus on the different sectors impacted, such as the tourism industry. To directly foster winter tourism, ski resorts and local cities can hold winter festivals. For example, Vail, Colorado (USA), hosts a four-day winter festival called “Vail Snow Days.” The festival includes live music and many activities for tourists to enjoy (Vail Ski Resort, 2020). Resorts and cities in the Alps region can host winter festivals that could collaborate with local businesses to generate more revenue. The festivals could have an outdoor market that includes hand-made items and the opportunity to sell local food to support the agricultural industry. For summer and winter tourism (including the previously mentioned festival), the Alps region can trademark a “sustainable holiday” designated for sustainable social and economic

growth. This could include social gift shops, partnering with local sustainability-focused businesses, eating locally, a lights-off curfew, stores that shut down lights at night to further reduce electricity use, or a day strictly for hiking and outdoor activities. For a sustainable summer holiday, water refill stations can be set up along hiking trails to encourage the use of reusable water bottles, especially with increasing summer temperatures. A shopping market (in reference to a farmer's market) can be set up on flat parts of the hiking trails to stimulate the local economy. Lastly, the profits generated from sustainable holiday models and festivals could be invested in further sustainability research and development.

### 3.3 *Foster Entrepreneurial Activity*

The tourism industry leverages the Alps as a unique natural resource. Nevertheless, establishing a mainstay in other industries will be necessary to keep the economic portfolio diversified. To reach this goal and stabilize the future economy, it is necessary to attract entrepreneurial activity. Regarding the current situation, we believe the federal government has already introduced useful programs enticing entrepreneurship in Vorarlberg and Tyrol. One can find regular events at local universities, engagement in public relations, and programs like the “InnCubator” established to encourage entrepreneurship (Amt der Tiroler Landesregierung, 2019). Moreover, it was decided to extend access to a more efficient broadband connection to rural areas (Amt der Tiroler Landesregierung, 2019; Land Vorarlberg, 2019). Vorarlberg now provides innovative space concepts after rebuilding the “Postgarage” (PRISMA Zentrum für Standort- und Regionalentwicklung GmbH, 2020; Land Vorarlberg, 2019), which improves the infrastructure required for entrepreneurial activity. There are several start-up competitions in Austria, such as “i2b” (Leitner et al., 2019), and the Innovation prize of Tyrol, awarded annually to financially support innovators (Amt der Tiroler Landesregierung, 2019). In addition, the Austrian government introduced an expansion of the tax-free profit allowance (Die neue Volkspartei, 2020). Furthermore, it reduced the minimum pay for GmbHs to 10,000 euros to facilitate self-employment (ibid.).

However, we would recommend taking some further steps to establish new businesses. Therefore, we propose several recommendations according to the “Entrepreneurship 2020 action plan” to promote entrepreneurship (SCALE(up)-ALPS, 2020). First, realizing a less bureaucratic process for entrepreneurs in their early stages will foster the creation of new companies. The current administrative burden of founding a new business constitutes a high entry barrier and will continue to discourage entrepreneurship. Moreover, Jung et al. (2008) identify a potential lack of founding-related knowledge amongst potential entrepreneurs; we recommend accompanying streamlined formalities with support for the application process.

Since entrepreneurs typically cannot afford to finance their ventures themselves and are dependent on investors willing to take risks, the barriers to accessing venture capital must be lowered (Leitner et al., 2019). Consequently, the introduction of a tax

allowance for a certain share could be an incentive for investors to financially support start-ups (Cowling et al., 2008). Further, we consider the realization of the already discussed state fund that provides risk capital (Die neue Volkspartei, 2020) and the extension of providing growth capital in cooperation with private investors (ibid.) to support start-ups in later stages. Another approach to increasing the provision of information is to create more transparency in the existing support and funding programs (SCALE(up)ALPS, 2020). It might help to evade the population's risk aversion resulting from high uncertainty avoidance (McSweeney, 2002). Especially important is the flexibility of said support programs, as market situations can change quickly. Moreover, the time frame to exploit an entrepreneurial opportunity might be limited (ibid.). Thus, we recommend offering more detailed information about the various support programs on the government's websites and advertising contact persons who assist with and speed up the bureaucracy for entrepreneurs.

Moreover, expanding the educational infrastructure will create university spin-offs and skilled labor. Hence, entrepreneurs will be able to find qualified employees more efficiently. This is particularly true as most Austrian entrepreneurs consider the right team of founders as the most crucial factor for success (Leitner et al., 2019). Since Vorarlberg and Tyrol lack the reputation of an entrepreneurial area, it is equally important to actively advertise the advantages of rural entrepreneurship in a broad image campaign. These efforts need to address the general public to increase the reputation of entrepreneurial ventures (Jung et al., 2008) as well as captivate talents currently completing their education (ibid.). As many start-ups feel like the government does not show real interest in entrepreneurial activity (Leitner et al., 2019), it is necessary to address current entrepreneurs and underline that the region genuinely strives to improve the circumstances for new enterprises. In improving the reputation of the region as an attractive start-up location, this campaign can significantly contribute to a more open perception towards entrepreneurship. In this way, entrepreneurial projects can be promoted in the long term based on a diverse and open-minded society (Audretsch, 2015). In turn, with more start-ups settling in Vorarlberg and Tyrol, the entrepreneurial spirit of the area will further increase.

## 4 Counterarguments

Regarding the lack of higher education opportunities, one must bear in mind that establishing new study programs and faculties entails substantial investments that must be profitable in the long run. It requires new premises and additional personnel and experts within the newly introduced areas. With an expenditure of 1.5 percent of its GDP, Austria already belongs to the leading European countries regarding public investment in higher education (Bundesministerium Bildung, Wissenschaft, and Forschung, 2020). In addition to the new fields of study, dual programs require high costs of collaboration with local companies due to their specific nature. Moreover, the positive impact of increased entrepreneurship, fostered by the expansion of educational opportunities, involves a time delay. Thus, the financial and

personnel investments to support entrepreneurial activity will only pay off in the long run. In addition, Austria is characterized by risk aversion, which further impedes the search for angel investors (Hofstede, 2020). Moreover, many entrepreneurial ventures fail (Patel, 2015); hence, successful pioneers are needed to boost entrepreneurship in Vorarlberg and Tyrol. With regards to the tourism industry, although a sustainable holiday label and winter festivals will attract tourism, they also involve an increased ecological footprint. The cost of transportation (locally and internationally) will produce a great amount of CO<sub>2</sub> and other harmful gasses that contribute to the greenhouse effect. Also, attracting more tourists involves higher production of food and goods to satisfy the increased demand; which in turn uses local resources and produces greenhouse gases. However, the region may not be equipped with the necessary resources to support additional tourism in the summer. Following that, more production would be needed, again increasing the region's ecological footprint. Increased tourism combined with higher economic activity in the region will considerably affect the environment.

Due to the international orientation, transportation as well as the production sites themselves will pollute the environment. Furthermore, increased economic activity might lead to a reduction in uncultivated land. Regarding the current situation, more than half of the region is still covered by forest, water, or the Alps (Wirtschaftskammer Tirol, 2019b; Wirtschaftskammer Vorarlberg, 2018c). However, this might change drastically at the expense of the environment if more firms settle in Vorarlberg and Tyrol.

## 5 Conclusion

To conclude the paper, one can say that the Alpine regions of Vorarlberg and Tyrol are scoring with the economic value of their tourist industry. However, considering the latest circumstances and the changing environment, strengthening other economic fields is our driving recommendation. This should be done by focusing on human capital and implementing new educational opportunities, therefore fostering innovation in the area. However, creating a region that attracts entrepreneurs and new business opportunities is not possible without the strategic aid of policymakers. Following that, the regions need to rethink their economic strategy and shift away from a one-sided model that is focused on tourism. As the industry is especially affected by climate change and therefore critically in danger, we anticipate remarkable future changes. We are expecting a shift from the Alpine region as we know it these days. Due to the limited scope of this work, we could not cover all determinants of the economic success of Vorarlberg and Tyrol. Still, it demonstrates its importance and thus the need for further research in this field.

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# Taranto: Revitalizing the Energy of a Mediterranean Port City



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**Abstract** Taranto, Italy, is a city on the Mediterranean serving as an important commercial port and the main Italian naval base. Mired by industrial pollution, Taranto is one of the most polluted cities in the world due primarily to emissions from the Ilva steel plant, the city's primary employer. Environmental conditions combined with the leadership failures of governmental entities have created barriers to improving quality of life and utilizing existing assets for economic development and tourism. The authors analyze the possibilities for Taranto's future should Ilva remain a viable employer, as well as economic development opportunities for future regional employment to ensure consistent employment should the steelworks become insolvent. This paper analyzes potential sustainable solutions for environmental remediation, expanding long-term energy solutions, leveraging historical assets for tourism, and utilizing existing assets for job creation, retention of unskilled and skilled labor, and attraction of a creative class to create a viable future for Taranto.

## 1 Introduction

Taranto was chosen for research because it is a city that – historically and currently – is heavily dependent on one primary employer, which has become both economically and environmentally unsustainable. The goal of this paper is to analyze the potential for creating a viable local economy that utilizes the strengths and opportunities of the local infrastructure to create new opportunities for sustainable energy

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production and tourism while working to improve the economic and environmental capacity of Ilva.

Based on the research for this paper, it has been determined that the central problem of Taranto is the unsustainable practices of the steel operations over the past five decades, which have led to environmental degradation and a deterioration of the local image. However, with its strategic maritime position on the Italian coast, a rich history that blends Greek, Moorish, and Roman occupations, and viable energy assets that can be enhanced, Taranto has the potential to become a vibrant, progressive city. By modernizing steel operations, embracing innovative technologies and innovations in soil remediation and the green economy, and expanding the entrepreneurial capacity of the region, there is the potential to engage a creative class and expand opportunities for employment and tourism.

Successful implementation of solutions to remediate environmental damage has relevant applications for communities across the world. Sustainable steel practices are in place across the European Union (EU) and have the opportunity to flourish in Taranto. Additionally, many of the opportunities available to Taranto would not only benefit the city and region, but because of geopolitical issues with energy availability, steel production, and control of maritime assets, the solutions proposed in this document would have a positive impact regionally across Europe and globally, especially on the Asian and African continents.

## 2 Problem Analysis

Taranto is the eighteenth largest city in Italy with approximately 200,000 inhabitants and lies in the province of Taranto, which has over 600,000 residents. Taranto is the most industrialized city in the southern region of Apulia. Taranto's local economy generates at least one percentage point of the gross domestic product of the entire Italian economy, mainly attributed to the steel, petrochemical, agri-food, shipbuilding, and inland tourism sectors (Eurocities.eu, 2022).

Apulia is the farthest eastern and southern region in Italy. The Adriatic Sea is adjacent to the northeast and the Ionian Sea to the south. The territory is dominated by flat or hilly terrain with few mountains. Bari is the regional capital and largest population center, followed by Taranto, Foggia, Andria, Lecce, Barletta, and Brindisi (Il Censimento Permanente in Puglia-Anno 2020, 2022). Compared to other southern regions, Apulia is more economically developed. Agriculture is still the primary resource, despite poor environmental and climatic conditions in many areas; vegetables (turnip greens, tomatoes, peppers, fennel, asparagus, and artichokes), durum wheat and other cereals, tobacco, wine and table grapes, olives, and almonds are cultivated. Of considerable importance to the culture and economy is sea fishing and fishing for shellfish and crustaceans. Apulia also possesses the largest salt pans in Italy.

At the end of the nineteenth century, a channel was excavated to allow naval ships to enter the Mar Piccolo harbor of Taranto, enabling the ancient Greek city to

become an island connected to the mainland by bridges. The islets and the coast are strongly fortified, and Mar Piccolo is a naval port of strategic importance. Because of the presence of these two bays, Taranto is often called “The City of the Two Seas.” Taranto faces the Ionian Sea. It is 14.5 meters (48 ft) above sea level. It is characterized by three natural peninsulas and a man-made island, formed by digging a ditch during the construction of Aragon Castle. The climate of the city, as recorded by the weather station situated near the Grottaglie Military Airport, is a hot-summer Mediterranean climate with frequent continental features (Global Geografia, [n.d.](#)).

The most important infrastructure in Taranto is the port. Located in the heart of the Mediterranean, it is 172 nautical miles away from the Suez and Gibraltar route with a strategic position on the main routes between East and West. This makes it an ideal hub for commercial traffic between Europe and the rest of the world and for short-haul domestic and Euro-Mediterranean traffic.

The Taranto railway station connects the city to other cities across Italy. The “Ponte Girevole” (swing bridge), built in 1887, runs across the navigable ship canal that joins Mar Piccolo (Little Sea) with Mar Grande (Big Sea) and stretches 89.9 meters. When the bridge is open, the two ends of the city are disconnected. There is also the Taranto-Grottaglie Airport located 16 km from the city, which acts as a cargo port but does not offer any regularly scheduled commercial services.

In 1991, Taranto was declared a high environmental risk area by the Italian Ministry of Environment. The declaration was a consequence of the pollutants discharged into the air by factories in the area, most notably the Ilva steel plant, which was part of the Gruppo Riva at the time. In 1991, 7% of Taranto's pollution was produced by the public; 93% was produced by factories.

Taranto is a city with needs, potential, and opportunities. In 2021, the unemployment rate for the 20–64 age group in the city of Taranto was 13.2 percent for men and 19.3 percent for women, with an average of 15.3 percent. The trend is increasing from 2020 onward (Istat, [n.d.](#)).

This paper will utilize the Strategic Management of Places Framework to provide structure for surveying the current condition of Taranto, defining potential solutions for changing the fate of the community, and promoting clearly defined paths for overcoming counterarguments and strategically moving forward. The Strategic Management of Places Framework is “based on the insights offered by scholarly research and insights from practitioners and is organized into four main elements. These four elements are (1) factors of production and resources, (2) spatial and organizational dimension, (3) the human dimension, and (4) public policy.” (Audretsch, [2015](#)).

## ***2.1 Factors of Production***

Analyzing the first of the four elements of the Strategic Management of Places Framework – factors of production – the influencing factors physical resources,

physical capital, R&D capabilities and activities, unskilled workers, and skilled workers were identified as particularly important for Taranto.

### **2.1.1 Physical Resources: Aging Housing Stock and Abandoned Farm Properties**

The history of Taranto began in the eighth century B.C. with the founding of Taras, the only colony of the Spartans, although archeological finds confirm the presence of settlements dating back to the Bronze and Iron Ages – 3,500 years before Christ. The city's hegemony was linked to its great naval power, its control of the gulf of the same name, dubbed “of Taranto,” thanks to non-belligerence agreements with the Roman Empire, and the culture of Magna Graecia. The settlement of these peoples guaranteed the city of Taranto the presence of numerous archeological finds and sites of Greek and Roman origin that can be visited today.

The city of Taranto still bears traces of a past rich in history. A clear and tangible sign of this is, to give just a few examples, the two Doric columns that stand out and dominate the historic center, as if to remind the modern world that this splendid Apulian city was once the capital of Magna Graecia. And again, the name of Spartan City, as Taranto holds the record of being the only city founded by Spartans outside the territory of Greece. Historical vestiges also include the necropolis, the treasures kept in the MarTa, the famous Taranto Golds dating from the fourth to the second century BC, and the Tomb of the Athletes, which reminds us that athletes from Taranto took part in the fifth century BC Olympics. In short, the city of the Two Seas has much to tell, thanks to its strategic position overlooking the sea but at the same time protected by the gulf of the same name and cuddled by the two seas: Mar Grande and Mar Piccolo. Despite a rich history and archeological evidence still present in the area, Taranto's reputation is damaged due to the heavy pollution that characterizes it, overshadowing tourism, which offers immense potential for growth.

Today, Taranto is a city that enjoys important resources due to its strategic position on the Mediterranean. The favorable climatic conditions ensure the cultivation of fruits (grapes, IGP clementines, watermelons) and vegetables and the production of wines such as Il primitivo di Manduria, which is one of the best-known Italian wines.

The Port of Taranto is home to numerous fishing vessels. The fleet consists of about 80 fishing boats, which do not exceed 10 gross tonnes and practice bottom trawling. The remaining small fishing boats operate gill nets. The rich and generous sea is populated by snappers and gilthead, groupers, mullets and anchovies, shrimp, and squid. Tourism has good prospects for development, both for art-historical sites and bathing places, as well as recreational fishing and tourism, but it is restrained by the lack of adequate facilities.

Taranto is also today the world's largest production area for farmed mussels. Taranto mussels have always been a product of excellence, and the sector employs around 1300 people. Production, however, has undergone a forced relocation. This

change stems from the Apulia Region's September 2018 Ordinance No. 532 on "extraordinary sanitary measures to control dioxin and PCB risk in mussel production in Taranto." For decades, the Mar Piccolo, and in particular the first scene, has been the basin of industrial discharges between steel, shipbuilding, and shipbuilding processes. Immediately after February 28 each year, mussel farmers have to take the mussel seed and transfer it to uncontaminated sea areas so that it can continue to grow. If, on the other hand, it remains in the first mussel bed, there is a risk that the mussels, as they mature, may absorb pollutants from industrial activity. The lack of funds to reclaim the Mar Piccolo is a real risk for the extinction of mussel farming in this area (Fatiguso et al., 2022).

The Port of Taranto is located on the northern coast of the gulf of the same name and plays a vital role both commercially and strategically. The installations of the merchant and industrial port are distributed along the northwestern sector of the Mar Grande, and immediately outside it in a westerly direction. The most recent installation is the container terminal located on the multi-sectoral wharf, a state-of-the-art facility complete with telematics systems and a control tower, with a storage and cargo handling capacity of approximately 2,000,000 TEU/year. 76% of cargo comes from steel mills. In addition, an important tourist port can be developed, especially for cruise ships that can dock in the port. Today, only MSC Group docks at the Port of Taranto, but the facilities and morphological conditions on the seabed are favorable for increasing the number of cruise ships.

The industrialization that took place in Taranto in the 1960s, particularly with the construction of the steelworks, led to a real phenomenon of migration from the countryside to the city. Numerous peasants abandoned their land and their homes in search of fortune. These dwellings, known as *Masserie*, can still be found in the Taranto countryside, abandoned and awaiting redevelopment. The same fate has also befallen a district in the old city of Taranto. To revitalize this district, the municipality has offered the possibility of buying the houses at a symbolic price of one euro with the guarantee that the new owners will redevelop them.

### 2.1.2 Physical Capital: Where Did It Go?

In the following chapter, we give concrete examples of shrinking industries in Taranto.

***Ilva Steel Mill*** Apulia is the most industrialized southern region, and Taranto's industries have characterized the history of the province for better and worse. Taranto has within its territory the largest steel plant in Europe, the Ilva steel mill, which was at the center of mismanagement by the Riva family that caused the partial closure of the plant due to the heavy pollution caused by the steel plant's fumes and slag. Gruppo Rivas was found guilty in Italian courts of violating anti-pollution regulations in the management of Ilva in Taranto. Today, the former Ilva is part of the Acciaierie Italia Group and is administered by the Italian state.

The steelworks have always been the primary source of work for families in Taranto, and currently there are 11,000 employees, far fewer than the average of

15,000 workers in the steelworks' golden years. Production capacity is kept under control, to avoid exceeding the pollution limits set by law. The Italian government tried to sell the steel mill, which was under commission, to the Indian ArcelorMittal Group but without success due to issues surrounding immunity from liability for past damages. The company wanted immunity and to place remediation responsibility on the Italian government, which operated the plant prior to and subsequently after Gruppo Rivas.

**Eni Refinery** Located in Taranto since 1967, the refinery was operated by Shell beginning in 1975 and subsequently sold to the Eni energy group in 2002. It is characterized by a production cycle that allows the treatment of crude oil by separating it into different fractions: gas, LPG, naphtha, kerosene, gasoils and residues. Finished products are stored in 133 tanks with a total capacity of about 3 million m<sup>3</sup>. The thermoelectric power plant owned by the EniPower group, which supplies energy to the refinery plants, operates on the same company premises.

**Italian Naval Base** The naval base directly overlooks the Mar Grande at Chiapparo and is the most grandiose construction of the Armed Forces in the post-war period. The infrastructure stands in a state-owned area of about 60 hectares. The installation is staffed by about 200 Italian Navy personnel and 2300 civilians. Skilled and unskilled workers are employed in the numerous specialized departments for on-board work from traditional ones, such as iron construction, conjuring, and flag molding, to those with a high technological content, such as the overhaul and repair of missile systems, Tlc, radar, repair of modules, and electronic boards.

**Taranto-Grottaglie Airport** Taranto-Grottaglie airport is 16 km (9.9 miles) from Taranto and performs military and commercial functions. It was founded to protect the Port of Taranto during the First World War. The airport boasts the sixth-longest runway in Italy. Although the length of the runway allows aircraft for intercontinental flights to land, the airport is not intended for tourist flights. There have been many proposals to activate passenger flights, most recently by Air Italy in May 2011 and CityLine Swiss in January 2014. The Taranto Chamber of Commerce and numerous associations in the Ionian area continue to ask the management company Aeroporti di Puglia to accept requests from airlines for passenger flights to boost the province's economy. Bureaucratic slowness and the lack of infrastructure such as road and rail links mean that this airport is not fully realized, so in order to reach the city of Taranto, tourists have to land at Brindisi or Bari airports, which are much further away.

**Wind Farms** On April 21, 2022, after no less than 14 years of waiting and various societary, industrial, administrative, and judicial vicissitudes before the Tar, Taranto inaugurated Italy's first offshore wind farm. The investment is \$80 million Euros. The key numbers of the energy infrastructure are 10 blades and provide energy for the Port of Taranto and the city. Belecico s.r.l. is a project company that holds the rights, permits, approvals and clearances for the construction and management of the wind farm that was built in the external roadstead of the Port of Taranto (Puglia Region). The wind farm was the first built in the Mediterranean Sea and rises on a

water surface of approximately 131,000 square meters and a state-owned maritime area of 455 square meters, granted for 30 years by the Taranto Port Authority and delivered to the company in April 2019. The plant's 10 turbines have a total capacity of approximately 30 MWh and a consequent estimated production of over 58,000 MWh/year, which corresponds to the energy needs of 18,500 families or 60,000 people (Toto Holding, [n.d.](#)).

***Natural Gas Pipeline Infrastructure*** The Trans-Adriatic Pipeline (TAP) is a gas pipeline that runs from the Greek-Turkish border through Greece and Albania to Italy on the Adriatic coast in the province of Lecce (Apulia). The gas comes from Azerbaijan and delivers 8 billion standard cubic meters as of January 2022, with plans to reach 10 billion cubic meters by the summer of 2022. In order to decrease the dependence on supplies from Russia, from which 40% of Europe's energy needs originate, in February 2022 the European Commission started negotiations with the Baku Advisory Council to increase the maximum delivery capacity from 10 billion cubic meters per year to around 20 billion cubic meters per year.

The recent Russian-Ukrainian conflict and the consequent cuts in the supply of gas from Russia to Italy have led the Italian government to find new supplies of gas from other countries in a short time. One of the biggest problems in this transition is the scarcity of regasifiers on Italy's national territory to be able to transform liquid gas into gas (TAP: Trasportati in Europa Nel 2021 Oltre 8 Miliardi Di Metri Cubi, Di Cui 6,8 in Italia, 2022).

### 2.1.3 R&D Capabilities and Activities

***University of Delft Proposal for Remediation and Biodiesel Production*** In 2012, Taranto was declared the city "with the highest risk of environmental crisis" in Italy due to a wide industrial area developed in close proximity to a highly populated urban settlement. The main cause of the pollution is the Ilva steel plant, which is responsible for about 90% of all steel powder emissions in Italy. These emissions make up almost 10% of all steel powder emissions across EU member countries. The conflict between the economy and the environment in the city of Taranto makes a peculiar case study when approached with the concept of the Democratic Landscape.

A study carried out by the University of Delft (Rizzetto, [2022](#)) by means of territorial remediation makes it possible through certain types of plant cultivations (primarily hemp and sunflowers) to clean up heavily polluted soil. Then, through the harvesting of these crops, it is possible to produce the feedstock for biodiesel or biogas, a type of green energy for which Eni is experienced in producing at other Italian refineries but has yet to add a biodiesel unit to its Taranto facility.

***2011 Proposal for Increased LNG Activity*** In 2011, a feasibility study was carried out to build a regasifier in the Port of Taranto, but due to the failure of regional politics and the numerous oppositions of citizens and committees, the project was not realized. Other proposals from that period have recently been revisited and realized in Sicily as there is renewed interest by the EU and the Italian government



to have more LNG facilities in the Mediterranean, Adriatic, and Ionian Seas to transport products from eastern Europe, the Middle East, and North Africa (Jewkes & Amante, 2022).

**Universities** The city of Taranto does not have its own university but hosts several programs from other regional institutions, including:

- Aerospace, Civil, and Environmental Systems Engineering of Bari Polytechnic (Interdepartmental Center “Magna Grecia”);
- Medicine and Surgery, Law, Economics, Maritime Sciences and Management, Business Strategies and Management of the University of Bari (Ionian Department in “Mediterranean Legal and Economic Systems: society, environment, cultures”).

Taranto is also home to ITS Logistica, which constitutes a non-university tertiary training segment that responds to companies' demand for new and highly technical and technological skills to promote innovation processes. Their programs represent an opportunity of absolute importance for Italian workforce training through a creative strategy based on the connection of education, training, and work policies with industrial policies, with the aim of supporting interventions aimed at productive sectors with particular reference to the innovation and technology transfer needs of small and medium-sized enterprises. ITS Logistica has two-year courses designed in partnership with local employers that has an 85% job placement record (Percorsi ITS - Miur, n.d.).

#### 2.1.4 Workers in Taranto

Regarding the three remaining aspects of the factors of production, which are skilled labor, unskilled labor, and the creative class, the city of Taranto has much potential. All its distinctive characteristics of human capital are obviously essential to the good economic development of the city, which thus remains a major challenge for the city. The city is facing a high unemployment rate, which is detrimental to its economy.

The active employed population in Taranto at the beginning of 2022 was about 55% against 45% unemployed, with a total approximately 100.000 people in the area (Servizio Agenzia Lavoro e Formazione Professionale, 2022). This inactivity rate is still remarkably high, as it constitutes almost half of the working population, which works against the economic development of the city. One reason behind this is the coronavirus crisis, which caused a disaster for the labor force, including unemployment.

Regarding unskilled labor, most of the employees of the largest company, Ilva, which is two and a half times the size of the city in terms of the area in Taranto, are workers without specific skills or training who account for 70% of the workers. Considering that the company has a workforce of approximately 11,000, this represents 7700 people who would be considered unskilled (Straub, 2019).

In terms of education and referring to unskilled workers, 53.8% of the population in 2019 aged nine years and older left school after middle school (Uficio Statistico - Regione Puglia, 2021). This remains quite high and reveals the availability of unskilled workers for the city of Taranto.

Concerning skilled labor, more than 9000 employees in total worked in the financial, scientific, and education sectors between 2018 and 2019 (Istat, 2019). In terms of youth, it is noted that in 2019, 46.2% of the population aged nine and over completed high school. This means that Taranto has a potential cadre of students with high added value who could be trained to occupy positions of responsibility and thus contribute to the development of its intellectual wealth (Uficio Statistico - Regione Puglia, 2021).

## 2.1.5 Creative Class

Invented and mentioned for the first time in 2002 in the book *The Rise of the Creative Class* by the American sociologist and economist Richard Florida, the Creative Class would be a new social class that would redefine the shape of the twenty-first century economy. According to Florida, the Creative Class is composed of engineers and managers, academics and musicians, researchers, designers, entrepreneurs, lawyers, poets, and programmers, whose work turns on the creation of new forms (Creative Class Group, n.d.). These actors would be able to determine how workplaces are organized and which companies are prosperous or at risk of bankruptcy. They would thus be, nowadays, indispensable to the good economic development of a city.

Taranto is a city with an extremely rich culture and history. As proof, last year it was a finalist for the prestigious title of the Italian Capital of Culture (Eurocities, n.d.-a, n.d.-b, n.d.-c). It has many museums, art galleries, theaters, and cinemas with historic architecture, making it an attractive area for the creative class, such as artists, architects, and entrepreneurs. Indeed, the entrepreneurial class also refers to the creative class with its creative and innovative ideas.

Table 1 indicates that entrepreneurship has been growing in the years prior to the pandemic (Sestino & Guido, 2021, p.127). And this is something particularly important because start-ups contribute to the modernization of the cities in which they are located because they use new technologies and knowledge.

As an example of creative ideas contributing not only to the economic and cultural development of the city but also to the respect of the environment, there is

**Table 1** Number of start-ups in Taranto between 2015 and 2019

| Business Sector         | 2015 | 2016 | 2017 | 2018 | 2019 | <i>N</i> | %      |
|-------------------------|------|------|------|------|------|----------|--------|
| Tertiary Sector         | 5    | 9    | 21   | 24   | 28   | 87       | 78.38% |
| Industry and Craft      | 1    | 4    | 3    | 4    | 2    | 14       | 12.61% |
| Agriculture and Fishing | 2    | 2    | 2    | 3    | 1    | 10       | 9.01%  |

Notes: *N* = 11

an unusual bookstore, called *Plasticaquà Taranto* in Taranto where those who bring plastic bottles and aluminum cans receive a book in exchange. The initiative aims to protect the territory of Puglia, encourage literacy, and share culture (Malinverno, 2022).

German artists from Berlin have also relocated to Taranto to paint and highlight the destruction of aquatic fauna due to the pollution from Ilva. Their inspiration and primary focus is bringing awareness to the degradation of mussel production in Taranto (Rech, 2014).

## ***2.2 Spatial and Organizational Dimensions***

In the spatial dimension, the three influencing factors – market power, competition, and specialization – were identified as particularly important for Taranto. Additionally, a cluster structuring Taranto's existing potential was developed.

### **2.2.1 Market Power**

The economic structure of the province itself is heavily reliant on the steel industry. The Ilva steel plant produces 40% of all steel fabricated in Italy and directly employs approximately 11,000 people and another 8000 contractors indirectly (Benecchi et al., 2022). Even though the plant has absorbed a considerable number of employees over time, it is evident that the driving effect on the local economy, which should have triggered the economic “take off,” was below expectations (Romeo & Biasi, 2017).

Nevertheless, Ilva has remarkable market power, which becomes clear looking at its contribution to the gross domestic product (GDP). The city of Taranto generates at least one percentage point of the GDP of Italy's economy, mainly from the steel sector. Other sectors present in the region are the petrochemical, agri-food, ship-building, and inland tourism industries (Eurocities, n.d.-a, n.d.-b, n.d.-c).

At the national level, however, tourism represents a key pillar of the economy. More than two-thirds of Italian GDP is generated in the service sector. Tourism plays a decisive role for the Italian economy, contributing nearly 10% to this sector (Statista, 2022), which is still below the pre-pandemic level. Looking at the number of international tourists and arrivals in the Italian region of Apulia in 2016, Taranto is the least popular tourist destination among Apulia's provinces. Bari, for instance, counted over ten times more visitors than Taranto in 2016 (Statista, 2018). This shows that tourism has no great market power in Taranto, although it has outstanding potential due to its location, history, climate, architecture, and port infrastructure.

Analyzing the localization indices, the weakness of the propulsive effect of the iron and steel industry on the other constant productive activities becomes evident.

In fact, there was no more marked specialization or localization advantage in the Ionian area than in the rest of Southern Italy for the sectors mentioned (Romeo & Biasi, 2017).

### 2.2.2 Specialization

Since ancient times, Taranto has specialized in mussel farming in its inland sea called “Mar Piccolo.” The natural composition of salt and fresh water provided optimal conditions for the growth of the mussels, which is why the Tarentine mussels have been considered a delicacy for thousands of years. However, today this activity is restricted due to the level of pollution. The steel works and the huge naval port of Taranto have destroyed its inland sea and made it economically unviable.

A study (Giannico et al., 2020) confirmed that the contamination level of the Mar Piccolo exceeds the EU maximum levels of dioxins and PCB concentrations. Therefore, banning the use of the Mar Piccolo Inlet 1 for mussel farming plays a key role in ensuring the health of the product being placed on the market. In order to restore Taranto’s specialization, the marine environment, and the local production chain, the study concludes that a structured environmental plan for remediation of contaminated marine sediments in combination with the reduction of pollutant emissions must be established by local authorities.

### 2.2.3 Competition

With regard to competition, the port’s location in the Mediterranean area is particularly interesting to analyze. The Port of Taranto is located in a strategic position in the middle of the Mediterranean and is an ideal hub for commercial traffic.

Strong competitors in the region are the ports of Piraeus (Greece) and Genoa (Italy). A majority stake of 51% in the Greek port, which is soon to be Europe’s biggest port, is owned by the China Ocean Shipping Company (Cosco). On the one hand, China’s interest brings development advantages to the region of Piraeus, including massive investments in high-speed railway connections, airports, and the electricity grid (World Tourism Organization, 2019). On the other hand, the Chinese decision-making power and total control might make Piraeus less attractive to Western partners, who are seeking alternative ports of call in the Mediterranean, putting Italian ones in a more desirable position.

Genoa, Italy, however, is currently facing record levels of congestion with truckers operating at about 50% capacity and massive container backlogs. Even though many ship operators make every effort to quickly evacuate empty containers from their destination port, the slowdown in Genoa has still severely affected

container turnaround times, leading to huge financial losses (DPB International, 2022).

As a result of the massive problems of other Mediterranean ports, Taranto can gain competitive advantages by making use of its own strategic position and existing infrastructure. The Port of Taranto has already established a development plan until 2030 which includes projects on connectivity, innovation, and digitalization. The measures that are under consideration focus on the commercial and military components of its usage while also encouraging the growth of the tourism and cruise sectors.

### 2.2.4 Clusters

Taranto’s economic development potential can be categorized into three main branches – energy, tourism, and maritime – which are visualized in Fig. 1.

Tourism as a cluster is primarily promoted by the regional travel bureau in Bari and centers on the cultural and historical assets of Taranto’s past, food tourism for regional cuisine, and dark tourism for those that prefer locations with dark history. Some tourism is provided by cruise ships that access the Port of Taranto for day visits.

The maritime cluster is dominated by the commercial port and the naval installation, as well as limited tourism from cruise ships. The sea and the opportunities it brings have been an asset for Taranto throughout its history.



**Fig. 1** Economic clusters of Taranto (own illustration)

Energy has been a growing cluster for the city and the province of Taranto. Eni operates a 135,000 barrel per year refinery in Taranto utilizing off- and onshore pipelines. Eni operates multiple biodiesel facilities across Italy, which could be replicated in Taranto. A recently added 10-turbine offshore wind farm has been sending power to Taranto's grid and has the capacity for expansion. Small solar farms have begun to be installed in the rural areas surrounding the city, and with an average of 222 days of sunshine per year (Weather Atlas, 2022), Taranto is ideal for solar expansion.

### ***2.3 Human Dimension: Greek, Roman, and Moorish Roots***

When considering the human dimension, the authors felt that networks and linkages, identity and image, and leadership were all natural areas of opportunity and concern for Taranto.

#### **2.3.1 Network Linkages**

Taranto is a city with close ties to many institutions and organizations. In terms of formal linkages, Taranto has established for over 75 years the Chamber of Commerce and Industry Confindustria Taranto, which associates more than 500 companies in the province of Taranto. The Chamber promotes territorial economic development, contributing to the affirmation of an innovative, internationalized, and sustainable business system able to favor the economic, social, civil, and cultural growth of the territory. In fact, it operates on the territory, expressing its representation for each sectorial area and in all external communications centers, ensuring a solid identity and a generalized feeling of belonging to the associative system. Confindustria Taranto also provides external services in the fields of finance, innovation, and internationalization (Confindustria Taranto, n.d.).

Taranto also has many non-governmental organizations working independently but also with companies present in the area (Cylex, n.d.). Included among the non-governmental organizations are those focused on environmental activism, primarily driven by the historical damage caused by Ilva.

#### **2.3.2 Identity and Image**

In terms of identity, Taranto suffers enormously from a negative image as an industrial city with extreme pollution that causes cancer. It has been in fact demonstrated by many scientists that the rate of cancer among people living near or in Taranto is much higher than anywhere else in Italy. Taranto is home to the largest steel factory in Europe, which emits enormous quantities of pollutants that are harmful to humans, animals, and plants (Cazzolla & Velichevskaya, 2022, p.12).

As mentioned before, German artists from Berlin have joined Taranto's Creative Class to denounce the environmental problems caused by Ilva. Their research has found that people in Taranto have lost hope and do not act against health threats and pollution. They have also shown that the inhabitants of the city no longer fight for the identity of the city – despite its tremendous historical and cultural wealth (Rech, 2014). “Today Taranto is struggling to overcome the negative image associated with an Ilva steel plant by enhancing its natural resources.” (Laffaldano & Ferrari, 2021).

### 2.3.3 Leadership

The history of leadership in Taranto is also delicate because of the various problems caused by the government and the central employer, Ilva. The population does not trust the government of Taranto anymore, especially due to the problems of corruption between the government and Ilva that were exposed about ten years ago (Agence France Presse, 2019). The government had in fact tried in the best conceivable way to circumvent the rules in matters of pollution and respect for the environment so that it would make a much greater profit.

The government of Taranto had also announced bankruptcy in 2005, and its mayor was jailed for corruption (ibid.). These facts are exacerbated by the poor image in general of the governments of southern Italy because of the influence of the Mafia and the corruption that comes from organized criminal syndicates.

## 3 Problem Solution

The proposed problem solution to the issues analyzed previously follows a pyramidal structure (Fig. 2).



**Fig. 2** Solutions for Taranto's economic development (own illustration)

### ***3.1 Policy Recommendations and Justifications***

#### **3.1.1 Bring Ilva to EU Standards**

The basis of all practical solutions is the improvement of the pollution and health hazards from the Ilva steel mill. In 2017, the European Commission had already approved the acquisition of Ilva by ArcelorMittal. ArcelorMittal is an international steel company that has expressed an interest in acquiring Ilva and bringing the steelworks up to EU standards. Therefore, the acquisition represents an opportunity to reduce air, water, and soil pollution and enhance Taranto's attractiveness.

However, the approval was conditional on the divestment of a substantial package of remedies to maintain effective competition in European steel markets for the benefit of consumers and businesses (European Commission, 2018). ArcelorMittal tied the potential acquisition to a guarantee of financial immunity for any past damages, which was ultimately not granted, and the EUR 2.3 billion deal fell through.

As recently as May 2022, workers have been striking because of the conditions of the steelworks and the Italian government's inability to take responsibility for environmental emissions during its management of the facility (Ex Ilva, 24-Hour Strike in Taranto: Face to Face Between the CEO and Workers, 2022). The ruling by the European Commission – coupled with the on-going worker frustration at the mill – only adds to the negative perceptions of Taranto.

In the process of bringing Ilva up to EU standards, an additional accompanying measure to reduce CO<sub>2</sub> emissions is the use of genetically modified bacteria. Carbon dioxide is a greenhouse gas, but it can also be implemented in the production of several industrially useful basic chemical building blocks. A recent version of the genetically modified *Clostridium autoethanogenum* bacteria absorbs CO<sub>2</sub> and, under favorable conditions, excretes significant amounts of industrially useful chemical building blocks, such as acetone and isopropanol. The carbon balance of this process is negative, which means that the bacteria fix more carbon from the carbon dioxide than they release. This is essential because therefore the method is able to reduce carbon dioxide in the atmosphere (Osterkamp, 2022).

#### **3.1.2 Expansion and Creation of New Green Economy**

Once the base of the triangle – bringing Ilva up to EU standards – is established, the next step is starting a detoxification process for biodiesel production and creating a new green economy. These not only provide energy resources from Taranto to Italy and the EU, but they also help position Taranto as a green energy leader. This green energy position has the potential to create needed jobs to counter unemployment, create opportunities for small and medium enterprises to locate or relocate for growing opportunities, and ultimately have the added benefit of repositioning and improving the city and region's image.



One of the possibilities to achieve this goal is the production of Biodiesel. For this process, three remediation types were identified as appropriate by Rizzetto and Hooimeijer (2022), which are shown in Fig. 3.

Certain plants such as sunflowers, wheat, hemp, and corn absorb unusually large amounts of metal compared to other plants. By using phytoextraction methods, long-term inaccessible areas can be cultivated with these so-called hyper-accumulators in order to contribute to the natural remediation of both heavily and superficially polluted soils.

The three remediation types can be brought together in the constructed wetlands in the northern area of Taranto's inland sea. These wetlands are natural systems where biological and physical treatment takes place by guiding the wastewater through a planted soil filter. In addition, they combine most of the benefits of natural systems such as the low use of energy, attractive landscape, creation of wildlife habitat, low sludge generation, low cost, and recreational and educational uses (Pötz, 2016).

The process of detoxification through the planting of hemp is already underway in Taranto as a means to decontaminate the soil. Since 2014, local farmers in Taranto have followed practices used successfully in Chernobyl that involve growing hemp in an effort to remove toxins and provide a viable crop (Manisera, 2016). Natural waste from these sources could be fuel stock for a future biodiesel unit at Eni, providing diesel gas to arriving ships at ports as well as trucks to haul goods from the port to Italy and into the EU.

In terms of renewable energy, solar and wind options are conceivable for Taranto since it has optimal sunny days and consistent wind speeds on land and at sea. With the principle of agri-photovoltaics, green solar power can also be generated on purely agricultural land. In the case of Taranto, this could work, for instance, in parts of the cultivation zones of the plants used for phytoextraction. Lechwerke Augsburg (LEW) is now testing exactly how this works and the resulting solar yields on a 6 kWp solar system in Gersthofen, a town in the Bavarian-Swabian district of Augsburg (Greenhouse Media, 2022).

The special thing about the solar system in Gersthofen is that the solar modules are installed vertically and arranged in strips on the areas, leaving enough space for the cultivation of the areas. In order to generate as much PV electricity as possible,

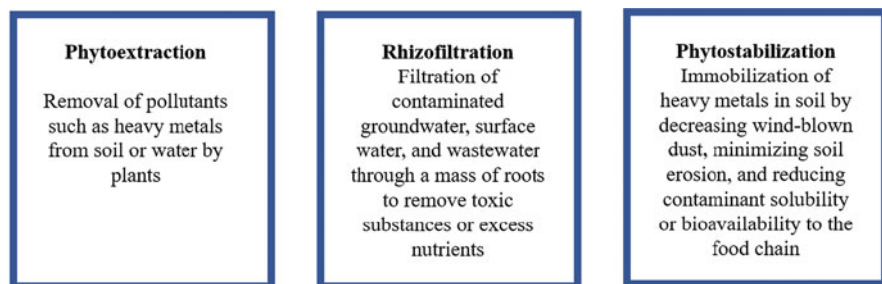


**Fig. 3** Detoxification process for remediation & reuse of soil in Taranto (own illustration)

they rely on special “bifacial” modules. These double-sided PV modules can convert both the solar radiation on the front and the back of the module into solar power, utilizing the 222 average days of sunshine each year. This increases the solar yield, and the areas can be used for both agriculture and power generation (Greenhouse Media, 2022).

The average hourly wind speed in Taranto experienced significant seasonal variation over the course of the year. The windier part of the year lasts for 5.6 months, from October 28 to April 17, with average wind speeds of more than 10.5 miles per hour. The windiest month of the year in Taranto is February, with an average hourly wind speed of 12.2 miles per hour. The calmer time of year lasts for 6.4 months, from April 17 to October 28. The calmest month of the year in Taranto is August, with an average hourly wind speed of 8.8 miles per hour (Weather Spark, n.d.). While just a slight breeze can eventually get a turbine moving, thereby creating a small amount of electricity, sustainable energy experts say that a location should have an average annual wind speed of at least 9 mph (Foster, n.d.). These facts support the location of current and future wind farms on land and offshore in Taranto and its region.

### 3.1.3 Expansion of Entrepreneurial Capacity

After curbing future pollution by bringing Ilva up to EU standards, taking action to clean up past emissions, and expanding the use of renewable forms of energy, Taranto will once again be able to attract people. While the creative class and tourism are considered in the two upper parts of the triangle (Fig. 2), this stage of the solution process focuses on the expansion of entrepreneurial capacity first. We would propose utilizing the Chamber of Commerce to create three programs if they do not currently exist. First, to seed and grow businesses, it would be prudent to create an angel fund or several angel funds for start-ups and small-/medium-sized businesses with the potential to grow. These could be in the trades to support the reconstruction of abandoned city and rural properties or to create new jobs in the expanding energy sector and/or upgrades of Ilva. Second, the Chamber could create a group similar to those in many U.S. chambers utilize retired executives and businesspeople to mentor and guide start-ups and early-stage businesses. The Service Corp of Retired Executives (SCORE) is a common program in America that provides free advice from experienced professionals in such areas as business plan development, refining pitch documents for financing, marketing, and legal document preparation. Finally, creating a partnership with the local educational institutions to create seminars – free or at a nominal cost – for individuals considering starting a new business or expanding an existing enterprise.

### 3.1.4 Incentivization of Creativespiepr146 Class

Taranto needs entrepreneurs and their counterparts in the creative class to live and work in the city if there is to be a future. The municipality of Taranto is already implementing an initiative in which derelict houses are sold for the symbolic value of one Euro. This project has already shown success in other Italian cities, allowing for repopulation and stimulation of the building sector. These houses can be bought by not only private Italians and non-EU citizens but also companies or agencies. Anyone with the intention to participate in the 1 Euro Houses project has to submit a bid, including for the final project of renovation and recovery of the property. Among the other few additional obligations, renovation work has to be completed within one year of the date of the release of the building permit, unless there are any requests for an extension. The Municipality of Taranto can secure it by taking out a security policy in the amount of 1000 Euros valid for two years to guarantee the realization of the works (Case a 1 euro, [2022](#)).

Throughout the project, the creative class is motivated to permanently relocate to formerly dilapidated quarters of the city. This idea could be extended to the abandoned farmhouses outside of the city. Through urban and rural housing redevelopment, accommodation facilities and agritourism are created, and new initiatives related to green construction and agriculture can be encouraged.

### 3.1.5 Expansion of Tourism and Portspiepr146 Usage

The important tips of the triangle are the promotion of tourism and the expansion of port use. As discussed earlier, tourism is not a major economic force in Taranto as it is the least frequented destination in Puglia. It is also currently not easy for tourists to reach, as the transport infrastructure is not well developed. By plane, visitors currently have to land in Brindisi Casale or Bari Palese and navigate ground transportation to Taranto. While Taranto can be reached by train from the main Italian and foreign cities, connections are often complicated and/or expensive.

Certainly, one measure can be to improve the transport connection. Nevertheless, the initial focus should be on arousing the interest of potential visitors by improving the city's image as part of several campaigns. An example of successful long-term state branding is the "Pure Michigan" campaign. The campaign, now in its second decade, is considered one of the United States' greatest success stories and has become an unofficial state motto, appearing on a wide variety of products. The campaign was launched to respond to Michigan's negative image due to its declining automotive and manufacturing sectors and the urban decay of its major city, Detroit. "Pure Michigan" has today become a critical economic engine and an invaluable public investment. The campaign also showed a strong positive correlation between the amount of advertising and the number of visitors (Bach & Milligan, [2018](#)).

Conceivable types of tourism in Italy can typically be food tourism or cultural tourism. An additional possibility for Taranto also lies in dark tourism, a form of

tourism that takes travelers to places marked by suffering, pain, crime, natural disasters, or death. Hiroshima in Japan, one of the most famous dark tourism destinations in the world, shows how a responsible implementation of the controversial concept can work. Many people who work in tourism are unofficial park volunteers. Several programs have been created by survivors and locals to educate visitors (Baser, 2017). A parallel between Hiroshima and Taranto is the high rates of childhood leukemia. In addition to promoting dialog, exchange, and awareness for the need for environmental protection, tourism is able to create revenue streams. Another opportunity is the (partial) donation of this income to children suffering from leukemia.

As far as the port is concerned, the existing infrastructure should be expanded. Previous analysis has shown that Taranto already has suitable conditions and that the timing for the expansion is strategically favorable. Improvements for both for cruise ships and ship construction should be addressed. In order to be able to receive cruise ships, the city must develop a tourist offer. As of the publication of this report, there are no guided tours advertised on the Internet for local architecture, history, or food tasting. Also, there must be enough fuel available for the cruise ships, some of which could be obtained from the potential Eni biodiesel unit. In fact, the Port of Taranto has already published a development plan that includes projects on connectivity, innovation, and digitalization. The focus of the expansions will be on tourism and the cruise sector.

However, cruise tourism can be an attractive business field for Taranto's port. The Ferretti Group, which holds the majority of the shares in the port and specializes in the manufacture of luxury yachts, could establish a production facility for ships or ship parts. Their recent proposal included a production hub dedicated to the construction of hulls and superstructures in fiberglass and carbon and a research center for the study of models and molds (Xinhua Silk Road, 2020), which would create new employment for skilled and unskilled labor.

## **3.2 Counterarguments**

### **3.2.1 Funding These Projects Will be Problematic**

Skepticism towards funding is understandable because of past mismanagement of public funds by the local Taranto government and its past bankruptcy. Italian infrastructure investments in Taranto have also historically been low. For the most recent year, the Italian government's average investment per person was \$184.49 Euro, but it was only \$32.19 Euro for the citizens of Taranto. This trend is about to change with the new PMWR Funding (Italian Pandemic Recovery Fund), which brings new opportunities for investment in Taranto. Of the \$206 billion Euros allocated to the fund, \$81.6 billion Euros is restricted to the southern provinces for use by the end of fiscal year 2027. Funding is restricted to the areas of economic competitiveness, sustainability and green energy, infrastructure and mobility,

schools and research, inclusion, and health (Galli & Liaci, 2021). All of these categories match the needs and potential plans for Taranto. Additionally, controls are in place by the Italian government that will mitigate local mismanagement with provisions to target and track spending.

### **3.2.2 Ilva Cannot be Economically or Environmentally Viable**

On July 24, 2018, the multinational ArcelorMittal announced that it had accepted all the requests made by Ilva's extraordinary commissioners to give permission for the takeover of the steel plant. The crucial issues were, of course, employment and the environmental impact of the Taranto plant. But on November 5, 2019, ArcelorMittal announced its intention to withdraw from the sale contract, returning Ilva under extraordinary administration.

ArcelorMittal was not granted immunity for past environmental actions of the previous manager(s). If a private company wants to acquire the former Ilva, aware of the fact that it needs particularly important investments, it has to act with the guarantee of not being legally prosecuted for actions carried out by others. In the case of Ilva, ArcelorMittal is requesting immunity from historic damages done by the Italian government and its agent, the very entity wanting to transfer liability to a potential buyer. Moreover, we have to analyze the phenomenon, relevant in Italy, of resistance from CGIL and CISL trade unions defending workers' rights and not tolerating mass dismissals or plant closures, and the problems created by skepticism from members and leaders over new ownership and historic resistance to change. One possible solution is for unions to work with management to retain operations/work in partnership to implement sustainable steel practices. "Made in Italy" steel could be attractive to EU and North Africa buyers if made with limited environmental impact and strong safety improvements and would be an attractive alternative to Chinese steel since it mitigates transportation and political obstacles inherent with China as a trading partner.

### **3.2.3 If an LNG Facility Was Deemed Unfeasible in the Past, Why Consider it Now?**

The recent Russian-Ukrainian conflict has raised an especially critical issue for the Italian government. In 2020, 43.3% of Italy's natural gas supply was imported from Russia (Ministry of Ecological Transition). Today, Italy must find alternatives to meet its energy needs. Many countries send their gas in liquid form, which is why there is a need for regasifiers in Italy, which are plants that transform gas from liquid to solid. One possible solution is to moor a large regasifier ship in the Port of Taranto. With 5 billion cubic meters of liquid natural gas per year, due to the depth of the seabed and the presence of the TAP connection that allows the gas to be fed directly into the network, Taranto is the ideal city to carry out this task. The problem is that a feasibility study was already carried out in 2011 for a regasifier in

the Port of Taranto, and we fear that extreme bureaucratic slowness and opposition from local committees could prevent this solution today. A similar project from 2011 was revisited and implemented in Sicily in early 2022 due to the Italian government's and the EU's realization that Russian gas will not be viable in the near or distant future (Fatiguso, 2022).

### **3.2.4 Economic and Tourism Investments Are Not Sustainable with Existing Pollution Issues Created by Ilva**

Implementing recommendations from the Delft University study and expanding existing local hemp production can create biological solutions for ground/ground-water contamination. The new ownership of Ilva will allow for sustainable steel practices and investment in emission controls to improve air quality. These realities can begin to change the perception of Taranto. As improvements are made and creative solutions are implemented, if there is a sustained public relations campaign to promote these practices, there will begin to be the opportunity to increase tourism. And opportunities for infrastructure investments in rail and air service to Taranto rail stations and airports can make actual travel to the region far easier than it is currently.

Additionally, Taranto can tap into the ecotourism market that would be interested in cleaning activities (sunflowers, hemp pulling out toxins from the ground, vertical solar panels, etc.) to mitigate health risks. These efforts could involve travelers in the solution phase, much like many Caribbean communities encourage with tourists removing invasive plants and planting native species in their place. Being a pioneer in sustainability/cleaning activities and the green economy will actually attract people.

## **4 Conclusion**

Taranto, Italy, is a city with a vibrant history, but a damaged reality and image primarily caused by one industry and employer, Ilva. If the ownership of Ilva can be transferred to a committed owner that will bring it up to EU standards, and a commitment can be made by the local, regional, and national governments to begin remediation of ground and water contamination, the city can realize a vibrant future. It has the natural location and resources to be a leader in the green economy and the historical and regional assets to be a destination for international tourism. With financial resources now available from the Italian government's recovery fund, limitless technological advances available for all sectors of the local economy, and consistent leadership from the public and private sectors, Taranto has the potential to be an international example of sustainable practices in manufacturing and energy that lead to a new reality and perception for the future.

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# Overdependence in Silicon Valley on the Technology Industry



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**Abstract** The purpose of this paper is to use the Audretsch framework to analyze the Silicon Valley economy in relation to place. A thorough literature review was conducted regarding its socioeconomics. Looking through the lens provided by David Audretsch, in his book “Everything in Its Place, Entrepreneurship and the Strategic Management of Cities, Regions and States”, (Audretsch, 2015) it was concluded that although a quick look at the economic numbers shows a robust economy, closer investigation reveals that several factors exist that currently render Silicon Valley vulnerable to economic collapse. In this paper, the following four problems have been identified, analyzed, and fitted solutions for each have been offered. (1) The industry is composed of high-risk startup ventures that tend to be volatile in nature, over-valued by investors and with a high rate of failure. (2) The high-tech industry does not create a high number of jobs, but rather high levels of wealth for relatively few people. (3) The possibility of a negative effect due to several external threats which are developing may affect the high-tech industry. (4) The non-tech, middle-wage industries such as manufacturing, construction, transportation, and consumer products are underdeveloped in the area and lack competitive innovations.

## 1 Introduction

In Silicon Valley, innovation coupled with hard work is the norm. “Work precedes perk” is the sentence which sums up how major Silicon Valley companies attained success. (Nieuwhof, 2017) Former firms that rose to power like Amazon, Alphabet,

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Microsoft and Apple pose as guiding examples for upcoming entrepreneurs and act as sources of knowledge. (Cantner et al., 2021) People believe they can make a dent in the universe. With this mindset, leadership is what generates and implements a vision which is linked to strategy. The greatest danger of leadership is isolation. This may be one reason why Silicon Valley is so prosperous: Everyone has the opportunity to surround themselves with innovative people. Silicon Valley is often cited as a role model for flourishing economic performance. The Covid-19 pandemic did not startle the valley as much as it did other regions. Even though there were noticeable consequences in terms of employment, the unemployment rate returned to pre-pandemic rates at the end of 2021. Starting in mid-2019, nearly 18,500 jobs have been added until today. (Joint Venture Silicon Valley, 2022) Understandably, regions around the world are envious of these economic numbers, and more than a few are mobilizing to create similar successes within their own communities. The Midwest region of the United States is one such area, known as the “Silicon Prairie.” (Bereitschaft, 2019) However, there are other factors that influence the economic performance of a place. Indeed, one might argue that the factors used to measure economic performance, particularly in the case of Silicon Valley, may warrant re-examination. As its economy evolves, observers note that the area overall is becoming ever more dependent upon the tech industry alone to maintain its economic status and ensure economic growth. Some economists question whether the Silicon Valley tech industry is as invincible as it seems. Over the last several years, some economists have described its economy as a bubble that is about to burst much like the dot-com bubble of the late 1990’s. (Wright, 2018) Given the lack of industrial diversity and a waning middle class, is the economy of Silicon Valley at risk due to its over-dependence on a tech industry that many economists describe as volatile and warn to be unsustainable? Through a comprehensive literature review and analysis of existing data, this paper will explain the current economic vulnerabilities of Silicon Valley. Four factors contributing to the economic vulnerability of Silicon Valley will then be introduced and analyzed in detail. These factors include: (1) the over-valuing and volatility associated with Silicon Valley startup companies, (2) the relatively low number of jobs created by the high-tech industry, (3) the domestic and international external threats faced by the tech industry today, and (4) the lack of innovation and development of robust, middle wage industries within the region.

## 2 Problem Analysis

The following section focusses on the analysis of potentially problematic aspects of the Silicon Valley economy. After a short description and a general overview, the framework by Audretsch (2015) is used to deepen the analysis.

## ***2.1 Methodology and Data Description***

To describe the organization and structure of Silicon Valley, various sources have been analyzed. The Silicon Valley Institute for Regional Studies, a component of Joint Venture Silicon Valley, a non-profit public-private partnership based in San Jose, operates a website on which it provides information on the people, economy, society, place and governance of the region. Although the quality of the statistics seems reliable, there is interesting data missing; for example, how many new ventures were created in the Silicon Valley region compared to the state of California or the whole US. Also, figures for the GDP of Silicon Valley are not included in the index. Other sources of information such as Investopedia and Handelsblatt, the well-known German publication of business news have been accessed to obtain GDP and other significant data related to Silicon Valley. Development of solutions to address the stated problem were informed by a variety of local and national U.S. publications as well as several German and Italian sources of information.

## ***2.2 Analysis of the Region in Terms of Factors of Production, Spatial Organization, Structure, and the Human Dimension***

In the following chapter, we will analyze the regional Silicon Valley. In this regard, we focus on factors of production, the spatial organization as well as the structure. Lastly, we will examine the human dimension.

### **2.2.1 General Overview**

The area of Silicon Valley covers 1854 square miles. The population, as noted in the 2022 Silicon Valley Index, is estimated at just over 2,6 million with an average earnings of \$169,894 in its three distinct counties Santa Clara County, San Mateo County and Alameda County. Silicon Valley can rely on a diverse group of people, with 37.9% being foreign born. At first glance the economic numbers for the area look remarkable. Per capita income has reached an all-time high at \$128,834, benefitting from a combination of the income gains in combination with a slightly declining population. Also, indicators like the unemployment rate, which soared to 12% due to the pandemic, had stabilized to a mere 2.9% by the end of 2021. The poverty rate draws the same picture with an overall rate of only 5%, compared to the national value of 12%.

However, despite these seemingly positive numbers, income disparity among racial and ethnic groups is significant. Residents with a Hispanic or Latino background make as much as 64% less than similarly educated white residents. For African American and Black inhabitants, the average wage is nearly half that of

White residents. (Joint Venture Silicon Valley, 2022) The economy of Silicon Valley is heavily dependent upon the technology industry for nearly all its positive economic values and can be considered as a bottom-up ecosystem. (Colombo et al., 2019) As history has demonstrated before, for example, the booming Detroit auto industry of the 1960's and subsequent crash during the 1970's, one should take heed when a place becomes singularly dependent upon only one industry for its economic well-being. While the technology industry in Silicon Valley does continue to grow, the rate of growth is slowing, and volatility within the industry remains high. Indicators signaling the existence and vulnerability of an overly inflated tech bubble are on the rise. In addition to this, manufacturing jobs are vacating the area due to the extremely high personal and financial cost of living and doing business in Silicon Valley. As manufacturing jobs become scarce, so too does any resemblance to a stable middle class of workers. The quality of life in Silicon Valley has been downgraded due to the critical shortage in housing, an inadequate transportation infrastructure and the cost of living which is far exceeding the increases in wages and the inflation rate.

## 2.2.2 Factors of Production

The current situation of Silicon Valley's available factors of production mainly contributes to the problems faced right now in Silicon Valley. It has been observed that the whole region is significantly focused on the technology industry. This focus is reinforced by established businesses in the area, investors, local universities and by the general population overall. The already mentioned "venture investor bubble" (Gasiorek, 2016), that is created through an abundance of capital from venture capital firms in combination with a lack of marketable and sustainable startup ideas, is leading to a high number of startups that fail after a short period of time.

When looking at the factors of production in general and its bias towards the technology industry, many experts are talking about a "lack of [diversified] resource allocation" (Golomb, 2014) in the Bay Area. This problem is driven further by the success and growth of tech companies like Alphabet and Meta. It entices many new startups to enter the tech cluster. With large amounts of Venture Capitalist funding, the increase in unproven startup tech industries accelerates the process and risk of a bursting bubble due to an even more growing dependency on tech companies alone.

Physical resources in and around the San Francisco Bay Area include wind, sun and solar power, timber, water and hydropower. (Bliss, 2022) This may sound like a broad variety of dispersed resources, but the problem in the region of Silicon Valley is, that due to a lack of space and high costs for land in the center of the Bay Area, these resources can basically only be fostered in areas far removed from Silicon Valley. Furthermore, the California water system seems to be especially negatively affected by global warming. (Vicuna & Dracup, 2007)

Another crucial important element to be considered for economic development is physical capital. Typically, physical capital refers to "large scale factories" (Audretsch, 2015, p. 127) of which there are only a few in Silicon Valley. The

extremely high cost and scarcity of real estate makes development of physical capital nearly impossible, even though there is no shortage of financial capital. The main sources for this are private equity firms, venture capitalists and angel investors. The continued overflow of new financial capital, which is in great part focused on the tech industry alone, stretches the existing economic bubble in the tech industry evermore, increasing the risk of the bubble bursting. In 2021, there were approximately four billion US-Dollars invested in California, while the rest of the United States received around two billion US-Dollars. Furthermore, the number of Silicon Valley and San Francisco companies which received Angel investments has more than doubled in the past decade, reaching 990 invested companies in 2021. (Joint Venture Silicon Valley, 2022) This indicates a tremendous allocation problem in invested capital and gives evidence to the fact that with incentives to reallocate the capital into more business fields that are diverse and rather uncorrelated to the technology industry, there is still huge potential for economic development that can be achieved and along the way create a more reliable, sustainable, and long term oriented economic base for the region.

In the years before the pandemic, patents from Silicon Valley were mainly originating in technology related fields like computers, data processing and information storage or communications. Little emphasis was given to other business areas. Furthermore, the number of patents declined by 14% in 2021. This figure becomes even more dramatic when comparing it to the nationwide decline, which only added up to two percent. (Joint Venture Silicon Valley, 2022) To be competitive and enjoy comparable growth and success, non-tech industries need to be granted funding through which robust research and development can be leveraged. The main problem in this regard is a lack of high investments. Without taking this entrepreneurial, albeit risky, leap, small and mid-sized, non-tech companies cannot assure their long-term position in the market.

With the high emphasis on technology, the demand for skilled labor, compared to unskilled labor, is clearly higher in Silicon Valley. Giants like Apple, Intel, Meta, and Alphabet require a huge high-skilled labor force. Over half a million jobs are located in the tech-sector, and 38% of them belong to the region's 25 largest tech companies. (Joint Venture Silicon Valley, 2022) Workers are employed directly from universities or alternatively from smaller startups located in the Bay Area. This leads to a lack of highly skilled workers in startups, which cannot uphold the higher wages that the bigger companies can pay. Those companies have the resources and organizational structure to offer much more attractive jobs.

The fact that nowadays there are companies that are considerably smaller than others, and still make more profit or reach a higher market capitalization, is often allocated to the high human capital of their employees. Microsoft, for example, is much smaller in size compared to General Motors and still has a higher valuation of the stock market only because they compensate for their smaller size by a higher human capital of their staff. (Audretsch, 2015, p. 45) One explanation of this phenomenon is a strong creative class, which is considerably high in Silicon Valley. (Florida, 2003) They form an essential part of the workforce, especially in rural areas. (McGranahan & Wojan, 2007) The available members of the creative class

located in Silicon Valley are mainly concentrated on the tech industry, which is no surprise because the most educated, skilled, innovative, and dynamic people are those in the good positions at the technology companies. The lack of creative class members, working in other industries, is highly correlated with the allocation problem generated in part by universities, developing skilled labor and human capital targeting the tech industry. Effective policies that diversify the economy of Silicon Valley are needed to address these problems simultaneously.

### 2.2.3 Spatial Structure and Organization

Controlling the factors of production in an area is not all it takes for good economic performance – the factors also need to be managed in terms of organization and structure. There are different approaches and theories in the fields of management and economics to assess the market power of firms in a certain region. (Weisman, 2005) There are many valuable and powerful companies based in the Silicon Valley region, such as Apple, Alphabet and Tesla. Due to this high valuation, the market power of these companies is very high, which might lead to a power misuse. There are accusations suggesting, that some of those firms use their “monopoly” power to oppress competitors, exploit corporate tax regulations to minimize the amount of taxes paid or abuse private data. (Elliott, 2018) As an example, the European Commission opened a discussion on Apple’s tax payments in Ireland, which were very low regarding their return in Europe. (Yang et al., 2016) There is also a rising labor union community in the Silicon Valley region, specializing mostly in contract workers, who are paid much less than direct employees. For example, “Silicon Valley Rising” points out, that the contract workers cannot afford to live in the region due to their low wages and the over expensive living costs in the Silicon Valley region. Their aim is to build a solid middle class that can afford to live in the region from their wages. (Silicon Valley Rising, 2022) In contrast to big and powerful companies, the Silicon Valley region is famous for its startup scene. Collectively they influence the economic performance of the Silicon Valley region. Many newly established firms are spin-offs from the big companies. When startups become more mature, lower costs become more important. That is, when the Silicon Valley region gets less and less attractive due to high costs (Zhang, 2003) In conclusion, there is a concentration of power within the region – of huge companies and many new ventures. With a survival rate of only approximately 20% (Luo & Mann, 2011), there seems to be a lack of sustainable growth of firms in the region. This may result in a gap in the middle. Firms either become unicorns or very fast growing and well-established firms, or they die within a short period of time.

### 2.2.4 Human Dimension

The term “social capital” has a high elastic meaning, and its ordinary use refers to the social underpinnings of the relationships among economic entities. “The norms and

networks that enable collective action. It encompasses institutions, relationships, and customs that shape the quality and quantity of a society's social interactions." (The World Bank, 2016). By considering a place, its economic performance is linked to its social capital: The cooperation for mutual benefits is facilitated by distinctive features of social organization such as norms and trust. Silicon Valley is a world of independent newcomers seeking economic fortune, that's why it is said that "nobody knows anybody else's mother there." (Cohen & Fields, 1999). Because of this, a rampant sort of individualism has developed among Silicon Valley's most talented workers. The problem thus arises from the fact that Silicon Valley cannot be presented as a close-knit civil society – which is an important factor needed for economic prosperity. Cohesion is made more difficult by a series of educational, gender and racial discriminations. For instance, women are considered genetically less able than men in the technology sector – that's why they rarely take high-level jobs. (Kenney & Patton, 2003)

A different aspect of the human dimension is the identity and image of a place. The main influential factors for a company's success can be summarized in dominant coalition support, participative corporate culture, the formation of an integrated marketing communication division, understanding the public, persuasive communications tactics, and support from channel members. (Plowman & Chiu, 2007) Silicon Valley has always been seen as an economic wealth engine which is able to provide and market high product quality. As such, one might conclude that Silicon Valley is the perfect land in which to invest to earn money. What is hidden is its fragility in terms of high cost of living. This problem renders the place impenetrable for startups which cannot face the high cost associated with running their business.

### ***2.3 Central Issues Identified***

The following section describes the problem being addressed – namely, the over-dependency of Silicon Valley of the technology industry for its economic stability and well-being. Four subcategories of this over-dependency are described.

1. The industry is composed of high-risk startup ventures that tend to be volatile in nature, over-valued by investors and with a high rate of failure. Arguably the high-tech industry has created its own box from which it lacks a clear view of what other parts of the world deem important and innovative. Furthermore, the lack of diversity within the high-tech industry work force limits the overall breadth of vision when it comes to creating products that appeal to a diversified world populace. "Many of these startups specialize in what initially seems like a cool product or service, but eventually it turns out there is no market for it at a price that creates profitability. At that point, the investor subsidies, which is what keeps startups alive, dry up and the business dies. It happens all the time." (Hill, 2017)



2. The high-tech industry does not create a high number of jobs, but rather high levels of wealth for relatively few people. Historically, new technologies tend to create more jobs- such as the invention of tractors replacing horses and plows which increased jobs and raised the standard of living. (Roser, 2020) However, high-tech companies in Silicon Valley employ relatively few people by comparison to other high grossing companies. While Facebook employs around 58,000 full time workers in 2020, 60% of them in the United States (Eira, 2020), other US-companies like McDonalds and Target accumulate this amount six times over, thereby spreading the wealth and improving the lives of many more individuals. (Levin, 2019)
3. The high-tech industry may be negatively impacted by developing external threats like the US-China tech cold war (Hafeez, 2022) or the burst of the “data/platform bubble” (Cheng, 2018). Also, the unveiling of plans to tax big companies from the United States. (Amaro & Kharpal, 2018)
4. The close mindedness of Silicon Valley. In regard to innovations, non-tech industries such as manufacturing, construction, transportation and consumer products have room to expand, through the leveraging of much needed new ideas. (Paraskevopoulou, 2012) Because the current market power of Silicon Valley lies within the high-tech industry, innovative activities, generated by well-funded research and development departments, tend to be focused primarily in these areas only.

### 3 Problem Solution

The following section will suggest policy solutions for 4 sub-categories associated with Silicon Valley’s over-dependent on the tech industry. The first category of solutions is regarded as high risk and volatility for the numerous startup ventures that are initiated in Silicon Valley. The second category will address the issue related to the low number of jobs created by the tech industry versus the high number of jobs created by manufacturing or “Mittelstand” industries. The third category of solutions will consider policies to mitigate the negative effects of both and international external factors. The last category will address ways in which new ideas can be introduced and leveraged non-tech industries.

#### 3.1 *Solutions for High-Risk Startup Culture*

To reduce the overinvestment in Silicon Valley startups that contributes to the volatility of the overall tech industry, the following 4-part solution is proposed: One approach to addressing this problem is to implement government regulation to mitigate the tendency for venture capitalists to overinvest in startup companies and then quickly abandon them. In Germany, this type of speculation has been addressed

in the housing market, by the implementation of a speculation tax which is applied to real estate sales income that is collected through the sale of the property within 10 years of the purchase of the property. Property owners are thus encouraged to hold on to properties purchased for a minimum of 10 years before allowing the property to be sold. Income from properties sold after the ten-year holding period is not taxed (§ 23 EStG, 2022). A similar process may be applied to venture capitalists investing in startup companies. The desired outcome being that venture capitalists are encouraged to invest long-term in startups, effectively reducing the pump and dump tendencies. Non-sustainable business ideas would not be supported financially because the investing partner will only choose companies in which a long-term interest is warranted. Over the course of the partnership, investors remain involved, trust is fostered, and sound business practices that yield actual profit are developed carefully over time. Investors remain involved for a sufficient period to avoid the speculation tax. In addition to the penalty of speculative investments in the field of tech, an amendatory proceeding would be to foster investments in startups' and mid-sized companies' research and development. This can be executed by tax incentives for investments in alternative fields of businesses.

Apart from support for the investors in non-tech related fields of business, direct financial relief for the companies themselves can also be an effective method of leveraging retarded economic sectors. Public capital to do so can be raised by the speculation tax on short-term high-tech startup investments that we suggest introducing. This way the leverage works in both directions, limiting the risky investments in startups that have non-marketable products that do not solve a societal problem or need, and at the same time reinforce the investments in sustainable, longtime oriented companies that create value for the society by fulfilling an unmet need, creating wealth, and improving employment.

### ***3.2 Solutions to the Low Number of Jobs in the High-Tech Industry***

The high-tech industry does not create a high number of jobs, but rather high levels of wealth for relatively few people. (Roberts & Wolf, 2018) The first proposal to face this problem is to receive government incentives to facilitate the opening of large-scale manufacturing. To increase the availability of jobs, the introduction of a "Mittelstand" (based upon the German example) in Silicon Valley could pose as a possible solution. These incentives might include the creation of land grants and tax breaks. Land grants would be awarded to individuals and companies as incentives to develop unused land in relatively unexploited places. The second solution is characterized by establishing a new public transportation system. In Silicon Valley, one of the most significant problems is the lack of a solid transportation network. It is essential; not just in meeting the challenge of reaching a variety of destinations, but also in improving road traffic conditions, by providing an alternative mode of mass

transportation that is fast and efficient. It would allow employees to work in Silicon Valley and to live in cheaper regions which tend to be further away.

### ***3.3 Solutions to International External Threats Faced by the Tech Industry***

Another problem that the economy of Silicon Valley must deal with is the risk of international external threats faced by the tech industry today. The high volatility of the market due to an over-specialization and overinvestment in volatile startups is highly correlated to the first problem. One imaginable external factor could be the introduction of the European “Datenschutzgrundverordnung (DSGVO)” that created significant problems for many non-European technology firms selling their products or services in the EU. Another issue that can nowadays already be observed is the technological rise of other areas in the United States (Mills, 2021). If those new tech-clusters obtain more and more of the market share, Silicon Valley could lose most of its source of wealth.

Three strategies could be applied: information centers for startups, individual, firm level solutions and reporting requirements for established firms. The first initiative is intended to give startups advice about the risks and provide them with an illuminating insight into existential consequences. They can readjust their strategy and diversify their product portfolio. Another outcome of these information centers is the change in the mindset of the founders from an often very radical view to a more stable and sustainable approach. In general, they only concentrate on releasing their first products and making them well-known. This has benefits and is a key ingredient of an entrepreneurial mindset, but the elucidation from advisors can broaden their way of thinking. Secondly, if one wants to make the whole industry less vulnerable to external factors, one might start at the level of the individual firms. The main goal here is to help firms individually adjust their risk management systems to the risks of external factors that they are often not aware of. These measures include the accumulation of capital in the form of reserves to cover the risks and actions with a diversification effect. The third approach is especially addressed to bigger and already established companies, though it is also intended to support small firms. Establishing a new reporting system with newly developed operating figures, like the ratio of tech-related revenue or the percentage of spending in data security, forces enterprises to accept the risks posed by external factors and prepares them for market corrections and other incidents. For the effective execution of the reporting system, one needs auditing companies to implement the review of these key numbers into their annual audit.

### ***3.4 Solutions Regarding Lack of Innovation in Non-Tech Industries***

Regarding the last problem – the lack of innovations in non-tech industries such as manufacturing, construction, transportation, and consumer products – two solutions are suggested: to incentivize educational organizations focusing on employment in non-tech industries and to promote collaboration in the innovation process between tech and non-tech firms.

One possible approach is to incentivize existing tier three and four education organizations to develop quality education and apprenticeship programs for “Mittelstand” industrial workers, especially in non-tech industries. For the part of the population who do not hold a college degree and therefore are considered unskilled labor, valuable education outside of university can be offered. By taking the German “duale Ausbildung” (dual system) as a role model, people would be taught in a theoretical and a practical way, as they are students and employees simultaneously. In the company they work for, they are educated and mentored by experienced colleagues, whereas in the vocational schools they learn the theoretical foundations of general subjects, but mainly of specialized subjects according to their occupation. Nationwide standardized learning objectives and exams ensure that the degree obtained after completing the education component meets the quality standards required of specific occupations. The tight connection between the companies, the schools, the labor unions, and the government on multiple levels assures that all interests are represented in the development of the curriculum and that the contents are up to date to face current work-related challenges. This kind of education ensures that employees understand the real working environment and that they thereby meet the market requirements (Bundesministerium für Wirtschaft und Energie, [n.d.](#)). The individual companies would profit in different ways: they get well-educated employees who fulfill their individual requirements, they save churn related costs such as initial trainings, they increase the productivity and quality of their products and services, and they take on corporate social responsibility. More importantly, the whole economy of a region would profit in several ways: the demands for highly qualified employees can be met in various industries, the challenges associated with technological change can be faced fast and efficiently, the competitiveness is strengthened, and young people are socially and economically integrated. (GoVET, [2021](#)) The Silicon Valley region would benefit from a well-educated workforce from outside the universities, as they promote innovative activities in Silicon Valley firms and industries other than high-tech.

The other possible solution to the problem could be building a “hybridization ecosystem.” (The idea is that tech industry startups and non-tech industries are brought together to create a symbiotic relationship. One example of how the arrangement might look is the aiti-Park in Augsburg. Initiated by a private-public partnership, the aiti-Park provides different kinds of support, like office space or consulting for startups, as well as the possibility of exchanging ideas and networking. Founders and other visitors profit from the exchange of experiences

and know-how and the contacts they make there. Eventually synergy effects emerge, as well as collaborations in shared projects. (IT-Gründerzentrum GmbH, 2022) Bringing founders and other creative people together in a setting where they can exchange their ideas and come up with innovative services or products could be a chance for the Silicon Valley region to become more innovative in non-tech industries as well. The two possible solutions described above help to promote innovation in non-tech areas, either by improving the education of the workforce or by bringing together innovative people from different industries. Investing in innovation in non-tech industries helps to build a more robust economy in the Silicon Valley region and therefore reduce the region's dependency on the high-tech industry.

## 4 Conclusion

The purpose of this paper is to analyze the Silicon Valley economy. After thorough analysis, one can conclude that while Silicon Valley of California is epitomized around the world as the ideal economy to have, threats to its economic well-being exist, and as such, policy solutions have been offered. Regarding the risky overinvestment in tech startups, it is recommended that a speculation tax be implemented to discourage the behavior of what is known as “pump and dump,” which is currently practiced in the tech startup sector. Concerning the low number of jobs created by the tech industry by comparison to the value of products generated and by comparison to typical manufacturing jobs, it is recommended that a robust infrastructure be developed to create a German-like “Mittelstand” in the area. In support of a strong “Mittelstand” infrastructure and to promote more innovation in the non-tech industries, it is recommended that a “duale Ausbildung” system be applied in the area. These solutions, implemented before the tech bubble might burst, initiate a proactive response to the analyzed vulnerable economic condition of Silicon Valley. Initiating these policies early will allow Silicon Valley to cement its position as an example for many economies around the world, particularly in how to create a strong, stable middle class while encouraging American ingenuity and entrepreneurship.

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# New York City: The Challenges of the American Dream



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and Katharine Wirsching

**Abstract** New York City is one of the most important and influential cities in the world. To many, it is the true embodiment of the “American Dream” – every citizen of the city has the chance to become wealthy and successful, as long as he or she works hard enough. Yet even a city with great amounts of opportunity has elements that prevent its citizens from achieving greatness, and New York City is no exception. With an overall high cost of living, including high price points for education and rent, New York has many characteristics that are roadblocks to social mobility, especially for its most vulnerable citizens. All these combined factors contribute to a relatively high socio-economic divide. The aforementioned high costs of rent and education, paired with high employer demands for skilled and educated workers, only exacerbate the problem. This analysis of the city has also pointed out the necessity of further investments in infrastructure, especially in specific neighborhoods that have poorer populations. New York City may be able to mitigate these issues by improving its social programs, funded by generating more revenue, revising its current tax code, and changing current budget allocations. Of course, as a city within the United States, these changes require strong partnerships between the city government and the state and federal governments.

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# 1 Introduction

## 1.1 Overview

With \$937 billion in GDP and a population exceeding 8 million people, New York City (NYC) is a social, cultural, and economic powerhouse (Research and Statistics Group, 2020). Its economy is the largest in New York State and among the largest in the world. Despite these facts, it is not the state's capital city, which is Albany. The city has quite a diverse economy, as it is home to a wide range of industries, including hospitality, finance, technology, education, and construction. Geographically, New York is strategically located, with borders positioned on the coasts of the Hudson River and the Atlantic Ocean (ny.com, 2020). Five boroughs make up the city's neighborhoods: Brooklyn, the Bronx, Manhattan, Queens, and Staten Island. Most of its residents are renters instead of homeowners, with 70% of its households renting their homes (Research and Statistics Group, 2020). This is due to the fact that prices for land and rent are so high, specifically in areas that are inside or close to Manhattan. Famously, New York City is known for being the home of the quintessential American Dream, where possibilities are endless and the sky is the limit. Yet New York City has struggled recently in the wake of global events, namely, the coronavirus and the Black Lives Matter protests in response to police brutality (Leigh, 2020). Altogether, these factors contribute to burdening a system already overwhelmed by a high population, where the rich get richer and the poor get poorer.

## 1.2 Relevant History

The world experienced a series of economic shocks over the past 20 years; New York City was the center of many of them (Parrott & Moe, 2020). Because of New York's global and political prominence, it received high quantities of funding from the local, state, and federal governments, thus encouraging the city to develop a dependency on government funding. Arguably, the most impactful events on the city during this time period were September 11th in 2001; the Great Recession from 2007 to 2009; Hurricane Sandy in 2012; and COVID-19 in 2020.

On September 11th, 2001, nineteen extremists from Al Qaeda hijacked four airplanes to conduct suicide attacks against targets located throughout the United States. As part of their mission, the men flew two planes into the Twin Towers of the World Trade Center in Lower Manhattan, causing the towers to collapse. Known colloquially as the 9/11 attacks, this attack on the Twin Towers resulted in the murder of approximately 3000 people; the attack injured almost three times as many (History, 2010). From an economic perspective, the 9/11 attacks caused \$83 billion in damages to the municipal economy over the short term, with greater financial implications occurring over the long term (New York City Partnership and Chamber

of Commerce, 2001). Naturally, the attacks also caused job losses in great numbers, with 125,000 jobs lost in the third quarter of 2001 alone.

Eight years later, New York City endured another global economic shock with the onset of the global Great Recession (McMahon, 2020). Lasting from December 2007 to mid-2009, the recession was catalyzed by the collapse of Lehman Brothers, a global financial services firm. As a nation, the United States strained under the weight of the recession's ripple effects, including a 10 percent unemployment rate, a collapse in housing prices, and the crash of the stock market.

Hurricane Sandy was a natural disaster that rocked the Eastern Seaboard in 2012. Over a two-day period, Sandy killed 44 people, destroyed 300 homes, decimated infrastructure, and left hundreds of thousands of New Yorkers without power (Office of Management and Budget, 2020). Many citizens were left without food, drinking water, healthcare, or shelter. Over 69,000 residents were damaged to the point of being unlivable, resulting in thousands of New Yorkers being displaced. Overall, \$19 billion were reported in losses to economic activity due to Hurricane Sandy.

Like the rest of the world, New York City currently finds itself fighting the global COVID-19 pandemic. According to the Center for New York City Affairs, an applied research institute at the New School, "The current public health and economic crisis far surpasses the personal, psychological, and economic devastation wrought by 9/11, the 2007–09 Great Recession, or Superstorm Sandy." (Parrott & Moe, 2020). Before the pandemic, New York City was enduring one of its most prosperous economic times (Research and Statistics Group, 2020). However, due to its high population density and the fact that it is an important hub on international trade routes, the city has sustained some of the highest infection and casualty rates. Furthermore, the city's density requires individuals to continuously practice social distancing, thereby exacerbating the negative effects of the virus on the economy.

Today, "New York's economy is in a more precarious state than at any time since the 1970s fiscal and economic crisis" (Parrott & Moe, 2020). Looking over the past twenty years, one can observe cumulative negative impacts on the following private sector industries in New York: real estate, tourism, and the restaurant industry. As an added layer of complexity, the federal government has taken a hands-off approach to managing the COVID-19 pandemic, leaving states and cities up to their own devices in the fight. New York has a high infection and casualty rates due to COVID-19, coupled with civic unrest catalyzed by historic police brutality against African Americans and other marginalized populations. Consequently, New York City faces a possible permanent financial decline, especially since it cannot expect to rely on as much funding from the federal government as it has in the past.

## 2 Problem Analysis

Viewing New York City through the lens of a strategic management framework, one can see that it exhibits the following problems: affordability, infrastructure, and a high socioeconomic divide. A lack of affordability stems from a high cost of living

and real estate: real estate has grown increasingly unaffordable in the city, which may discourage young and economically vulnerable citizens from settling in New York. Furthermore, the city has demonstrated problems with infrastructure in green spaces, healthcare, and education. Finally, this high cost of living and infrastructure issues drive a high socioeconomic divide and a lack of social mobility. This creates a cycle of poverty for marginalized citizens. Once entrapped in poverty, citizens often have limited resources at their disposal to escape, thereby preventing them from improving their own socioeconomic statuses and social standing. Thus, the curtain is drawn aside to reveal the true fragility of the American Dream – a concept that is built on capitalism and reflects the ethos that the meaning of life is to make as much money as possible. On the macroeconomic level, New York City is facing a \$6 billion deficit and needs to generate more revenue to tackle these pressing issues (Pearl, 2020).

## ***2.1 Introduction to the Strategic Management of Places Framework***

To survive and prosper, a place must craft its own economic policy unique to its respective place, rather than copying what its global compatriots are doing (Audretsch, 2015). Economic policies are not one size fits all. A policy that generates positive economic development in one place may not necessarily work well in another. Furthermore, these singular strategies that are focused on one driver of economic development are no longer successful in this increasingly competitive and globalized world (Audretsch, 2015). Audretsch proposes a comprehensive framework to drive economic development, built on his own cumulative research and observations from fellow scholars (Audretsch, 2015). This framework is composed of four elements: factors of production and resources, spatial and organizational dimensions, human dimensions, and public policy.

## ***2.2 Factors of Production***

The objective of this section is to highlight New York City's factors of production while introducing a brief analysis focused on the implications of the previously identified problems of the city and supporting these arguments with numerical data.

### **2.2.1 Physical Resources**

New York City has leveraged its strategic geographic location and prominence in the financial world to increase trade with both international and domestic partners. This

has generated positive financial implications for the city and its citizens. The World Trade Organization estimated that the United States of America imported \$2.5 US Dollars trillion worth of goods in 2018, more than any other single nation in the world, which is equal to 43 percent of imports by the European Union (World Trade Organization, 2018). Of this amount, roughly 95 percent of those goods were transported to the United States on ships. Over 80 percent of all international trade traffic along the Eastern seaboard comes through New York City harbor (Forbes, 2011). The strategic geographical position of the city greatly influenced its role in international trade, as it is a critical connecting hub to Africa and Europe, in addition to the United States' eastern coastline (Lipton, 2004). New York City's importance dates back centuries. New York Harbor is one of the biggest natural harbors in the world, and it has been active since before the 19th century.

In addition to the great amounts of trade flowing through the city, New York is also known by many as the financial center of the world, where many of the world's major financial transactions take place (Forbes, 2011). Wall Street has a significant impact on the global economy as the home of the two biggest stock market exchanges, namely, New York Stock Exchange, which has the biggest average daily share trading volume worldwide, and the Nasdaq Stock Exchange, known as the second-largest exchange globally (New York Stock Exchange, 2020). New York City's high level of economic activity has enabled the rich to get richer: nearly one million millionaires live in New York, more than any other city in the world (WealthX, 2019). The London-based real estate firm Knight Frank ranked the world's top cities by how appealing they are to the rich, and New York ranked first, followed by London and San Francisco (Knight Frank Research, 2018). Despite increased efforts to bring more trade into the city, evidence suggests that New York City's prominence in international trade and the financial sector only makes the rich richer and the poor poorer, which only makes the city less affordable to live in while also increasing the already high socio-economic divide.

### **2.2.2 Physical Capital**

Infrastructure spending by the City of New York continues to move in the right direction after years of declining investment. The New York City Council agreed to a budget for 2019 that includes an unprecedented \$52.5 billion in capital spending for the next four years (New York Building Congress, 2019). The defined budget is well allocated, considering the city's goals for the next ten years. The city continues to invest heavily in public schools, housing, resilience efforts, transportation, and parks, with the largest increases in capital commitments earmarked for repairs and upgrades to the city's roads and bridges, as well as the installation of new water mains throughout the five boroughs. Although these investments indicate that the city is both aware and being proactive about infrastructure issues, key indicators, such as wealth and employment distribution, are both indicative that more work needs to be done.

### **2.2.3 Knowledge Generation**

Universities all over the world serve as some of the most important sources for knowledge generation – and, with 181 universities, New York excels in this arena (Wolfram Alpha, 2020). Around 37 percent of its citizens have at least a bachelor's degree (Townchart, 2019). This is even though the cost of attending a university is so high, with in-state tuition costing \$19,306 US dollars per year, which is \$4,899 higher than the average for in-state tuition within other states (CollegeCalc, 2020). As the presented information may suggest, receiving a higher education in New York City is very hard and expensive, especially for individuals who are financially vulnerable and/or live in poorer neighborhoods, who face a steeper climb in social mobility. A second index in support of the importance of knowledge generation is the annual expenditure on R&D per state. New York has one of the highest levels of R&D expenditures, coming second only to California (National Center for Science and Engineering Statistics, 2018).

### **2.2.4 Human Capital and Working Force**

City employment reached 4.55 million jobs in 2018, which is considerably higher than the “pre-2008” period (DiNapoli & Bleiwas, 2019). New York City is benefiting from the longest and largest job expansion since the end of World War II. Over the past ten years, the city has added 907,600 jobs (DiNapoli & Bleiwas, 2020). Focusing on the distribution of employment, one observes that industries in the professional, scientific, and technical services have greater workforces than other industries (New York Department of Labor, 2019). These kinds of industries ask for higher levels of knowledge and skill from their employees, therefore requiring specific and higher levels of expertise and training. Because highly skilled individuals are encouraged to compete and thrive, the employment market is seen as an exigent skill. This stringent requirement for skill, coupled with the difficulty of receiving a higher education for vulnerable individuals, makes it extremely difficult for more and more people to compete in these job sectors. Therefore, these barriers to entry result in higher levels of unemployment and more workers entering job markets in sectors with lower salaries, translating into an ever-increasing high socio-economic divide within the city.

## ***2.3 Spatial and Organizational Dimension***

New York City is one of the most populated and richest cities in the world, and much of its success is derived from its strong and diverse neighborhoods. Administratively and socio-economically, NYC is subdivided into five boroughs that have their own borough councils ruling within the jurisdiction of city government: Manhattan,

Brooklyn, Queens, The Bronx, and Staten Island (Staff, 2019). Despite only covering 1% of land in the United States, New York State surprisingly made up roughly 8% of the entire country's GDP in 2019 (McCamy, 2019). Much of the city's wealth is concentrated in New York City, driven by the city's strategic location and prominence as an international trade partner, in addition to its neighborhoods, whose characteristics make it possible for the city to diversify its means of production and production capacity. As outlined below, New York's composition naturally better enables investors and real estate developers to increasingly make greater returns on their respective investments. This is demonstrated by the high concentration of high-net-worth individuals who reside and invest there.

### 2.3.1 Manhattan

Home to New York's financial, real estate, and technological sectors, Manhattan is the strongest economic district in New York City; it was responsible for two-thirds of all jobs in the region in 2007 (New York Government, 2020). Located in Manhattan, many financial services and corporate companies generate much economic activity: a myriad of financial service companies house their headquarters there, and corporate headquarters took up a share of 520 million square meters of city land in 2013. Thus, Manhattan sustains its role as the economic core of New York City: its workforce is concentrated in these noted white-collar professions. However, the financial and investment banking sectors certainly generate the most productivity when one looks at GDP make-up and return on investment.

Because these corporations and investment banks generate much wealth and simultaneously purchase high-priced buildings as their headquarters, the location of these businesses contributes greatly to the sky-high concentration of wealth on the island. Plus, they capitalize on high levels of education and skill by extensively hiring white-collar workers. With 3.9 million commuters from Monday to Friday, it is sufficient to say that most of New York's subway and foot traffic is drawn to Manhattan. Altogether, the placement and location of these industries centralize both financial and intellectual capital, thereby taking away critical resources from New York's remaining four boroughs.

Known as "Silicon Alley", New York's growing tech sector is the biggest tech hub outside of California (Gallagher, 2015). It has long been home to some of technology's biggest players; the sector is comprised of sub-sectors in tech as well, including computer design and electronic shopping. The high level of investment in tech in New York City has generated trickle-down effects throughout Manhattan and into nearby North Jersey across the water. Most tech sector jobs, amounting to approximately 86 percent, are based in Manhattan (Bram & Ploenzke, 2015).

Another important and wealthy sector based in Manhattan is real estate: in 2015, the total value of New York property was assessed at \$914.8 billion (Manhattan Real Estate, n.d.). StreetEasy, a real estate publication, reports that Manhattan has a history of having one of the highest priced housing markets in the world (McDonald, 2020). In the 2010s, this only increased, with ultra-luxury housing developments

contributing new additions to the skyline and real estate market, building upon what is also known as Billionaire's Row. Over the course of the fourth quarter of 2016, the average sale price of an apartment in Manhattan increased by over \$100,000, but it has since flatlined at around \$1 million; the median amount flatlined at around \$800,000 (Frank, 2019). With rental rates higher than 45 percent, the burden of renting in Manhattan is extremely high on the island (Jones, 2019). This economic development is not without consequences: by allowing real estate prices to increase at unsustainable rates, the real estate industry is building an environment that is simply unlivable for people who are not millionaires. This is demonstrated in trends indicating where people are deciding to live. In fact, more and more artists and middle-class professionals are moving out of the city because rents are no longer affordable (De Blasio, 2020).

In summary, the high concentration of white-collar industry and investment on the island of Manhattan permanently solidifies its role as the most influential and expensive district of the city. It is important to note that it monopolizes intellectual and financial capital, preventing more equitable wealth and human capital distribution across the city's neighborhoods. However, the remaining four boroughs are unique and productive in their own ways, contributing additional value to the spatial and organizational composition of New York City. Plus, having the technological and investment banking sectors based in Manhattan makes it possible for large amounts of money to be transferred between parties at a very fast rate.

### 2.3.2 Queens

As the largest city district, Queens is also the most diverse, with the second highest percentage of immigrants (DiNapoli, 2019). Queens' demographic intrinsic diversity truly sets it apart from the other boroughs, as it is also famous for its food culture, which goes unmatched by the rest of the city and beyond city limits (Staff, 2019). Economically, Queens' job market is dominated by employment related to public service and tourism (DiNapoli, 2019). The first sector in terms of employment is health care and public services: health care is the largest employer, with 105,200 jobs in 2017 (nearly one-fifth of all private sector jobs) and an average salary of \$46,200. The sector has added 29,100 jobs since 2009 (an increase of 38 percent), which is more than any other sector. As a growing job sector, health care also offers a nice living wage for inhabitants of Queens, who have a relatively lower cost of living and are typically more middle class. According to its economic report, much of Queen's economy is also related to transportation and tourism: two of the region's three major airports, John F. Kennedy and LaGuardia, are located in this borough (DiNapoli, 2019). The economic impacts of these airports are significant: together, these airports generate roughly \$64.4 billion in economic activity for the greater New York – New Jersey metropolitan region.

### 2.3.3 Brooklyn

The most populated neighborhood is Brooklyn, and its economy is based on construction, services, and high tech. Over the course of the years leading after the Great Recession, the construction sector has grown by a lot, as demonstrated by the number of permits issued by the New York City Department of Buildings, coupled with public and private expenditure amounts (NYC Buildings Database, 2020). With an extensive transportation network, Brooklyn is connected to Manhattan, Queens, and the Bronx through a series of subways, buses, the Long Island Rail Road train network, and three ferry routes. In addition, the borough benefits from major highways and bridges, such as the Brooklyn Bridge. Mayor De Blasio has also put forth a proposal for building a light-rail line that will further connect Brooklyn with the rest of the city – this will run along the water from Sunset Park in Brooklyn to Astoria in Queens.

Brooklyn has its own growing tech sector, known as the Brooklyn Tech Triangle, which encompasses Downtown Brooklyn, Dumbo, and the Brooklyn Navy Yard (DiNapoli, 2018a). With over 1,350 innovative companies, this tech sector is where the largest tech community outside of Manhattan is based, having a strong economic impact on the neighborhood. While it has already grown in financial capital from \$3.5 billion in 2012 to \$5.3 billion in 2015, that growth is projected to grow even more so to \$15.5 billion by 2025. Yet even though Brooklyn's tech sector is growing, it struggles to compete with Manhattan in terms of market share. Contributing factors to these challenges include but are not limited to its lack of real estate investment and its lack of a central transportation hub that connects the city and the regions outside of the city.

### 2.3.4 Staten Island

Although it is the furthest borough away in terms of land travel, Staten Island is accessible by ferry and holds the claim of having the most greenery of all the boroughs (Staff, 2019). Furthermore, the island contains many beaches and parks and has a storied history in maritime. Like other New York boroughs, Staten Island also has an entrepreneurial spirit unique to itself. As already mentioned, superstorm Sandy struck New York City on October 29, 2012, causing many casualties and economic damage to both homesteads and companies on Staten Island and elsewhere in the city; however, it had a huge impact on Staten Island. Staten Island's inhabitants turned destruction and tragedy into a certain level of prosperity, which generated a decline in unemployment rates from 9.4 percent in 2010 to 4.6 percent in 2017 (DiNapoli, 2018b). Looking at how those newly generated jobs broke down, the construction sector was responsible for one third of the jobs added in the borough since 2011 (DiNapoli, 2018b). Due to the destruction, Superstorm Sandy created an increased need for construction and repair work; thus, more than half of the new jobs



created in this sector between 2013 and 2014 were because of Sandy. In the two years after the storm, construction permits skyrocketed by 46%.

The borough of Staten Island has also focused on building out its tourism and public sectors, in addition to production facilities. In 2009, Borough President James Molinaro started a program to increase tourism on Staten Island (Harrison, 2012). Comprised of a new website, a video, and printed materials displayed at stations in Staten Island and Manhattan, this campaign showcased the wide variety of attractions on Staten Island. These efforts have helped drive additional economic development on the island, including in real estate and production facilities. One of the key developments is the St. George Waterfront Redevelopment Project, which houses an outlet mall, restaurants, and a new 190-room hotel with views of the city skyline (DiNapoli, 2018b). Large companies have been attracted by this rise in economic investments – in fact, Amazon and Ikea are opening large warehouse facilities on the island. In the five-year period from 2012 to 2017, employment in the leisure and hospitality sectors increased by 19 percent, which was connected to the growth in tourism. Also, Staten Island reported high public sector employment levels, reaching near or over 30% of total employment ((DiNapoli, 2018b). This is reflected in its numbers of public sector employees, with Staten Island housing 39 percent of New York City's firefighters, one-fifth of its police officers, and one-tenth of its elementary and middle-school teachers in 2016.

### 2.3.5 Bronx

Although the Bronx is the poorest borough of the city, it is both rich in cultural diversity and in tourist attractions, to a certain extent. Since 1980, population growth has been driven by an increase in the number of foreign-born residents (DiNapoli, 2018c). Immigrants are a growing presence in the Bronx, and now make up 37 percent of the total population, which is twice as high as in 1980. Immigrants are also a large part of the borough's economic success, making up nearly half of the work force and 60 percent of self-employed entrepreneurs. The Bronx also has several famous tourist attractions, including the Bronx Zoo and the New York Botanical Garden. Both are known far and wide as beloved tourist attractions and receive over 3 million visitors each year. The baseball team, the New York Yankees, are also based in the borough and have played there since it was completed in 2009. The stadium also serves as a home base for other fun events, such as soccer matches, college football games, and concerts. The Bronx is also home to a vibrant shopping district, including but not limited to the Bronx Terminal Market, Fordham Road, Bay Plaza, the Riverdale/Kingsbridge shopping center, and Bruckner Boulevard. Plus, there is also the Hunts Point Peninsula in the South Bronx, an industrial area encompassing 690 acres and housing a residential area of 12,000 inhabitants (DiNapoli, 2018c). Over half of the area is made up of the Hunts Point Food Distribution Center, which provides about 8,500 jobs. With \$2 billion in earnings, it is one of the largest food distribution centers of its kind in the world. Yet, the Bronx suffers from issues similar to those in Queens, Brooklyn, and Staten Island in

that it does not have as much access to financial and human capital as Manhattan does.

## **2.4 *Human Dimension***

This section examines various areas of the human dimension, including poverty, health, high-tech industry and green spaces, and the problems and challenges they present for the New York City region.

### **2.4.1 Poverty**

An important building block on which the other areas of the human dimension build is poverty in New York City. For this reason, it will be worked out separately in this area. Compared to other cities in the United States, New York City has a relatively large number of inhabitants affected by poverty, which is also related to the comparatively very high cost of living (Burdett, 2019). There were 20% of people living in poverty and 46% in near-poverty in 2015 (Mayor's Office of Operations, 2019), where relative poverty is defined as "a condition where household income is a certain percentage below median incomes" (Pettinger, 2019). This disparity has various reasons and effects on the population of New York City. It starts with the children, who must grow up in poverty, which negatively impacts their health and development. This illustrates that socioeconomic factors cause children from low-income families to have a harder time succeeding than those who come from wealthier backgrounds (Gennetian et al., 2010; Magnuson & Votruba-Drzal, 2008).

### **2.4.2 Healthcare Sector**

Another factor regarding the human dimension is the healthcare system. Not everyone in America, including New York City, can afford health insurance, so it can be said that economic differences are reflected in the health system (Dickman et al., 2017). For this reason, some people are not able to take advantage of medical care at all. In 2014, 962,000 people in New York City had no health insurance (New York City Comptroller, 2014). This is a very high number for a rich region like New York City and means that one in eight people do not have health insurance (New York City Economic Indicators). This inequality is not without consequences in terms of life expectancy. In richer districts, people die of very serious, medically incurable diseases, whereas in poorer areas of the city, people die of treatable diseases because they lack health insurance (De Blasio & Barbot, 2017). These conditions are particularly serious when pandemics such as COVID-19 arise. By July 2020, more than 221,000 people had been infected with the virus, and about 22,600 people had already died from it (New York Times, 2020). It is obvious that

lower-income populations will suffer most and be more likely to die from the pandemic because they cannot afford medical care. With regards to health insurance, country of origin and skin color also play an important role. Ferdinand and Nasser (2020) assume that people of color and generally marginalized groups are more likely to contract COVID-19 than others, for various reasons. One reason is the nature of their environment, which means they have less access to things like food, money, or health care. Secondly, people of color often work in jobs categorized as “essential,” where they are at a relatively high risk of becoming infected. In the health sector, there are great differences among the population as to whether people can afford health insurance. This inequality has a strong impact on many areas of a person's life and should therefore be improved.

### 2.4.3 High-Tech Industry

The high-technology industry has grown strongly in recent years and thus represents an important sector of the labor market, attracting both very well-educated workers and people with no technical background (DiNapoli & Bleiwas, 2014). The report by HR&A Advisors (2019) pointed out existing opportunities in the high-tech industry. High-tech jobs concentrate “on the creation and management of high-tech tools, products, systems, and support services” (HR&A, 2019, p.8). As technological advances will have an ever-increasing influence on changes in life, politics, and the economy, people working in high-tech industries must reflect a certain diversity in terms of education, gender, and background to ensure that marginalized groups of the population also benefit from the technologies (see *ibid.*, p. 10). Unfortunately, this is not the case because women as well as people of color and Latinx are less employed in high-tech jobs (see *ibid.*, p. 10).

The education of workers in the high-tech industry also plays an important role, namely, the workers are generally better educated than the overall labor market in New York City. Three-quarters of the workers have a bachelor's degree, as opposed to 36% of the total workforce (see *ibid.*, p. 10). A possible reason for this distribution could be that high-tech companies are looking for potential workers at certain schools and educational institutions where women, people of color, and Latinx are not available, so they lack contact with the high-tech sector and employers find less diversified workers (see *ibid.*, p. 11). Overall, it can be said that the high-tech sector is a very important factor for New York City, from which the region greatly benefits. For the future, with regard to the increasing inflow of this sector, it is crucial that it becomes more diversified so that all population groups can take advantage of the benefits of the high-tech industry.

### 2.4.4 Green Spaces

New York City is a hectic and pulsating city where the world does not stand still. A lot of people live in the city, in small apartments in a very confined space, due to the

high rents. For this reason, it is very important to offer the population a balance in the form of green spaces (Haycox, 2017). With 28,000 acres, New York City is a region with a very large green space and already ascribes great importance to it (Oldman & Hamadeh, 2005, p. 113). As already described in 2.3.1, the high-tech industry will continue to grow and change a lot in all areas. For this reason, it is particularly important to protect nature and offer it to the inhabitants as a way of balancing urban and working life.

### **3 Problem Solution**

#### ***3.1 Policy Recommendations and Justifications***

To resolve these complex and far-reaching issues, it is imperative that the municipal government of the city of New York first forge a stronger relationship with the state government. Notably, current Mayor Bill De Blasio and New York Governor Andrew Cuomo have a contentious relationship that dates back decades (Barkan, 2020). When different levels of government with the same entity have this type of unsure relationship, gridlock occurs, which inhibits effective policymaking, thereby preventing government from making any real impact. Policymakers have observed that this has been the case in the United States, especially in New York City, which suffers from the brunt of gridlock and adverse relationships between the state, local, and federal governments. Both before and while in office, Mayor de Blasio and Governor Cuomo have continuously clashed with President Donald Trump on a range of topics, who constantly targets the city and its leaders in a series of venomous tweets. Yet, by leveraging a stronger, strategic partnership, the state and local governments of New York will be able to work together to rewrite the tax code, which will, in turn, generate a greater revenue surplus. Changes to the tax code will be statutory-enforced and bolstered by city policy. As a result of state and local governments working together, New York City will rise from the ashes as a more vibrant city – despite, not because of, its relationship with the federal government.

Already, New York City has access to a strong baseline of revenue surplus due to the wave of protests that have swept the nation in response to rampant police brutality against African Americans. With the largest police force in the country, New York City has responded by cutting 1 billion US dollars from its budget for the New York Police Department (Sgueglia & Andrew, 2020). In addition to this cut, the council has made 484 million US dollars in additional cuts while reallocating 354 million US dollars to other agencies for their use. The city council explained in a statement that their intention in making these budgetary changes was to divert city funds to agencies better suited to solving the problems that the police force often faces, such as finding homes for homeless individuals and responding to urgent mental health crises. This new and approved budget also includes 162 million US dollars in cuts secondary to policing and 500 million US dollars in reallocations from

the department's capital budget to other city infrastructure that is in critical need of updates.

Additional revenue can be generated by implementing more progressive tax policies that target the wealthiest residents, including stronger estate, corporate, income, and business taxes. Approximately 92 percent of New Yorkers agree that the richest New Yorkers should be taxed heavily, according to a poll issued by News Day (Pearl, 2020). Policies known for taxing the rich currently on the table include but are not limited to a wealth tax that targets billionaires by assessing each billionaire's capital gains from year to year. Other options consist of a targeted income tax on multi-millionaires and a targeted sales tax on luxury goods, such as mega-yachts and private jets. Some of these targeted policies are surprisingly supported by millionaires, such as Patriotic Millionaires, a public policy group composed of millionaires in support of promoting social equity through progressive taxation. Fiscal mechanisms, such as bonds, debts, and private investment, could also serve as financial mechanisms for these policy recommendations.

One policy that seems to have generated popular, bipartisan support is a particular policy proposed in a poll by Hart Research Associates (Slattery, 2020). The policy suggests implementing a 2 percent state wealth tax on billionaires; increasing the state income tax on individuals making over 5 million U.S. dollars annually; and creating a novel property tax on luxury homes and apartments that are both assessed at 5 million U.S. dollars and above and do not qualify as primary residences. Regardless, any of these policies would be a good fit, as long as they are sufficient in funding the aforementioned policy recommendations and are backed by bipartisan support. Garnering support for this policy from both sides of the aisle is important – otherwise, policymakers can be accused of encroaching on the American Dream, which is heavily couched in capitalism.

In order to help tackle the aforementioned issues, the municipal government should improve its public-housing housing program (New York City Housing Authority, 2020a). The New York City Housing Authority is responsible for ensuring that all economically vulnerable citizens have an affordable place to live. The agency serves a far-reaching spectrum of constituents through both its housing programs and senior and community centers, in addition to its educational workshops on financial management (New York City Housing Authority, 2020a, 2020b). This is especially important during a global crisis, when these citizens are more vulnerable to contracting the coronavirus due to their unstable housing status and other socioeconomic factors. The agency, however, has a long history of corruption and cover-ups when faced with questions from federal overseers (Ferré-Sadurní, 2018). New investments in the agency would include an impartial political oversight board, staffed by citizens who get assigned that role through a lottery process, similar to the jury process. From a private sector perspective, the local government should put in place subsidies and tax breaks for landlords to finance new investment and as part of revamping the tax code. This will incentivize landlords to participate in the public housing program, as the subsidies will prevent them from losing revenue from renting at the public housing rental rates. Simultaneously, rental caps that are enforced by local statutes should be put into place for renters who are vulnerable

citizens. As highlighted in the analysis, New York City has a strong and vibrant private sector; by taking the lead through policymaking, the city government can work with private actors to change the public housing situation.

As previously stated, the high-tech industry will have an increasing influence; it is important that all population groups can benefit from it (HR&A, 2019, p. 8). As there are already different levels of access to education, it is essential to change this and give everyone the same opportunities to work in the high-tech sector, thus bringing about changes that will affect all communities (see *ibid.*, p. 8). This requires all employers and training institutions to work together and try to reach different people to look for potential workers in different schools, not just in target schools (see *ibid.*, p. 10). Another possibility would be to establish a central network that would enable people who are not in bachelor's degree courses to establish contact with the high-tech industry (see *ibid.*, p. 11). It is essential to show the progress in recruiting different people in a transparent way, which could be achieved by a platform where all data is summarized (see *ibid.*, p. 11).

By generating more revenue, the city government will also have the financial capacity to devote more of its budget to investing further in green spaces and parks. Presently, green spaces vary from neighborhood to neighborhood in terms of quality, accessibility, and upkeep. Policymakers must also constantly search for the delicate balance between creating more green space and building sufficient housing for the citizens of its congested city (Haycox, 2017). Presently, funding for city parks has become increasingly limited: the city plans to make 61.3 million US dollars in cuts to the city budget for fiscal year 2021. At the same time, these cuts will essentially kick the city parks while they are down, so to speak, as they are also suffering financially due to protected losses because of the coronavirus.

The benefits of living near a park for city residents simply cannot be understated: green spaces provide a space for people to take a break from the high-stress, fast-paced life in the city. Parks are a welcome resource of temporary serenity for New Yorkers, as dwellers of urban centers have a higher risk for developing anxiety, depression, and other mental illnesses in comparison to their counterparts who do not live in cities (Haycox, 2017). Living near and/or going to a park has been shown to be a low-cost semi-antidote for reducing symptoms. For these reasons, parks have historically been a policymaking priority for politicians: New York City places in the top five of the most congested American cities that make park access attainable for residents, according to the Trust for Public Land, a national park conservation nonprofit. Specifically, 80% of New Yorkers currently live in close proximity to a public park.

Parks also have big picture implications at the societal and economic levels. By visiting parks, people are getting together to generate more creativity and innovation, thereby generating positive ripple effects for their work and the economy. City parks are one of the few venues where it is easy for residents to practice social distancing, a public health measure used to combat the coronavirus, whereby people are required to keep six feet away from each other. The news publication, NY Curbed, describes the additional environmental and public health benefits of visiting city parks: "Urban green spaces help pull tons of carbon dioxide from the atmosphere, lower

temperatures, and mitigate the effects of climate change overall. And aside from providing the kind of open space necessary for social distancing in public, parks are also spaces to cool down during warm summers and heat waves, which affect the elderly and low-income communities the most” (Haycox, 2017).

If policymakers fund the establishment of more parks, people will be able to gather in more meeting places where it is possible to gather for free. This is a true rarity in a city where any type of extracurricular activity comes at such a high cost. Some options for new parks include but are not limited to community gardens, parks, outdoor community centers, and vertical and roof gardens.

While increasing the city’s affordability and generating more free green spaces to gather certainly helps decrease the high socioeconomic divide, further investments in studying budget allocation and education must also be made. As mentioned earlier, the city offers a wide variety of universities in which to enroll – however, the cost of attending both public and private institutions is quite high, especially when taking the high cost of living into account. Investing in education to drive down the cost of tuition, specifically for low-income students, will democratize education. Investing in a study will also guide policymakers in making wiser decisions moving forward when it comes to investments, especially when it comes to the distinctions between neighborhoods.

### **3.2 Counterarguments**

Counterarguments to the proposed solution include, but are not limited to, the fact that New York City falls within the jurisdiction of both New York State, which, in turn, falls within the United States. The first challenge to consider is the actual structure of the government in the United States of America, which is a federal republic of 50 states, a federal district, five territories and several uninhabited island possessions (Federal Government of the United States, 2020).

This structure of government clearly has advantages and disadvantages, especially when it comes to taxation– the United States of America has separate federal, state, and local levels of government, with taxes imposed at each of these levels. This deep distinction between the different levels of government imposes the necessity for a vital collaboration of all parties to find the right equilibrium and implement the reform suggested in the section before.

Modifying the tax code is a double-edged sword, considering that more taxation is needed to fund reforms in the United States, especially when compared with other nations worldwide. But, at the same time, taxation must be tailored to the specificity of the nation, and therefore studies must be done to better analyze and develop a taxation strategy that fits the reforms suggested, while considering the priorities of the nation. Finding a tax code that fits the city of New York is especially important, given the fact that New York City is comparable, both economically and in size, to entire countries worldwide. Because it is a city and remains part of a much bigger nation, its margins of action are not as wide as for other states. Conducting studies as



part of this would be helpful, both at the city and national levels, in order to understand the consequences of the possible implementation of reforms. Those considerations must also keep an eye on the world at large, especially considering social trends and the overall evolution of human social behaviors and habits.

## 4 Conclusion

In conclusion, New York City is an influential, economically strong cosmopolitan city with a long history. It is an attractive city that is a magnet for many companies and talented people. Nevertheless, there is a high socio-economic divide in terms of education, jobs, and places of residence or origin. Measures need to be taken to ensure that even disadvantaged communities have a chance to benefit from the opportunities the city offers. By including under-represented groups, opportunities can also develop for the entire population. For example, with regard to the high-tech industry, which will have an increasing influence on all areas and sectors. Here, the paper suggests that already when recruiting potential workers, care should be taken to reach different people, which means that networks need to be created through which different people can access the high-tech sector. It also recommends that the City of New York's social programs be further developed to provide more budget for programs to improve affordable housing and good education and health insurance for all people. This would require a change in the tax code, which is a lengthy process. More studies need to be developed at the local, state, and national levels to propose further policy measures that would benefit both New York City and the US at large.

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# Dubai: A City of Contradictions



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**Abstract** Dubai is a city of contradictions. On the one hand, it has been home to spectacular economic and population growth for the better part of fifty years. On the other hand, that growth has come despite considerable human rights abuses. Paradoxically, it has been described as a “*centrally planned free market economy*.” The Jebel Ali Free Zone and the artificially built Palm Islands serve as examples of how to combine guided and unguided development. Despite these successes, the choice to build in Dubai at all is an odd one; 31% of Dubai’s population is projected to be underwater by the year 2100. Nevertheless, Dubai’s unique configuration of factors of production, human capital, public policy, and organization contribute to the unique local economic landscape of “*The Gateway to the Middle East*.”

## 1 Introduction

The world is currently facing many challenges. Here, the human being is in demand not only as an individual but also as a collective. This also implies special efforts for single continents, countries, or cities to adapt to the conditions. Therefore, the action of the entities is crucial. In this context, decision-makers have a special responsibility. The aim of this paper is to formulate recommendations for action for a specific entity, in this case, Dubai. These recommendations are intended to counteract the prevailing problems and conditions in a targeted manner.

Dubai’s central problem is its extreme contrasts. Dubai, which is located on the southeast coast of the Persian Gulf and in the Arabian Desert, has enjoyed spectacular economic and population growth on the one hand. On the other hand, much of

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the economic output is provided by foreigners, who are about 85% of the inhabitants, and is accompanied by severe human rights violations (Elessawy, 2018). Additionally, this enormous growth poses environmental challenges not only to Dubai but to the entire nation, such as invasive species, carbon footprint, limited water resources, overfishing, waste generation, air pollution, and land degradation and desertification (UAE Government, 2020). The three recommendations for action we develop in this paper are intended to address local decision-makers and mitigate the dichotomy or contrasts explained above. In the context of the recommendations, climatic problems, education technology, and human rights are targeted and proven to be essential.

## 2 Problem Analysis

In developing the following analysis, we utilize Audretsch's framework (2015) for the strategic management of place.

### 2.1 *Factors in Production*

The city's leadership has successfully diversified into a variety of industries: trade, transport, tourism, and technology. While the world's GDP has grown at a rate of 2% annually for the last half century, Dubai's has grown at a rate of 8% (GDP). A misconception is that it does so on the back of oil exports; this is not true. This was true a generation ago; oil's contribution to Dubai's GDP peaked in 1979 at 60%, but in modern times, as of 2019, this figure is merely 1% (Signé, 2022). Between then and now, Dubai used its considerable oil reserves to intentionally transition away from dependency on exports and to build a sizable sovereign wealth fund; 300 billion USD as of 2020 (Statista, 2021). Physical resources are scarce; natural beauty is the most prominent. Tourism, built on this natural beauty, is aided by the existence of golf courses, beaches, the tallest building in the world, and others. Problematically, only 0.5% of land in the UAE is arable. This means almost all the city's necessities, from people to things, must be imported.

Dubai has intentionally invested in physical capital. The cement roads are modern and capable of handling the city's stupendous population growth, which has quadrupled since 1990. Relative to similarly sized cities, the price of rent is affordable; this is due to city leadership's intentional investment in housing stock (Dmcc). This population growth has contributed to a large stock of both unskilled labor and members of the creative class. Struggles with the treatment of unskilled labor will be discussed in later sections.

It is the ninth-largest port city in the world and has invested significantly in becoming a logistics hub. It is positioned advantageously to serve as a hub for Europe, the Middle East, and Asia. Dubai is also home to some of the most

well-traveled airports in the region. Dubai is succeeding in attracting both the creative class as well as low-skill workers for its infrastructure projects; ninety percent of its residents are expatriates from other countries (e.g., the United Arab Emirates). That said, college enrollment poses a challenge to the development of human capital. Just 1.5% of residents seek a bachelor's degree. For comparison, 5% of New York State residents do so. Since so many in the country are immigrants, Dubai lacks a coherent national identity or patriotism. This may pose a problem in Dubai's future. Additionally, approximately 90% of students attend private schools, the number of colleges has expanded from three to sixty-three in the previous thirty years, and women outnumber men heavily in college enrollment (Davis, 2018).

Dubai has put a considerable amount of effort into attracting the creative class. Five-year long visas, longer than most countries, are offered to entrepreneurs and investors who meet particular criteria (Haine, 2021). In conjunction with their pro-business attraction strategy, they've established the Jebel Ali Free Zone. Twenty-five percent of the city's GDP is encompassed within its boundaries. Within, companies enjoy no corporate or income tax, no limitations on the use of foreign workers, low or no tariffs, foreign ownership of up to 100% of the company, energy necessity subsidization, and support services such as foreign worker sponsorship, dining, recruitment, and security for a small fee (Signé, 2022). The city benefits from this zone, eventually, via the phasing out of such generous benefits over time.

## 2.2 *Spatial and Organizational Dimensions*

Dubai's economic landscape has undergone a substantial transformation in recent years. Dubai's GDP has increased at an annual growth rate of more than 8%. Over the years, the government's focus has been on the creation of a diversified economy. The expansion of Dubai's economy has led to significant improvements in the standards of living of its national as well as expatriate populations through the creation of a multitude of job opportunities.

Dubai's economy depends on the oil sector to a much lesser extent than those of the other emirates, given that its oil reserves are one twentieth of those of Abu Dhabi. For this reason, Dubai has strongly developed the tourism sector over the years and, more recently, is trying to attract information technology companies and, thanks to the creation of the Dubai International Financial Center, finance (Fig. 1).

Economic Framework:

- *From 1975 to 1980:* This period was much influenced by changes in oil prices.
- *From 1980 to 1990:* Due to one of the greatest oil price downturns in 1986, the government decided to start an economic diversification strategy by expanding the non-oil sectors. After the oil industries, the construction sector flourished, going from 19.5 percent in 1975 to 40 percent in 1982. Until the 1990s, the oil GDP was the major contributor to the total GDP. The non-oil sector had its contribution but was quite insignificant. The impact of low oil price periods in

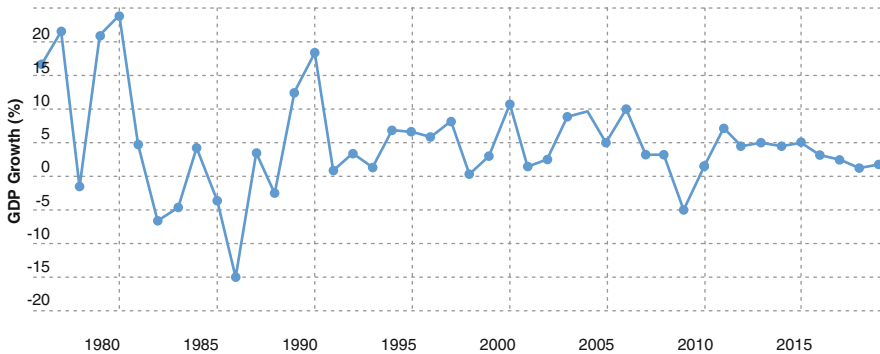


**Fig. 1** Dubai GDP Growth Per Capita, 1970–2020

particular has always been negative in terms of economic growth and severely affects major economic sectors, including businesses being shut down, unemployment, major investment projects being left uncompleted, and much more.

- *From 1990:* Currently, the government has set objectives for developing the research and development sector, renewable energy, and small and medium enterprises.

There is a high degree of concentration of the major industries “oil and petrochemical industries) in the UAE economy. The World Bank’s findings (2014) revealed that UAE exports are highly concentrated. Exports mainly consist of crude petroleum, refined petroleum, gold, and jewelry and they are quite insufficient to cover the cost of imports done in the region. Moreover, a rentier state such as the UAE that is actively involved in reaping benefits from one specific sector (here, the oil sector) negatively affects and brings about a fall in the price competitiveness of other resources in the economy, especially in the export market. This problem, more commonly known as the “*Dutch Disease*” (an abundance of natural resources impedes economic growth, and thus such natural resources are considered more of a curse than a blessing—Auty 1993; Gelb 1988; Gylfason et al. 1999; Mahroum and Al-Saleh 2017; Matsen and Torvik 2005), is a huge concern for the oil-exporting gulf. Dubai has recognized these threats and made a commitment to economic diversification since the mid-1980s.

### 2.2.1 Diversification through Industrialization

Industrialization is the foundation for successfully diversifying the economy to attain structural transformation, macroeconomic stability, and sustainable economic growth. The industrial sector is the basis for generating employment opportunities for young nationals, raising skilled human capital, and forming better international trade opportunities among the world’s economies. Therefore, for a natural resource-based economy, industrialization and diversification are very closely related.

The process of industrialization was initiated in the economy at the beginning of 1970. In the initial years, heavy investment was made to expand the construction and infrastructure industries. During the oil price upswing, the government also invested heavily in small-scale manufacturing industries such as food and beverages, paper, wood, basic metals, and other such industries that were mainly expanded to fulfill the increasing domestic needs of the economy.

In the past few decades, the government has initiated the following policies to bring about industrial development: Introduction of “industrial strategies.” such as the Dubai Industrial Strategy, as a part of the Dubai Vision 2021 diversification plan. The Vision 2021 plan aims to “*establish a diversified, sustainable, knowledge-based economy that encourages small enterprises and investment initiatives into the global economy to increase the industry contribution to the GDP by 25 percent by the year 2025*” (Vision, 2021). Another important strategy for industrial sector development is the construction of industrial cities. With oil accounting for just 2% of the GDP at present, as opposed to 55% in 1981, Dubai is far more diversified than neighboring oil-dependent economies (Moussavi and Aghaei, 2013).

## 2.2.2 Composition of Key Sectors

Clusters are defined as geographical concentrations of interconnected companies that gain a performance advantage through co-location. Even in the modern digital age, firms located in the same geographical area are more likely to enjoy higher productivity and profitability than those located far from it. This is due to factors such as larger economies of scale and scope, reduced transaction costs, the potential for cooperation, trust, and knowledge sharing, access to a skilled labor pool, and sharing a common culture and a collective identity.

Since the mid-1980s, Dubai has embarked on creating clusters, in the form of special economic zones (SEZ), that provide both business-friendly policies and world-class infrastructure. These clusters have helped Dubai attract foreign investment and have been a fundamental basis for economic development and diversification. As a result of creating these tax-free SEZs, which offer 100% foreign ownership, tax exemptions, reduced red tape, and no restrictions on capital repatriation, a great deal of foreign capital has been invested in Dubai (Soto & Haouas, 2012). The economic diversification strategy adopted by Dubai focuses on transforming Dubai into a trade, logistics, financial services, and tourist hub for the region. By developing infrastructure, pursuing liberal policies, and creating a favorable business environment, it attracts massive amounts of foreign investment, estimated to be around 8 billion USD per annum (Dubai FDI Monitor, 2015). In essence, Dubai views foreign direct investment (FDI) as a key catalyst for competitiveness and economic growth to stimulate non-oil economic activities. Dubai, as did Singapore and Hong Kong, initially committed to developing an “aerotropolis” or airport city (Kasarda and Lindsay, 2011). Dubai has, however, the potential to further emerge as a “transitropolis”—a major multi-modal commercial and transport hub. What is needed, according to several interviewees, is more cooperation between



the different SEZs, which in turn should provide a transparent regulatory environment that fosters cross-SEZ business dealings.

It is important for the various SEZs to work on improving interaction. While cluster development policies understandably focus on building an accommodating physical infrastructure for co-locating firms, it is dangerous to overlook functional processes such as communication and interaction that will underpin successful growth. Another potential benefit of improving cross-SEZ linkage is the elimination of regional disparities. Unlike the case of Singapore, the different SEZs in Dubai are managed by different government entities. This can detract from the need to adopt a holistic view of regional development. To conclude, some of the existing SEZs act mainly as re-export hubs. There is a need, therefore, to encourage local companies to offer a wide range of services that go beyond simply importing and exporting, which are low-value-added activities. Presently, many of the SEZs in Dubai are still embryonic clusters, which can be largely attributed to a weak funding environment for foreign SME that are discouraged from securing finance without a high interest rate or burdensome collateral requirements. The weak level of indigenous human capital poses a limiting factor for future economic growth, and the low level of numeracy means that there is a lack of skills to interpret and use the data in meaningful ways. Skill gaps exist in terms of both the domestic talent production pipeline and the quality level of talent that Dubai attracts. The capability to attract and retain talent is often considered a success factor at the level of both industrial clusters and cities.

### 2.2.3 Small and Medium Enterprises (SMEs)

These are the backbone of Dubai's economy, representing 95% of all establishments in the Emirate. These SME businesses account for 42% of the workforce and contribute around 40% to the total value added generated in Dubai's economy. The government has a high focus on enhancing the contribution and performance of the SME sector to make these businesses comparable to their counterparts in other developed and high-income nations. The public policy initiatives that support Dubai's SMEs are as follows: start-up subsidies, procurement support, start-up advisory and business planning support, entrepreneurship trainings, business incubators, business licensing support, financial advisory services, and government credit guarantee schemes (SME, 2013). The results of the study *Gender differences in entrepreneurial attitudes and intentions: the case of Brand Dubai* (Ahmed, 2019) show that there are no gender-specific significant differences between men and women in entrepreneurial attitudes and intentions (i.e., opportunity, profitability, social, risk taking, responsibility, supportive, personal environmental, and entrepreneurial intentions). These results clearly suggest that both men and women are equally likely to emerge as entrepreneurs in Dubai. One implication of this is that the government of Dubai should continuously give more attention to women's entrepreneurship as government policies can promote Emirati women's entrepreneurship. The government and other agencies like banks can provide entrepreneurial

facilities for more men and women to take up the entrepreneurship route of self-employment, wealth and employment creation, and self, national, and international development. Educational institutions can play an important role in fostering students' interests in entrepreneurship by providing "hands-on" entrepreneurship education and training as a part of business curricula. There may be exclusive entrepreneurship courses in universities and colleges, leading to degrees or diplomas. The main policy suggestions that follow from the study are that in view of the good entrepreneurial impulses among Emirate women but their underrepresentation in the entrepreneurial class, the enlightened and concerned leadership of the Emirate of Dubai needs to strive for more women's representation in entrepreneurial ventures.

#### **2.2.4 Immigrants**

The state imports expatriate labor while discriminating based on the country of origin. Coupled with weak workers' rights, this means the Gulf countries have imported at the wage level of their poorer. Dependence on expatriates has reached levels not seen anywhere else in the world. Essentially all blue-collar jobs are filled by expatriates. Most nationals are employed by the government; a few are in the private sector, and a few are in white-collar occupations. There will always be foreigners willing to take employment in the Gulf, notwithstanding the oppressive working conditions. Expatriates are interested in remitting their incomes to families in their countries of origin; they are reluctant to plant roots and invest in their host countries, even when this is allowed—and normally it is not. Much of their aggregate wages exit the local economy. Expatriates' have income targets and react to increased income tax by requesting higher wages or returning home. There is considerable turnover in the expatriate population. This means that new taxes on expatriates are paid by employers. In the absence of policies to consolidate the expatriate population (policies that all Gulf governments abhor), foreign residents offer an intermediate taxable base. The abundant supply of low-wage workers means investment is attracted to labor-intensive and low-skill activities because labor is cheap—these lines of production do not conform to the broader comparative advantage of the Gulf countries. The longer-term commercial viability of this practice is uncertain.

#### **2.2.5 Environmental Issues**

On a per-capita basis, the UAE's energy, water, and carbon footprints are among the highest in the world, as the hot and dry climate requires a high amount of energy and the import of many goods that cannot be produced in the country. The UAE's freshwater sources are rare. The country resorts to desalinated water produced using excess heat from electricity generation. This practice has a negative impact on the marine environment. Desertification, land degradation, and drought are

concerns. Human activities play a role in desertification by degrading the quality of the soil. Pressure on water resources and urban encroachment on arable land, overgrazing, and the use of pesticides and fertilizers also contribute. This aggravates economic, social, and environmental problems such as poverty, health, food insecurity, biodiversity, and water scarcity. Steps taken to achieve economic and ecological modernization depend on continued economic success. Strategic policies in Dubai preparing for a post-oil economy are characterized by diversification of industrial activities and preservation of the natural environment. Dubai redirects its financial revenues towards sustainability and succeeds in branding itself as economically and financially successful.

## **2.3 *Human Dimension***

Dubai continues to diversify economically, attract migration, grow incredibly, and expand physically. These factors alone are not enough to address the staggering contradictions of the city's current economic success. Strengths and weaknesses in the human dimension underpin and complicate factors of production and Dubai's spatial dimension.

### **2.3.1 *Networks and Linkages***

Again, analyzing the networks and linkages through Dubai reveals multiple complicated layers and contradictions. As an international haven for businesses, the city hosts forums dedicated to building global networks, such as the Dubai Expo 2020. However, Dubai's reliance on cheap foreign labor—especially from India and Pakistan—creates privileged relationships with exploitative labor procurement companies based in the Persian Gulf and South Asia. Looking domestically at Emirati-owned businesses reveals both their preeminence in the urban economy and the value of networks in their success. Ultimately, these indicate congruent but distinct groups that dictate the relevance of Dubai's social networks and linkages based on nationality: Emiratis and expatriates. Today, 50% or more of all commercial activities in Dubai are controlled by Emirati family businesses (Alzarooni, 2021). Historically, family businesses were responsible for almost all activity. The oil discovery and subsequent economic boom beginning in the 1960s began to introduce international businesses, people, and commercial activity. Existing Emirati businesses, along with Dubai, suddenly became incredibly wealthy. With the diversification of the local economy away from oil—which was not owned or produced by Emirati family businesses—these family businesses contribute to the economic resilience of the city (Alzarooni, 2021). Since the 1960s, Dubai has transitioned into a city where only one-fifth of its residents are Emirati, with the rest being expatriates. Still, 95% of the city's businesses are Emirati SMEs (Pai & Moore, 2018). The sheer

number of businesses and the economic power they yield indicate strong linkages between the Emiratis of Dubai, though they are a vast minority in the city.

The other four-fifths of the population are international expatriates. While Emiratis are uniformly involved across social networks, as evidenced by their role in Dubai's economy, expatriates are not always so fortunate. There is a clear divide between expatriates favored by Dubai's international focus and those brought into the city for cheap, unskilled labor. First are those working for MNCs that contribute most (but not all) of the remaining half of Dubai's commercial activity. During the boom since the 1960s, Dubai has changed from a recipient to an investor in FDI—and a tax haven (Martinus et al., 2019). Dubai's location, as discussed earlier, is vital to part of this growth, as is its position in international networks in which many expatriates are involved. Many of Dubai's firms interact globally, a fact only amplified by its role as a world city and tax haven (Martinus et al., 2019). This attracts even more MNCs and, in turn, foreign nationals with lucrative global networks and linkages to Dubai. One key example of this is the elite networks that bind Dubai with China. For the last decade, even before China's Belt and Road Initiative (BRI) brought the nation's economic investment global, Sino-Gulf relations have been improving. Elite networks in Dubai and China have little distinction between the public and private spheres as both are, to a great extent, planned economies (Gurol et al., 2022). As two fast-growing Asian economies are commanded by autocratic regimes, this economic interaction bleeds into social networks. For example, following China's state surveillance model and relationships with Chinese telecommunication companies, Dubai has rapidly increased the use of surveillance technology and AI. This is to meet Dubai's Artificial Intelligence Strategy 2031, which is an expansion of "smart governance," i.e., the integration of governance and technology in government services, taxpaying, and law enforcement (Gurol et al., 2022). These international networks, brought by privileged expatriates, enable Dubai to complete both economic and governmental objectives.

Conversely, almost 40% of Dubai's expatriates are South Asian laborers, mostly from India and Pakistan (Khamis, 2015). Unskilled, they arrive without networks valuable to the Emirati or international elites. This number continues to grow while their social status remains stagnant as, at worst, near-slave labor for massive building projects. As these expatriates have no entry to the elite networks of Emiratis and expatriates privileged by their roles in MNCs and foreign governments, this creates a stark inequality where the access of many Indians and Pakistanis to jobs and individuals outside their immediate social networks is limited. This can be explained at greater length by analyzing the social capital, identity, and image of expatriates in Dubai.

### 2.3.2 Social Capital

Dubai is internationally renowned for its modern downtown: high glass and steel skyscrapers, sprawling suburbs with grass lawns, and artificial islands just off the coastline. The city is alive and growing. International social organizations mirror this

modern image of walking through the city (Audretsch, 2015), but this does not describe the whole picture. Reviewing the social capital of Dubai reveals inequalities faced by expatriates.

A place's successful economic performance is linked to the social capital of its residents (Audretsch, 2015). In Dubai's push to diversify from oil, human capital has been vital. The city has the highest concentration of five-star and five-star-plus luxury properties globally (Brien et al., 2019). This is a consequence of Dubai's tourist-oriented strategy. However, this is at the expense of the humane conditions faced by expatriate workers. Twelve-hour working days, impossible quotas, and diminished rights undergird the success (Brien et al., 2019). This was improving before the COVID-19 pandemic; worker conditions marginally improved as the industry matured (Brien et al., 2019). In the food industry—also staffed by expatriates—the attention to human and social capital has benefited workers. A 2020 study illustrates that management (often Emirati) began focusing on worker training and food and safety. Safety and trust between management and workers increased (Taha, 2020). In the hospitality and food industries of Dubai, both important to maintaining its role as a tourist destination, the improvement of the social capital of the unskilled expatriate class benefits economic performance.

### 2.3.3 Identity and Image

Feats of engineering like the Burj Khalifa and the Palm Islands reflect a city with global social capital. The sleek modernity reflects the best and worst of city development: tall buildings, clean streets, urban sprawl, and environmental degradation. Dubai's image is deeply intertwined with its image as a fast-growing economy.

Significant foreign direct investment, tourism, business, and human capital have been attracted; an obscure coastal village has transformed into a leading global city (Sameh, 2018). Dubai's branding is a success. Economically and politically, the city is stable and growing. Despite social inequality and a repressive political system, the city's brand is resilient. Tourism is benefited by the extensive and improving hospitality and food industries. Public safety is high, and tourists are safe. Dubai is a destination and an image of luxury (Sameh, 2018). Heritage tourism exists; the city houses many UNESCO sites, historic mosques, and an intangible literary and social history. Dubai is a city where few of its residents are from there; only one of five claim Emirati nationality. The city's coherent brand is the result of government action rather than an organic creation. The distinction between populations is so great that primary and secondary schools are de facto segregated based on nationality (Qazi et al., 2019). Arab migrants from outside the Persian Gulf inhabit the city's middle class; they are often skilled in areas other than construction, hospitality, or food. They make up almost 25% of Dubai's population (Akinci, 2020). Non-Gulf Arabs are subject to Dubai's restrictive immigration system, which prioritizes temporary migrant labor from South Asia and international elites with business connections. Despite being middle-class, non-Gulf Arabs are often poorly integrated into Emirati social and economic circles. Even for second- and third-generation Arab

immigrants, they maintain a distinct cultural identity (Akinci, 2020). The experience of Pakistani communities is similar. Though, unlike non-Gulf Arabs, Pakistanis are considered migrant labor, through labor contracts that can last decades. Pakistani expatriates do not often speak Arabic and are often of a lower class. This presents a dichotomy unique to Dubai: the city has one international image while the identities of the communities within are distinct and poorly integrated.

### **2.3.4 Leadership**

Dubai maintains one of the most punitive legal systems in the world. Flogging and stoning are meted out by Islamic courts for moral offenses. Sharia law enjoys preeminence. Though an absolute monarchic system, the legal system operates with some autonomy, representing the religious bureaucracy, while the sheikh—currently Mohammed bin Rashid Al Maktoum (r. 2006)—represents absolute rulership in Dubai (Nurmohamed, 2020). Since business is regulated by the preeminent legal structure, Shari'a law has incredible influence on the economic development of Muslim and non-Muslim businesses in the city. In international trade and arbitration under dispute resolution systems like the DIFC and DIAC, Shari'a courts often preside. This is despite the presence of both civil and common law regimes in free economic sectors specifically designated to attract foreign direct investment in real estate (Nurohamed, 2020).

Sharia courts dictate public policy across Dubai. Despite this, Dubai's bureaucracy experiments with new and unique leadership strategies to improve worker happiness. Leadership positions are often dictated by social connections with the elite; those leaders often adopt task- and diversity-oriented leadership strategies to encourage good employee-employer relations (Mathias et al., 2019). The government of Dubai provides incentive structures to make it into a city that uses online platforms to offer government and private services to citizens (Badran, 2018). This began in 2003, when, even in the early days of internet accessibility in Dubai, government websites began to open and enable citizens to pay for taxes and utilities online. With nearly 100% of Dubai's residents using the internet daily, this increases accessibility to government services today. Ultimately, leadership strategies and Dubai's becoming a smart city operate within an autocratic system, marred by the potential for abuse and the limitation of personal freedoms.

## **3 Strategies**

### ***3.1 Policy Recommendations and Justifications***

Now that the various elements of the analysis have been presented, recommendations are presented and explained below. The first recommendation, outlined in the following section, relates to a reaction to climatic changes. Not only Dubai but also

the entire country faces environmental challenges, such as invasive species, carbon footprint, limited water resources, overfishing, waste generation, air pollution, and land degradation and desertification (UAE Government, 2020). For example, the air pollution concentration was 80% higher than the WHO guideline (Statista 2022a, b). Environmental challenges are a hard truth, a looming shadow hanging in the immediate periphery of life as we know it. The instinctual response we must all embrace to this pending adversity is to adopt a lifestyle that accommodates the future (Sustainable City, 2022). This is due to the exploitation of natural resources, rapid population growth, and high energy demand. In this context, there is an urgent need for action.

An interesting project in this context is the 2015-established Sustainable City, which describes a settlement of 500 zero-energy buildings (Sustainable City, 2022). Here, the strategy of a three-stage approach is pursued: social, environmental, and economic (ibid.). Social sustainability is achieved through an abundance of amenities and community outreach programs, while environmental sustainability is achieved through passive and active design strategies and strategic partnerships with individual focus on each element of sustainability (ibid.). Economic sustainability is fostered by leveraging operational efficiencies and passing on the savings to our residents, as well as through various offerings designed to give back to our community (ibid.). Specifically, these include wastewater recycling, the use of papyrus as a biofilter, charging stations for electric cars, and solar power generation. We propose that this pilot project become the gold standard to strive for. New construction and housing development projects in the region should integrate and follow the three principles of sustainability. A high level of sustainability practice will help curb environmental challenges and improve the city's image in a purposeful and sustainable way. Accordingly, new buildings, whether private, institutional, or commercial, should generate at least as much energy as they consume. In this sense, they can be considered almost self-sufficient. Ideally, the aim is to create a plus-energy building that generates more energy than it consumes. Such a good, verifiable energy balance should be subsidized and rewarded by the state. Thus, the high energy demand of the city could possibly be covered in the future purely by renewable energies. This recommendation is essential because the sea level is rising steadily, and Dubai and the region are threatened by it. Dams or the like are no remedy; therefore, an energy turnaround should be implemented as soon as possible, which is driven by such projects.

### 3.1.1 Strengthen the Universities

According to Statista, the number of universities in Dubai is 12 (Statista 2022a, b). Thus, the density of universities in this city is lower than the regional average (ibid.). The regional averages of universities are only representative within the region and are not suitable for global comparison, as educational standards and classification of qualifications are different (ibid.). However, this still suggests a deficit. Dubai has created a large free-trade zone, the International Academic City, dedicated

exclusively to higher education. The Academic City plays a key role in enabling, developing, and promoting Dubai's position on the regional and global education scale by bringing leading international and regional universities from Australia, the United Kingdom, India, and other parts of the world to Dubai, providing advanced educational facilities, and continuously developing the higher education sector (Dubai International Academic City, 2022). This should be further expanded, and the number of universities should be increased to catch up with the region. In addition, the offshoots of international universities should be encouraged to increase their capacities. These steps are essential to remaining competitive in the war of talents and to training and retaining a highly qualified workforce. Moreover, the Internet and electronic resources are the main sources of academic information (Ahmed & Vinayagamoorthy, 2013). In this context, not only the whole country but also Dubai is considered technologically advanced, and almost 100% of the population uses the Internet daily (Statista, 2021). In general, Dubai was designed specifically for the high-tech sector. Therefore, in October 2000, the Emirate of Dubai opened a technology park called Internet City to attract information and communication technology companies (Horovitz & Ohlsson, 2005). This has allowed Dubai to attract leading companies such as Dell, IBM, and Sony, many of which have established their regional headquarters in Internet City (DeNicola, 2005). Dubai should build on this foundation and push for cooperation between the academic city and the internet city. It is also proposed to bring Internet City and Academic City closer together, as they are currently more than two hours apart by public transport. This would allow corporations to directly train and attract highly skilled workers. For this purpose, the established companies could finance lecture halls or provide certain equipment. In addition, the companies could finance or endow professorships in order to prepare highly qualified employees in the best possible way for the requirements of the globally active organizations. Furthermore, the university can introduce compulsory internships in the examination regulations of specific majors so that students can get to know the companies in a more targeted way. In that way, a win-win situation could be achieved in that the universities could benefit from the financial and structural resources of the established companies, and on the other hand, the companies could recruit the high-potential employees directly from the universities in the form of internships or permanent positions. At the same time, a stronger encouragement of entrepreneurial activities already within the framework of the university could promote the path to self-employment, the creation of wealth and employment, as well as national and international development. Universities and similar institutions should offer special courses and study programs or set up start-up centers to assist those willing to start their own business at every stage of the start-up process.

### 3.1.2 Human Rights

This section ultimately does not contain a clear recommendation, but what is important to all aspects of human capital and the impact it has on all three sectors



of Dubai's performance is its poor human rights record. Any analysis of this place is incomplete without identifying and evaluating this issue. Though Dubai has economically diversified, created an image as a destination city, and witnessed unparalleled growth over the last few decades, one might see it outperforming human rights abuses. Meaning, if the city is doing well regardless, are human rights that important? Without offering a solution—as the framework does not provide the ability to solve human rights issues—this section offers a series of warnings for the future of Dubai's rapid growth because of rights abuses. In the human dimension, especially, Dubai is marred by social inequality. Though not requiring consensus to make decisions, Dubai's autocratic system itself cannot be praised for the city's success; in fact, the system's pragmatic flexibility (i.e., breaking away from autocratic) contributes to its success. Two major examples were evaluated in the leadership section above—accessibility of government resources and free economic zones. While this is innovative governance, it is more a withdrawal from direct control of the monarchy than its success thereof. The creation of boundaries between areas by religious courts and the value of worker happiness in the bureaucracy are significant considering the history of Dubai, as these are relatively new additions.

### **3.2 Counterarguments**

New buildings that are completely self-sufficient are extremely costly. Especially private construction projects might not be feasible for a large part of the population. This is to be regarded critically, particularly with view of the tendentially poorer immigrant inhabitants of the city. For these reasons, subsidies are necessary to prevent construction projects from becoming more expensive, at least for private citizens. Subsidies are not paid out for buildings that are not used by the owner, i.e., for buildings that are to be rented out or for commercially used buildings. Besides, the climatic conditions do not provide an ideal environment for the generation and use of solar energy. The dust and sand of the deserts impede the absorption of light and thus inhibit the efficiency of the installations (Welt, 2022). Thus, there are special expenses with regard to maintenance and repair, as well as guaranteeing performance. However, there may also be incentives for research to develop new coatings or more efficient systems. Despite all possible counterarguments and financial burdens, all in all, this step remains indispensable to counteract climate change and pave the way for a sustainable future.

#### **3.2.1 Strengthen the Universities**

The interference in academic freedom speaks against the strong interlocking of large concerns and education, in the sense of universities. This is achieved at the latest when universities can no longer freely design their curricula or when research directions or projects are dictated. With a strong financial dependence on companies,

this is a justified objection. In this respect, the universities are required to find a healthy middle course in this cooperation, in which the universities, the students, and the companies themselves do not derive excessive benefit from the cooperation, but all profit equally. Therefore, it is important to ensure that the mutual dependencies do not become too great and that universities retain their freedom. Moreover, a move or a spatial convergence of the two cities is not possible from one day to the next and would be extremely expensive. Therefore, companies should try to close the gap between the two cities during modernization and expansion or if they want to set up a new headquarters in Dubai. So that Academic City and Internet City can grow, converge in the long term, and even merge in extreme cases. In addition, the expansion of the universities would be expensive. Since, according to Statista (2022a, b), the density of universities in this city is lower than the regional average and Dubai sees itself as a modern and forward-looking city, this step is crucial.

## 4 Conclusion

Dubai has a unique configuration of factors of production, spatial organization, policy, and human capital. Known for its port city, tourist attractions, the Jebel Ali Free Zone, swathes of immigrant labor, a diversified economy, and a strong small- and medium-sized business sector, these and other factors have contributed to its decades-long economic outperformance of regional counterparts. Looking towards the future, Dubai faces a number of challenges. Being a coastal city, climate change is chief among them; will the city be underwater in the following generations? Secondly, as a city of expatriates with a weak university system, how will Dubai's amorphous national identity contribute to how it handles future challenges? And finally, will the city's leadership voluntarily address the human rights abuses on which the city's infrastructure has been constructed, will international pressure contribute to this decision, or will the cities retain such a remarkable black spot on its otherwise picturesque reputation?

Thankfully, the city is not weak to fluctuations in oil prices; its economy is well diversified. Furthermore, the city is experimenting with climate change mitigation solutions as evidenced by the "Sustainable City project." The country is diligently working to construct more universities to absorb the increased demand for such facilities in the coming decades, but no such obvious solution is being applied to human rights abuses. The future of *"The Gateway to the Middle East"* remains to be seen.

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# Cape Town: Making Progress Possible Together?



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**Abstract** It is crucial for cities to be strategic about their investments and growth to harness the potential of urbanization and make the most of their opportunities. In this paper, we aim to deliver an insight into the array of factors that the city of Cape Town, South Africa, needs to consider, specifically when aiming for sustainable economic growth. The main results delivered by the analysis cover a variety of dimensions, including production, spatial, organizational, and human factors. These concluded main factors of influence are then used as a basis to present four potential policy strategy recommendations, inspired by the Economic Growth Strategy published by the city of Cape Town in 2013. They are specifically tailored toward a reliable infrastructure and transportation system, crisis management in terms of the water shortage, entrepreneurship and competition, as well as the mitigation of the aftermath of the apartheid era in terms of education and unemployment.

## 1 Introduction

Cape Town, the second-largest city in South Africa, is located in the Western Cape, which is one of the country's nine provinces. Cape Town is the southernmost metropolis on the African continent and is a popular tourist destination for domestic and international tourists (Western Cape Government, 2019). It offers numerous tourist attractions, such as Table Mountain, Robben Island, white beaches, and winelands, as well as first-class hotels and restaurants. Cape Town has often competed for premier global positioning as the most beautiful city in the world, alongside destinations such as New York, San Francisco, and Sydney (Sako, 2022). However, Cape Town is also at a meeting point for African problems and global ambitions (PwC Africa, 2022). Its future success will depend on its ability to solve

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long-standing problems at home while keeping up with a rapidly changing world (PwC Africa, 2022). Thus, the city is currently working on a strategic shift from passive service delivery to shared responsibility for mutual success (de Lille, 2014).

We are particularly interested in approaching a city that is currently undergoing change and analyzing whether it is achieving its intended strategic shift. For this purpose, in Chap. 2, we will apply the three factors from the framework to the case of the city of Cape Town. Furthermore, in Chap. 3, we will place our strategic solutions on the results of the analysis, addressing crucial points of action. Based on our recommendations, Chap. 4 provides our counterarguments that must be regarded when following the suggestions, without decreasing the relevance of action. Lastly, Chap. 5 closes this paper by highlighting our most important arguments.

## 2 Problem Analysis

### 2.1 *Factors of Production*

Consisting of the four categories of land, labor, capital, and entrepreneurship, the factors of production are the fundamental building blocks of an economy, which people and companies use to produce goods and services (Urbano et al., 2019). Following this definition, a more detailed description then leads to the categories of physical resources, physical capital, knowledge, and universities, as well as research and development, skilled and unskilled labor, and finally human capital and the creative class.

### 2.2 *Physical Resources and Capital*

Overall, Cape Town now focuses on four economic sectors: finances, manufacturing, technology, and tourism. In particular, two sectors mainly profit from Cape Town's location and the concomitant natural resources: the manufacturing sector and the tourism industry. Considering the former, Cape Town has focused on the production of food and beverages as well as oil generation, together representing more than a third of all export goods in 2021, namely 39.7%. This number shows that the city is able to use its natural resources adequately and efficiently (City of Cape Town, 2020a). Regarding the latter, the tourism sector, the sensational topography and geography, including beautiful beaches, mountains for different types of outdoor activities, unique wildlife, and the UNESCO World Heritage Sites Robben Island and the Cape Floral Kingdom, make up one of the reasons for Cape Town's once being ranked as the third greatest city worldwide. This resulted from a 19-factor study in the newspaper *Telegraph* (United Kingdom) in 2022 (Cape Town Travel, n.d.; Scholtz, 2019). Moreover, tourism institutions themselves aim to increase the city's attractiveness, based mainly on a suitable orchestration of the natural resources

available. For instance, they have launched tourism programs and campaigns like “*Find Your Freedom Travel Experience*,” which is a virtual tour around Cape Town. Also, the new flight connection between Cape Town and New York can be a factor for further gains (Scholtz, 2019).

Aside from that, the two emerging business sectors of energy and technology have been gaining importance and thus have a great potential to further increase Cape Town’s economic success story (City of Cape Town, 2020a). In terms of energy production, Cape Town recently started to keep up with the global energy transition by shifting to the use of new natural resources like copper, nickel, cobalt, rare earths, platinum group metals, and hydrogen (Galia, 2022).

### 2.2.1 Infrastructure

Moreover, the role of a well-operating transport infrastructure should not be underestimated. Except for the enhanced bus rapid transit, which provides one of the main routes to the airport as well as an inner-city line, Cape Town has been severely criticized for unsafe, unreliable, and poor-quality public transportation (City of Cape Town, 2013). Additionally, regarding basic service infrastructure such as water systems, sanitation, waste, and electricity, the city is facing some more significant challenges. Especially due to outdated techniques in connection with the actual growth contours of Cape Town, sufficient supply is rare (ibid.). In most parts, sanitation and safety are only available in areas that can afford privatized initiatives in this regard. Addressing the ICT iNformation, communication, and technology) infrastructure, the city’s government has already started to invest during the last few years by laying 848 km of fiber-optic cable within the city as well as enacting a vast budget to be spent on broadband access (Scholtz, 2019).

Considering infrastructure in combination with natural resources, a closer look at Cape Town’s geographical position clearly shows its strategically good location on the west coast of Africa. Even though the city’s port, which is situated at one on the most important trade routes, counts as the second-busiest port in South Africa, it was only ranked 347th out of 351 in the World Bank’s Container Port Performance Index in 2020. Comparatively low is also the total trade volume (cargo and containers), which was calculated at 16.7 million tons in 2015, thus representing a mere 0.15 percent of the average worldwide annual shipping trade volume of 11 billion tons (Ports and Ships, n.d.). Two reasons for these insufficient performances are the limited area and the lack of storage at Cape Town’s port. This leads to the necessity of outsourcing containers near residential areas, further causing heavy traffic close to many people’s homes (International Chamber of Shipping, n.d.; Valentine, 2021).

Moreover, considering air access, the recent “hub-and-spoke” model adopted by the Airports Company of South Africa has placed a significant threat on Cape Town’s importance as a private and business destination, as many international flights have been routed through Johannesburg instead of Cape Town (City of Cape Town, 2013). Consequently, the city has already started talking measures against this negative development by establishing a new United Airlines connection

between Cape Town and New York City. Thereby, direct and indirect imports via air freight service as well as touristic flights have been positively affected (City of Cape Town, 2020a).

### **2.2.2 Skilled and Unskilled Labor Force**

Even though the two sectors of finance and business provide high-quality jobs, the unemployment and unskilled labor force rates remain relatively high. One reason for that is the educational system, which not only fails to sufficiently educate academics but also fails to teach basic skills like writing, reading, and calculating (Mantell, 2021). The latter finally results in a literacy rate of only 85.2% (XCapeTown, n.d.), which is a very low level compared to an average rate of about 96% or more in developed countries (World Population Review, n.d.). Due to this consequent lack of skilled labor, Cape Town must close the workforce gap by recruiting foreign skilled specialists and researchers in e-commerce, engineering, marketing, and customer relationship management. Nevertheless, offering only well-paid, high-quality jobs is not enough to make them attractive. Preserving its cosmopolitan lifestyle of world-class food and wine, arts, culture, and nightlife is also essential for most external academics to choose Cape Town as their place of residence (Businesstech, 2021; Businesstech, 2022).

## **2.3 *Spatial and Organizational Dimension***

The spatial and organizational dimensions analyze the prevalence of market power or competition as well as the degree of specialization and diversity (Redding & Turner, 2015). Moreover, it takes a deeper look at how the present resources are structured into economic units like clusters and examines the entrepreneurial performance of a place.

### **2.3.1 Market Power**

When talking about market power, we cannot avoid talking about the monopoly structure in the electricity market (Borenstein et al., 1999). Eskom is a vertically integrated monopoly, wholly owned by the state, that supplies about 90% of the electricity consumed in South Africa. In recent years, however, power outages, known as load shedding, have crippled the South African economy. Eskom, whose aging coal-fired power plants generate nearly all of South Africa's electricity, has said it needs additional capacity to secure supplies. Gwede Mantashe, the energy minister, has opened the discussion for independent municipal power generation in 2020, but many have been deterred by the red tape. (Financial Times, 2022).



### 2.3.2 Competition

Micro-and small enterprises play an important role in Cape Town's economy: they account for over 70% of all businesses in the formal sector (Western Cape Government, 2007). The city must therefore create the right conditions for small businesses to grow and succeed. The Competition Commission is empowered by the Competition Act to investigate, monitor, and assess restrictive business practices, abuse of dominance, and mergers to achieve equity and efficiency in the South African economy (The Competition Commission South Africa, [n.d.-a](#), [n.d.-b](#)).

Its objective is to promote and sustain competition in South Africa in order to provide consumers with competitive prices and product choices and to expand opportunities for South African participation in world markets. It also aims to determine the role of foreign competition in the country and ensure that small and medium enterprises have a fair opportunity to participate in the economy. To achieve its purpose, the Commission's main tasks are to take steps to increase market transparency, raise public awareness of the Act's provisions, and ensure consistent application of its principles (*ibid.*).

### 2.3.3 Entrepreneurship

Especially relevant for Cape Town's development is the upstream technology sector, which in 2019 led to the city-region being listed on the 30th rank for becoming one of the potential world leaders in technology (Tostevin et al., 2019). Continuously, the city experiences major private and public investments, such as asset management or venture capital companies, start-up incubators, and technology hubs, which offer mentoring and access to financial support (Scholtz, 2019). In addition to domestic investments, foreign countries like France, with one of its six French Tech Labs being based in Cape Town, as well as companies like Amazon and Microsoft, have started to put money and effort into the South African city (Scholtz, 2019). The impact of all these investments within the field of technology could finally lead to a major lift in innovation and thus the quality and quantity of human capital, knowledge, as well as research and development.

### 2.3.4 Clusters

Cape Town is the undisputed DigiTech center of Africa and a leading location for technology start-ups, venture capital deals, and software companies (Endeavor Insight, 2018). The city of Cape Town, including Stellenbosch, is now home to approximately 550 companies operating in software development, e-commerce, information technology, and many other DigiTech sectors (*ibid.*). Cape Town has established itself as a major technology hub in South Africa, with a number of large companies opening their headquarters in the city. This, in turn, attracts other technology companies.

Furthermore, Cape Town has become the central African destination for film and media productions. Both the South African film industry and international creators have already produced movies there (Film Cape Town, [n.d.](#)). With increasingly more big-budget movies being shot in the city, it is not surprising that the City of Cape Town and the Cape Town film industry have developed a strong relationship over the last decade. This has led to the creation of the F/LM Cape Town initiative. Contributing to the growing film industry is Cape Town's increasing importance as South Africa's digital and new media hub. With 57% of all South African gaming studios being located in the city, as well as a large proportion of the country's animation and design studios, it is the perfect place for innovative stories about under-represented cultures (*ibid.*). There are also several incentives in place that truly make this part of South Africa a filmmaker's dream. From low production costs to favorable exchange rates and many other ways to save money, it's a very attractive location for financing.

## 2.4 Human Dimension

A further key element that determines the performance of a place is the human dimension. This dimension includes aspects such as networks and connections, social capital, identity, and image, as well as the ability to lead.

### 2.4.1 Networks and Linkages

Within every country, it is a priority, or at least it is expected, to have a solidly functioning governmental body to lead its people. Whether that be a democracy, dictatorship, or more, South Africa is a constitutional democracy (Republic of South Africa, [2022](#)). In establishing the basic framework of South Africa's government and taking a closer look at their system, multiple failures arise from having multi-level governance (*ibid.*). Especially concerning the water crisis, one may see how this directly reflects on their government. It is almost impossible to point any finger at a certain level of the government or even to assess which exact governmental body is mostly responsible for the current water shortage (Roberts, [n.d.](#)). In the *"post-Apartheid period, resource management issues have become intensely political in South Africa"* (*ibid.*). This will be further discussed and developed following the paper. It is said that in the context of water provision, it is now settled in this back-and-forth debate of conflicts versus interests. This is reflected directly in their government, which is tailored to *"prioritizing the needs of the most influential (wine farmers, who drive a large portion of South Africa's economy) over the needs of the poorest (residents of informal settlements)"* (*ibid.*).

Currently, there is a constant back-and-forth discussion with the national governments, the city governments, and the provincial governments. It is a common recurring theme to see the mainstream or most common political parties struggle to

work together in various ways. The African National Congress has been said to allegedly be rejecting calls for help from the city as well as the provincial governments in the need and hope for “*increased water infrastructure and a more balanced allocation of resources between consumption and agriculture*” (Roberts, n.d.). This is widely believed to be motivated by political tensions. However, there is often a contradictory story that blames the other level for all claims of failure at one specific level. As one may draw, the intentions of each level are not to actively seek better for their people, but rather it is seen as more of a “*blame game*” and not seeking to cooperate for solutions together (ibid.). With the underlying theme of recurring extreme inequality leading to the cost of social capital.

#### **2.4.2 Social Capital**

Social capital dives into many aspects of any country. While it paves the way for more research and advancement. It is also rich in ambiguity. Social capital taps into not just aspects of the country itself but also the smaller and more social aspects of the people themselves. Giving more insight into the functionality of the country through its people, some aspects may include a simple interaction at a ballgame or an interaction with a professor. Yet as simple as these acts may seem, these acts alone have the power to shape and change whole societies and maintain or break certain regimes (Jooste, 2005). One may look into social capital through a sort of chain reaction argument (ibid.), which is as follows: the more the people have or foster trust in one another, the more they engage, the more they are involved, and the more the community comes together as a whole, the more the people are liable and likely to act tolerantly and cooperate (ibid.). In connection to the networks and linkages, with a society acting, engaging, and cooperating together in a like-minded state, this in turn allows for a sort of democracy to truly flourish. Allowing for an “*embrace [of] the fundamentals of democracy*” (Jooste, 2005, p.1). Also allowing for not only the democratic institutions to bloom but also directly reflecting societies and allowing them to fully prosper as well. While social capital may seem simple as it is seen as a component of everyday life, its ambiguity lies within the definition. There is not one real definition of social capital, as it relays back to where, who, and what you are trying to use to define the term.

#### **2.4.3 Identity and Image**

Brand identity is defined as the supply-side perspective of the brand concept, while brand image is defined as the demand-driven perspective on a destination’s brand (Konecnik & Go, 2008). One thing that sparks tension is not just between the people of Cape Town but also between the people of South Africa as well. Cape Town brands itself much like Augsburg, Germany. A very introspective link as we dove deeper into the culture of Augsburg as well. Much like Augsburg, Cape Town brands itself as an open and friendly state of mind in relation to the country itself.

Augsburg has a flag showing support for the Ukrainian refugees, saying “*Friedensstadt Augsburg*”— meaning “*City of Peace, Augsburg*” (Stadt Augsburg, 2022). What is interesting about these two linkages is how Cape Town’s city logo states “*Making progress possible together.*” Showing how the branding is similar; however, with the current refugee crisis in Cape Town, it is clearly showing they do not live up to their brand.

With “*refugees and asylum seekers still living in two tents in Cape Town after leaving a church in the CBD, they face eviction after authorities say they have done everything they can to help them*” (Evans, 2021). With their disaster management act, refugees were barred from the streets and were forced to move into certain areas with and without tents in most present-day cases. Not only are these refugees struggling to seek asylum, but to be pushed back and evicted from the last few places they had to sustain themselves is cruel. As Scholar Work has stated before, “*Cape Town needs to re-evaluate who they are as the targeted market doesn’t seem to view the destination as it portrays itself*” (Maumbe & Wyk, 2016, p. 11). While also having a huge brand for Cape Town as it has been labeled as the “*fourth most unequal city in the world*” (Roberts, n.d.). Concluding that while Cape Town brands itself as an innovative, helpful, friendly, and unified state, all the outcomes point to the fallaciousness of it all. Priding to be a nation of unity and branding as just that with togetherness. However, the true identity of Cape Town shines through in producing its true image as a result (De Klerk & Haarhoff, 2019).

#### 2.4.4 Leadership

Cape Town may not live up to the brand or image it presents itself as having; however, there has been a clear history connecting the lack of leadership in Cape Town. South Africa was captured by Apartheid for several years before Nelson Mandela became president. The word apartheid means quarantine or separation in Afrikaans (Powell, 2020). Apartheid was a South African racial segregation system enforced by the law of the ruling National Party (NP) from 1948 to 1994. Between 1949 and 1953, the South African legislature passed a series of increasingly oppressive laws. It ended in 1949 with a ban on blacks and whites marrying, dividing the population by race, securing the best public facilities for whites, and providing separate and inferior education. A system for blacks had been created. Nelson Mandela himself was a victim of the South African government and was a political prisoner for 27 years because of his role as a freedom fighter and anti-Apartheid activity (ibid.). With the history of Apartheid, which is still shackling South Africa as a whole, one may draw a correlation as to the lack of leadership. Seeing as when any form of leader stands to speak in support of the people, they are then subject to becoming political prisoners and more.

Mandela also discusses South Africa's first Bill of Rights, the 1923 Bill of Rights (Powell, 2020). This law led to Africa's claim in 1946 and is also the founding principle of the Freedom Charter adopted by South Africa in 1955. According to Mandela, the first line “*provides South Africa with a comprehensive foundation of*

*citizenship*” (ibid.). Mandela exemplifies what these milestones (the Bill of Rights, African Claims, and Freedom Charter) can be: a country where no one is excluded based on race, religion, or gender. These principles argued that Mandela “*designed a democracy that, no matter who the government is, is bound by a higher set of rules in the Constitution and cannot follow the country to govern freely*” (ibid.). With more innovative laws and bills passing, one would draw the conclusion that Cape Town and South Africa are advancing to a period where apartheid isn’t present.

However, the effects of apartheid still remain today. Currently, 25 years after Apartheid, South Africa’s population is more than 75% black and only 9% white (Fogel, 2019). However, the number of South Africans who earn more than \$ 60,000 a year is that of white South African people—twenty times the number of black South Africans. The majority of black South Africans still live in towns and informal housing across the country: most have multiple jobs, little income, and low-quality schools for themselves and their children. There is little access to South African medical care, and there are very few, if any, opportunities to move away from the community. Gentrification in cities like Cape Town also contributes to and exacerbates these serious inequality issues (ibid.). If nothing is done to further end the reign of Apartheid, the rulings, laws, and more from this era, nothing will change in South Africa as a whole. Leading to more of an increase in separation between the people themselves.

## **2.5 Overall Concern: Water Crisis Highly Affecting Economic Development**

When talking about Cape Town, we must mention the severe water crisis that the city is struggling with each year. It is caused by an increase in residents, an insufficient water system, and a decrease in rainfall, and has a great effect on both individuals and the economy of the city. One of the major effects in recent years has been a decrease in job employment. Many fear for their livelihoods; analysts estimate that the water crisis will cost some 300,000 jobs in agriculture and tens of thousands more in the service, hospitality, and food sectors. If employees must take time off from work to wait in line for water, it’s going to have an even greater impact on the economy (Baker, n.d.). Throughout the recent years of drought, Cape Town’s unemployment rate increased significantly, as did the number of people falling below the poverty line. Because of this, people will be unable to buy the essentials they need to sustain a healthy and livable life (Rodina, 2019).

Another effect the water crisis has had on the city of Cape Town is a sharp decline in tourism. “*Tourism is an important economic sector for Cape Town and South Africa at large. The Western Cape attracted around 1.7 million international tourists in 2018 and generated R16.3 billion (about US\$985 million) in foreign spending in 2019*” (Dude et al., 2020). A lot of the revenue that comes into Cape Town comes from tourism. When the water crisis happened, it caused a decrease in

tourism. The decrease had both a positive and negative influence on the town. First, it helps with the number of people using up water. Because there were fewer people coming into the city, the water usage dropped significantly.

But there is also a flip side to the reduction of tourism in Cape Town. Cape Town is built on tourism, and now one of their main sources of income is depleting. With them losing one of their biggest sources of money, businesses had to lay off employees or close down all together. Because of this, now more people are becoming unemployed and falling below the poverty line.

Another effect that the water crisis had on Cape Town was the loss of income from the water tax. Cape Town has in place a tax on water that goes to the government's coffers. *"Lastly, about 15% of the taxes that the city of Cape Town earns come from the water supply"* (Juneja, n.d.). With shops and businesses unable to sell water due to the crisis, the government is unable to collect taxes from the sales, losing 15% of its income. That is a very significant decrease in income.

The final effect the water crisis has had on Cape Town is that everyone has become limited in their water usage. Each individual was only given 13 gallons of water to use each day. With the amount of water a person can use dropping by almost 87%, it dramatically limits what an individual can do. *"We are now limited to using 13 gallons of water per person per day. That's enough for a 90-second shower, a half-gallon of drinking water, a sinkful to hand-wash dishes or laundry, one cooked meal, two hand washings, two teeth brushings, and one toilet flush"* (Baker, n.d.). In conclusion, it can be stated that the water crisis is affecting the development of production through spatial and organizational as well as human factors and puts pressure on the current policymakers to regard this Cape Town-specific problem within their inclusive economic growth endeavors to leave no one behind.

Concluding from the analysis, Cape Town's economy, however, still requires further endeavors in specific issues to foster economic growth (Sinclair-Smith & Turok, 2012). Furthermore, we can observe strong market power within the electricity provision, while the other branches are controlled by the Competition Commission, ensuring the necessary competition for a flourishing and entrepreneurial economy. Especially within the technological sector, we observe a strong entrepreneurial spirit that is attracting more companies. Two important clusters within the city are the DigiTech Hub and the media and film industry. To end this conclusion, we can state that, especially due to the aftermath of the Apartheid era, Cape Town is lacking inclusiveness, leadership, and development that reach everyone and therefore requires updated policy strategies in multiple areas.

### 3 Problem Solution

In the following sections of this chapter, we discuss four suitable strategies by providing policy recommendations but also counterarguments.

### ***3.1 Policy Recommendations and Justifications***

In 2013, the city council of Cape Town published a paper on the Economic Growth Strategy (City of Cape Town, 2013). This publication already provides strategies for several of the problems that have been identified in the previous analysis (Chap. 2). As this publication dates back to 2013, almost eight years ago, the provided strategies need adaptation to the current economic, spatial, organizational, and human status quo of Cape Town. Thus, we further discuss the city's development strategies together with the results of our analysis.

#### **3.1.1 Infrastructure**

Within Chapter 2.2.1, we have identified that Cape Town lacks a reliable and safe public transport system. This is especially affecting the poor, limiting their access to the economic hubs and city center (Lemanski, 2020). Therefore, Cape Town should aim to establish an efficient and effective public transport system to meet the commuting and other movement needs of the large sector of the population that is without access to private transport. Thus, also, human capital will be increased, and economic development will be more inclusive.

If Cape Town wants to participate in international trade, it is crucial for them to build an effective port system through which business can be conducted. Therefore, they must aim to invest in large warehouses and storage facilities as well as transportation infrastructure in the form of big roads and train lines into the country and even into the continent.

#### **3.1.2 Natural Resources**

Understanding the complex interrelationship between economic growth and the sustainable use of natural resources is increasingly recognized as essential for securing a prosperous future (Adebayo & Kirikkaleli, 2021). Certain categories of resources – notably water and energy – play an essential, cross-cutting role in the economy. Others, such as Cape Town's famous natural areas and unique biodiversity, constitute a distinct sphere of economic activity by creating jobs and generating income in the tourism sector. Within the problem analysis, we have pointed out the severe and recurring problem of the water crisis for the city. Given the pace of climate change and the El Niño effect, South Africa's rainfall patterns are likely to worsen (Mason, 2001). The only options left for large cities like Cape Town are to develop water infrastructure that meets the needs of a growing population and for residents to change their water usage. Cape Town's water resilience plan is progressing rapidly, with the demand side responding especially well as households have halved their usage in the past year (Aidan, 2018). But this may not be enough. In an ever-more connected world, Cape Town should constantly look to learn from

the best cities in each of these areas. Its membership in bodies such as C40 Cities and 100 Resilient Cities, which enhance urban action on climate change, could aid this.

### 3.1.3 Entrepreneurial Development

Studies have shown that about 46% of international business investments aim to use the Western Cape region “*as a springboard into Africa*” (Invest Cape Town, [n.d.](#)). A positive contribution can thus result in further support for the energy, technology, and tourism sectors, where it is crucial to facilitate expansion and diversification of the local economy to create sufficient opportunities for its growing markets and play a role as an “enabler” and “connector.” The Invest Cape Town initiative was launched by the City of Cape Town to strengthen and promote the African business hub that supports big ideas and innovation. The City of Cape Town enables growth by linking businesses to new insights, opportunities, and solutions. Invest Cape Town is a demonstration of the city’s commitment to creating a platform that contributes to the increased awareness, attractiveness, and competitiveness of the city as a place to do business (City of Cape Town, [2020b](#)).

Furthermore, we have mentioned the severe water crisis. In this regard, the intention should be to reduce the likelihood of severe water restrictions in the future by investing in activities related to alternative water sources and building a whole new field of entrepreneurship.

### 3.1.4 Human Resources

Consequently, its effect in terms of preparing the way for a more broadly inclusive approach to the demanding task of not only maintaining the routine operation of the urban system but also directing its fundamental transformation is likely to have been limited. With a more stable leadership position, more of a liable person fighting for the rights of their citizens in general, and an increase in the trust of the country, Cape Town may begin to see change. See change leading to a more positive outcome for the future of Cape Town. These efforts, which would lead directly into their brand and image, may be leaning more towards an alignment with how Cape Town brands themselves.

In conclusion, following the proposed strategies so far can furthermore help the city shift its brand image from passive service delivery to an active and inclusive city, following the role model of the city of Augsburg.

## 4 Counterarguments

In the following, we are pointing out four counterarguments that show the limits and hurdles of our proposed solutions.



## **4.1 The Question of Money**

One of the main questions arising with regard to growth strategies and chances is of a financial nature. As without sufficient financial resources, the actors involved are barely able to make progress, the funding of the planned strategies must be considered and ensured before implementing them. In the case of Cape Town, there are mainly two potential financial sources: the government and private investors. Even though the government can include its financial resources in its own strategies and therefore build a reliable source of capital, the amount of funding provided by private investors remains unsecure. Possible points of contact to attract them are campaigns like “*Invest Cape Town*” or “*Accelerate Cape Town*,” which aim to find investors for start-ups and businesses as well as self-contained projects or other private institutions (City of Cape Town, [2022](#)).

## **4.2 The Role of Time and External Shocks**

Another fundamental obstacle to development is time. In literature, this phenomenon is commonly known as time lags, and the implementation of new strategies is also subject to a delay that lies, i.e., between the point of implementation and the point of visible effect or outcome (Pettinger, [2021](#)). In terms of educating highly skilled workers or constructing a well-functioning and accessible infrastructure, this phenomenon is of major importance. Additionally, the interim period cannot always be proposed exactly, making it difficult to plan further procedures. Moreover, there might be newly arising issues like external shocks during this period, like the previously described water crisis. Thus, it can cause even more delay or lead to an overall failure of the initial strategy. As time in combination with progress and development is an unpredictable factor, it is a topic that needs to be considered in a very sensible manner also with regard to Cape Town's strategic management (Sivaev, [2015](#)).

## **4.3 The Challenge of Coordination and Motivation**

Implementing a new strategy for Cape Town to become “*a mixed economy, [that] would foster a new and constructive relationship between the people, the state, the trade union movement, the private sector, and the markets*” (SA News, [2022](#)), reasonably opens up a new source of challenges for the coordination and motivation of the actors involved (ibid.). Even though it seems self-evident that the city government serves as the main institution that decides and coordinates the planning, it usually is not as easy as such. Firstly, a high number of actors means great diversity on the one hand but also a huge amount of coordination on the other. Weighing the

respective advantages and disadvantages and evaluating the best number of participants as well as the proportion of public and private institutions requires, among other things, experience from former projects. As Cape Town has only been working on its strategic management for some years, this experience is right now not sufficiently available. Consequently, there might follow a period of trial and error, causing new problems or increasing existing ones (Wilkinson, 2000).

#### ***4.4 The Deep Roots of Culture***

The ongoing issue of segregation and apartheid in South Africa is not only an issue of policy. Due to the length of time it has already been part of society, one can reasonably consider apartheid as an issue of cultural conflict. Thus, it is a phenomenon that shapes people's beliefs, their human interactions, their overall social values, and much more. Apartheid is nothing that is only being enacted by those who deeply believe in it. It is something that influences a person's behavior, either directly or indirectly (Dlamini et al., 2021). Even though, at least on paper, apartheid does not exist anymore since the early 1990s, it is still present in people's minds. Following the findings of several studies from the past two decades, culture is one of the most difficult social attitudes to change. The power of a new law or a new political strategy is nothing in comparison to the power of cultural belief (Audretsch, 2015). Considering Apartheid as the complex issue of cultural conflict that it is, it can reasonably be predicted that South African society still has a long way to go, creating hurdles for inclusive economic growth and developing a non-biased skilled labor force.

### **5 Conclusion**

In conclusion, we can deduce from the analysis of this paper that Cape Town clearly has its strengths and weaknesses. Starting with the factors of production, the comparatively successful finance and manufacturing sectors build a solid base but are far from sufficient for building economic stability. Moving on to the spatial and organizational dimensions, we have observed a strong market power within the electrical market, however high the endeavors for entrepreneurship within the city. Finishing the analysis with the human dimension has made it obvious how unequal the society of Cape Town still is. Even though these issues are tough ones and therefore hard to change with one specific policy or within the near future, the democratic government of the city is already a good point to start from. Within the policy recommendations, we have pointed out the expansion of transport infrastructure and the port system, the entrepreneurial endeavors more precisely towards new methods of water provision, and lastly, the mitigation of the aftermath of the apartheid era through inclusive leadership and access to better education. However,

obstacles could occur due to issues with money, time, coordination, and cultural beliefs. To close this paper, we emphasize once again the importance of openness and willingness to act: the contribution of everyone – may it be the public or private sector, the population of its entity, or the individual person – is the key to success. Standing in line with the city's logo of inclusive progress, we strongly agree with our recommendations that "*after a decade of low growth and rising unemployment, this is the way to revive our economy - creating a dynamic, competitive, fast-growing economy that is able to compete with the best in the world*" (SA News, 2022).

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