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Rolu***

Tələbə: Fəridə Fərəcova

Kurs: IV

Qrup: 1081

Elmi rəhbəri: Qənirə İbrahimova

Kafedra müdiri: Altay İsmayılov

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Author: Farida Farajova

Supervisor: Ganira Ibrahimova

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The Role of Innovative Economy on SMEs

With the changing demand, lifestyles, business cycles, forces of productivity, the need for redefined economic models and theories were inevitable. These changes were mostly fueled by the fast-paced development of technology. Traditionally, economic growth was viewed by economists in terms of relationships between factors of production, which were land, labor and capital, and investment level. However, all these transformations led to the emergence of an innovative economy which had a different focus than its predecessor. Consequently, the traditional industrial economy gradually gives its place to the innovative economy.

Chapter 1

Globalization is the term used showing the interdependence of the world. In today's world every single person benefits from globalization. The neat network across the world brings us closer day by day. Trade can be a simple example to show the globalization. Besides trade, culture and information exchanges, investment flows can also be an indicator of globalization. Globalization, or to be more precise global integration, is a two-way process thus, includes local and global instrument's practical communication. Integration is not only increased trade and financial inflow, but also institutional harmonization concerning trade policy, legal codes, tax systems, and other regulatory arrangements (Sachs and Warner, 1995).

Drivers of globalization

It is crucial to evaluate the drivers of globalization to find the aspects from where businesses can benefit from. *Competition*, which is a driver of globalization, has positive and negative effects. From a global perspective,

competition increases the reach of the products produced. Access to new customers gives producers an incentive to supply more as the demand pool increases. This correspondingly can result in lowered *costs*. With the increase in production, firms aspire to be efficient thus proactively attempt to reap the economies of scale. Global integration lets the firm's source efficiencies exploit factor of production differences. If not offset by the logistics cost, variable labor rates may favor low-cost locations over a domestic location. This can result in increased unemployment thus affect the economy in a negative way. However, global competition can harm products, firms, and countries as a whole. If the domestic product does not advance to compete in a global market, it will not be successful, and this can be a severe business risk of the firm. Global markets can have global dominance by the competitors with monopoly or competitive advantage in information for which domestic or infant market products are highly vulnerable to.

Markets are also a driver of globalization. While globalization gives access to a greater pool of customers, people in those markets differ economically, and culturally, so need for services and ability to pay for that service vary. To overcome this issue of difference arising firms should adopt global strategies, product and services, and market channels. Doing so will increase efficiency and will penetrate the global market. The fourth driver that we will discuss in our paper is the government.

Government plays an essential role of facilitator in the globalization process. As we stated before globalization is a two-way process thus requires both parties' integration. The government can aid the process by having well structure, fully executed unrestrictive trade and investment policies, marketing regulations, tax laws, environmental regulations, technical standards. These institutional regulations can have

an effect on both the cost of the goods traded and types of activities. Policies on education, censorship, public ownership, and infrastructure standards may impact demand and supply and distort pricing.

Above mentioned drivers are swayed by external factors as it is shown in Figure 1. While all the factors, social and demographic, economic and financial, political and legal, contributed to the global

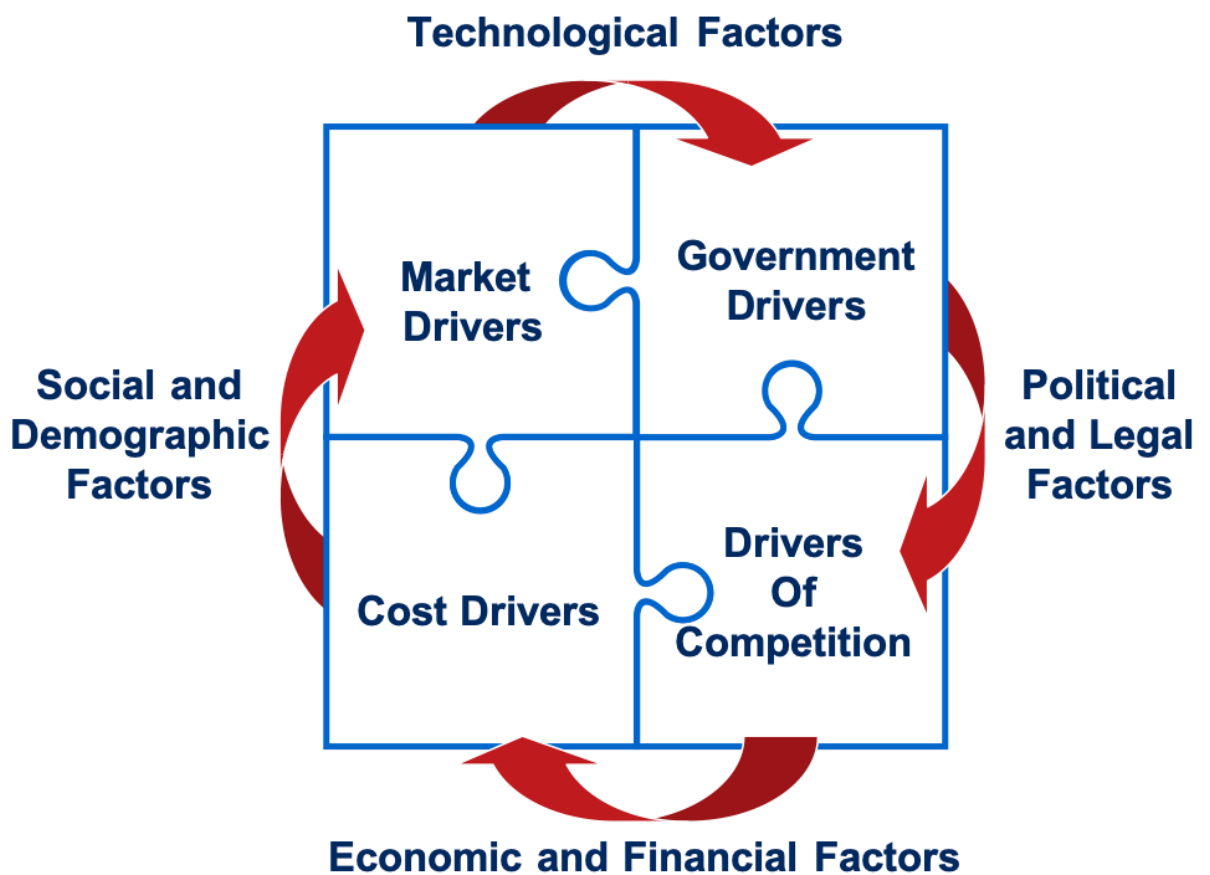


Figure 1. Drivers of globalization and factors affecting it

integration, with the recent technological advancements and the influences of it have been of much significance. The amount of traded goods and services in the world has been climbing steadily over the past several decades (Storper, M., 1992).

Technology as a driving factor. Throughout the past fifty years, the advancements have revolutionized how repetitive and typical

information is transferred over lengthy distances. This supports much sophisticated and swifter interconnectedness among cities, regions, and countries all over the world. According to Baldwin (Baldwin 2012), the advances in ICT field are likely the single most important factor explaining the growth of trade in general and particularly of trade in production inputs, which is one of the drivers of globalization. The enhancements in ICT in terms of speed, value, capability, and accessibility have lowered the costs of organizing economic activities over long distances very substantially. The evolution in ICT has also (jointly with the combination of world markets throughout trade liberalization) led to significant growth in trade in services across international borders (Busi and McIvor 2008).

Innovation Economy

Traditional economists view economic growth as of the relationship between the three factors of production, which is land, capital and labor, and the level of investment. They consider the competitiveness of firms to be based on prices. Innovation economists debate that in a market economy primary competitive factor is innovation rather than the price of the good or service. Today, entrepreneurial capitalism is linked to the emergence of new technology sectors and new forms of organizational structures.

While innovation is vital, it is not an accidental prevalence; however a deliberate, conjunctive effort of markets, institutions, and management. These days it's easier than ever to innovate. A wealth of low- or no-cost online tools, combined with hyper-connected markets, place innovation capabilities into the hands of the abundant masses and permit concepts to speedily proliferate. Future technological innovations will not solve all issues; however, they're going to contribute to reducing the

impact of human activities on the atmosphere and surroundings. Spectacular technological progress in nanotechnology, robotics, non-human like intelligence, machine-driven evolution, and renewable energies can profoundly alter resource productivity. Several scientists conclude that halving the utilization of Earth's resources is not enough (Lambin, J., 2014).

Unlike the neo-classical economy, innovation economy focuses on fostering innovation, creativity, and technology. This shift in the focus enabled to foster economic growth and achieve higher productivity. The notion of “innovation economy” was initially introduced to the literature by economist Joseph Schumpeter in 1942 in his book named “Capitalism, Socialism and Democracy” (Schumpeter, J. A., 1976). In his book, he told about the importance of innovation, entrepreneurship and supported his ideas with empirical research. To explain his concept of “creative destruction” Austrian political economist used the history of transportation from the mail coach¹ to emergence of the airplanes defending that the new technology and innovations destroyed the old systems, products, and services in place and relentlessly created new ones while increasing the overall welfare. In this course of the development, Schumpeter believed that the development of new technologies, confronted with the emergence of new needs and new challenges, constitutes excellent opportunities for entrepreneurship. However, the perception and concept of innovation economics started to emerge in recent years with substantial improvement in technology coupled with the

¹ A Mail coach was a design added to the passenger carriages to carry long-distance mail from the Post Office. It was a box-like design that was guarded by an armed guard and while the box was only accessed by a Royal Mail employee. (Note: It was used in Great Britain; thus description includes Royal Mail as an example)

need to find ways to promote economic growth as capital investments could not expand the process.

The difference between neoclassical economics and innovation economics can be summed up by showing the unique focus, growth factors and context of both of the economic theories. While neoclassical

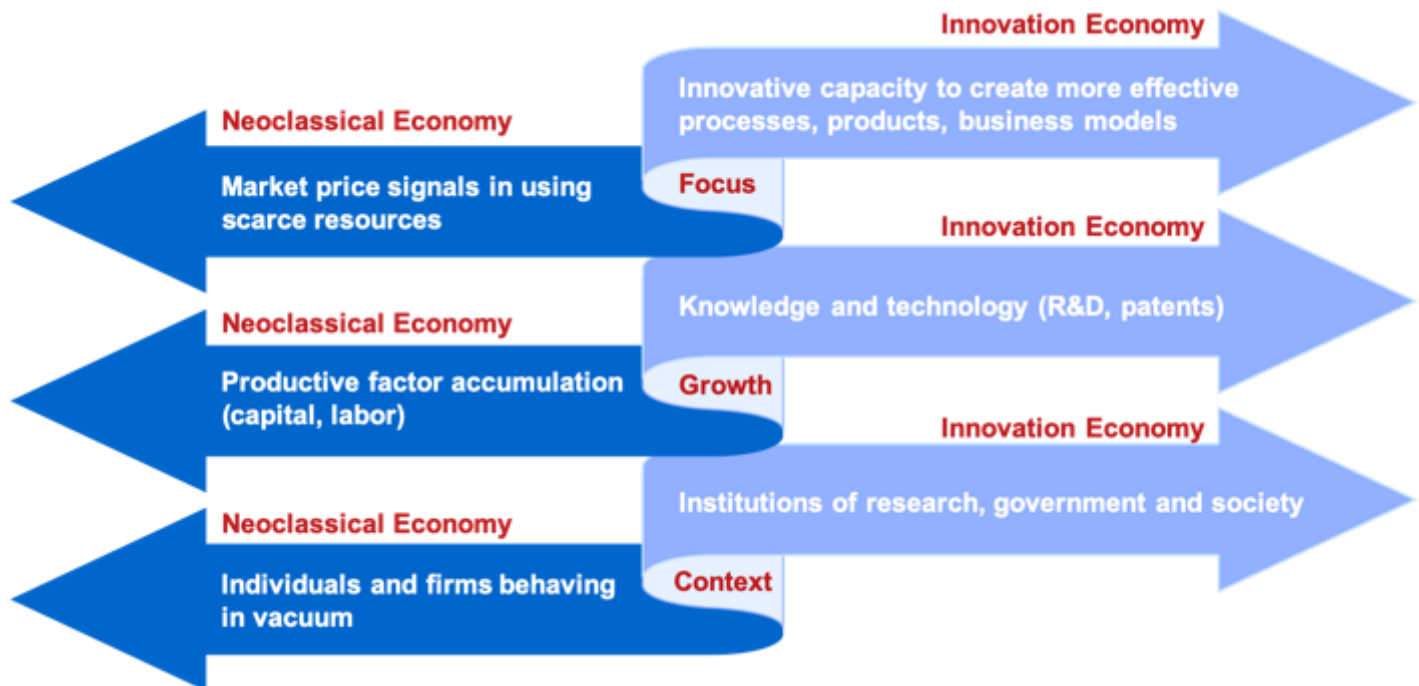


Figure 2. Neoclassic Economy versus Innovation Economy

economy focuses on market price signals exploiting scarce resources, innovation economy focuses on the innovative capacity to create more effective processes, products, and services as well as business models, corporate structures, new law and regulations which constitutes business innovations as a whole.

Market environment or context also varies for both of the economic theories. American mathematician and economist Roy Weintraub describe that neoclassical economics is built on three assumptions one of which is the assumption showing that people act independently on the foundation of full and relevant information (Weintraub, E. Roy, 1993).

This confirms that in neoclassical economy individuals and firms behave in a vacuum.

On the innovation economy side market context favors institutions of research, government, and society. Both of the theories aim for economic growth whereas they both choose diverse paths to achieve it. In the mainstream economy, growth is seen as the optimal allocation of available resources in order to maximize individual utility thus achieving the welfare of a country with the help of productive factor accumulation. Economic growth from innovation economists is generally focused on knowledge and technology.

Economic growth from innovative economy viewpoint. As discussed above now it is pretty obvious to understand the main focus of the innovation economy. With research interests of the economics of innovation and new technology, Italian economist Cristiano Antonelli, came to the conclusion that economic growth in the innovation economy



Figure 3. "Pillars" of economic growth in innovation economics (Antonelli, C., 2003)

is the end-product of four interrelated parties. His idea of economic growth in the innovation economy is constructed as a so-called "pillars" in Figure 3.

Even if the knowledge is in the center of attention surrounding environment should also be constructive and supportive in order to achieve desired results. Economic growth can be achieved only if the full set of structural elements of the economic system into which each new technology is being introduced is adequately taken into account. Full set of structural elements can be seen as regimes and public policies permitting entrepreneurship and innovation such as research and development expenditures, permits and licenses, intellectual property rights, technological spillovers and externalities between collaborative firms, systems of innovation that create innovative environments as clusters, agglomeration. Research and development, innovation, technological advancements, and spillovers are argued to be critical factors driving self-sustained economic growth according to economic literature by Atkinson et al².

Empirical models of economic growth. Economic growth literature was vastly researched by professionals and can be found in every library both online and offline. The matter of economic advancement was approached by different aspects and models addressing and expressing the process emerged. From a historical point of view growth concepts and theories materialized since the 15th century with Mercantilism and is still evolving. In this paper two latest growth models

²., In particular, Atkinson, R. D., & Ezell, S. J. (2012). Innovation economics: the race for global advantage. Yale University Press. and Baumol, W. J. (2002). The free-market innovation machine: Analyzing the growth miracle of capitalism. Princeton university press. paper is addressed by "economic literature."

will be considered which include technology as a factor for their assumptions and findings.

Exogenous Theory of Robert Solow. Growth theories emerged in the 1950s and 1960s due to the weakened problems of dynamic equilibrium and willingness to achieve potential growth not due to unused capacity but due to the introduction of new technology aimed improving productivity and organization of production. Solow's theory and growth model first came to light in an article named "A contribution to the Theory of Economic Growth" (Solow, R., 1956), and one-year following the article was further developed by the author and published in "Technical Change and Aggregate Production Function" (Solow, R., 1957). He later in 1987 was awarded the Nobel Prize in Economic for its findings.

Robert Solow gates from the assumption that the essential state for the equilibrium of the economic system is the equality of aggregate demand and aggregate supply. In his published article aggregate supply is fixed on the base of the production function of Cobb-Douglas (Coma, C. W., & Douglas, P. H., 1928):

$$\left\{ Y_t = A_t K_t^a L_t^{1-a} \quad 0 < a < 1 \right\}$$

where K_t and L_t are capital and labor inputs respectively and A_t is a measure of productive efficiency considered as technological progress. The function expresses the functional dependency between production volumes in the left side of the equation and the factors and combination

of factors used on the right side. In common logic, Solow's model reveals interconnection within three origins of economic growth known as investment, workforce or labor and technological progress.

The *first* revelation of the theory is that the savings rate plays a significant role in determining the level of capital intensity. Therefore, a higher savings rate delivers a greater stock of capital and consequently production level increase.

Secondly, population growth is also associated as one of the reasons for continuing economic growth in a stable economy. Though, if an increase in numbers of population is not coupled with an increase in investment leads to a decreased capital stock per worker thus resulting in lower incomes in countries having higher population growth.

The *third* and one of the main factors of economic growth according to Solow is technological progress. Bearing in mind that in neoclassical economy technological progress does not mean replacement of human workforce by machines or robots, but is regarded as qualitative variations in the production such as increasing the educational level of labor, improvement of the organization and growth of production scales and many more.

In the theory of Robert Solow, technical progress is highlighted as the only state for sustainable growth of living standards measured as income per capita.

Endogenous Growth Theories of Paul Romer. Later in the 1980s and 1990s a new phase of development of the economic growth theory surfaced as "new growth theory." The most important difference between previous growth theory was that for the first time in history the scientific and technological progress had been considered as an endogenous factor

generated by internal efforts hypothesized by American economist Paul Romer. In his endogenous growth theory, technological progress is not the only factor affecting development. Following factors are also defined:

1. The quality of labor or human capital, depending on investment in human development (education and health);
2. Creation of the necessary regulations and prerequisites for the protection of intellectual property rights in the conditions of imperfect competition;
3. State support for the development of science and technology;
4. The role of government including public institutions in creating a beneficial investment climate and attracting new technologies.

As it can be seen from the factors above, theories of endogenous growth are in favor of governments intervention in the development process by fostering innovative environment, entrepreneurship, human capital improvement and knowledge advancement which Romer formulated as "research technology."

Incentives for innovation. As discussed from the begging of this paper innovation and economic growth is closely linked. This can be considered as one of the incentives for innovation. While innovating is important, it is not an impromptu manifestation as natural resources are, but is a measured, rigorous effort of markets, institution and government. Adaptation of new technologies can be achieved mainly by emphasizing

on research. All other functions, such as production, marketing and other functions of the organization becoming subordinate to research will yield continuous streams of new inventions and innovation that can be classified as business innovations or product and service innovations altogether serving the better performance of the organizations. Performance increase hence can increase profit, growth and market share of firms. All these incentives make innovation and generally innovation economics a favorable course of action for organizations.

Chapter 2

20th and the 21st-century economic state have a different set of directions than Adam Smith's 19th-century economy. New ideologies including economic thoughts and globalization expand the role of small and medium-sized enterprises' as promoters of the strong business environment, economic efficiency, and dominance of economic development.

Importance of SMEs

In a modern and innovative economy, the SME sector plays an extremely important role, attesting itself as being a smart and remarkable innovative system. It is commonly acknowledged by countries that SMEs possess a fundamental contribution to economic development. By showing the economic and social beneficial effects entitle the SME sector as a field of strategic interest for the countries and their economies (Avasilicai, S., 2009).

Additionally, Peter Drucker supported the idea of the SME sector being an essential field for economic growth. According to his book named "Innovation and Entrepreneurship," small enterprises are considered as the primary catalyst of economic development and contribute to the attainment of the fundamental aims of any national economy being the backbone of social and economic growth (Drucker, P., 2014).

SME importance has been emphasized since the 1960s in the world. Schumacher's publication (Schumacher, E. F., 1973) accompanied the popularization of the topic. Advantages of small and medium-sized enterprises were listed in the journal, such as:

- ✓ SMEs have a competitive structure;

- ✓ SMEs are more efficient;
- ✓ It is easier for SMEs to keep up with the new demands and new technology;
- ✓ SMEs working designs are not repetitious or boring;
- ✓ SMEs are more enduring to the economic crisis;
- ✓ SMEs have a more prosperous role in rising employment and disposing income.

It is widely accepted by academics that small and medium-sized enterprises can add drive and flexibility to operations and increase economic performance. SMEs have more elasticity than the large enterprises in terms of manufacturing, marketing and service is due to close market observance, better customer requirements understanding and intimate relationship with its personnel. Their flexibility enables small and medium-sized enterprises to harmonize with the external and internal changes in time and on-site thus giving them wiggle room and letting them pass troubles with less damage. Moreover, small and medium enterprises can and tend to focus on new products and technological processes while large enterprises, in spite of having well-established research departments, concentrate their powers on improving existing products that they plan to produce in larger quantities in order to capture advantages of economies of scale. SMEs incline toward creating new goods and services hence are capable to modify their production quicker to the fast-changing consumer demands and market requirements.

With new goods and services being introduced to the market SMEs play an essential role as a catalyst for competition, thus playing an active role in establishing a healthier economy. This does not only increase the supply of goods and services but also increases the variety of supplied goods and services as well as prices, product designs and efficiency of the firms. The fact that SMEs still continuously survive in a globalized competitive economic environment is a verification of their high level of efficiency. Their efficiency helps large enterprises in a particular type of activities that otherwise would be inefficient to establish within the organization. Some mainstream examples are raw material and part supply as subcontractors and/or being supply channels for further distribution of goods and services.

Additionally, SMEs are great for employees wanting to improve their skills and experiences by offering them new jobs and surrounding them with an encouraging climate which can result in achieving needed experiences for transferring to large enterprises in a future career.

SME trends in a globalized world. All the above-mentioned advantages and importance of SMEs make them a favorite for all parties, starting from the government until consumers all around the world. In its part the trend toward small and medium-sized enterprises makes their numbers plummet. An increasing number of enterprises makes the competition fierce. It should be noted that established small and medium-sized enterprises not only compete with its peer sized firm but also compete with large firms in the market, which adds additional weight to their shoulders. In order to survive in the competition, these enterprises follow a strategy that lets them take advantage of global markets.

In simple words, internationalization is the process of increasing the presence and involvement of establishments in international markets.

Detailed explanation in many papers emphasizes on the point that establishments should design a product that will meet the need of end users in many countries or the product should be easily altered and adapted to the international market. In this paper, we clarify internationalization as an establishment taking steps to expand or increase their footprint or customer base outside the resident country and into the international markets. The trend toward establishment also led to the globalization of the economy due to cross border relations.

There are several renowned trade theories which back up the necessity for internationalization. They include but are not limited to:

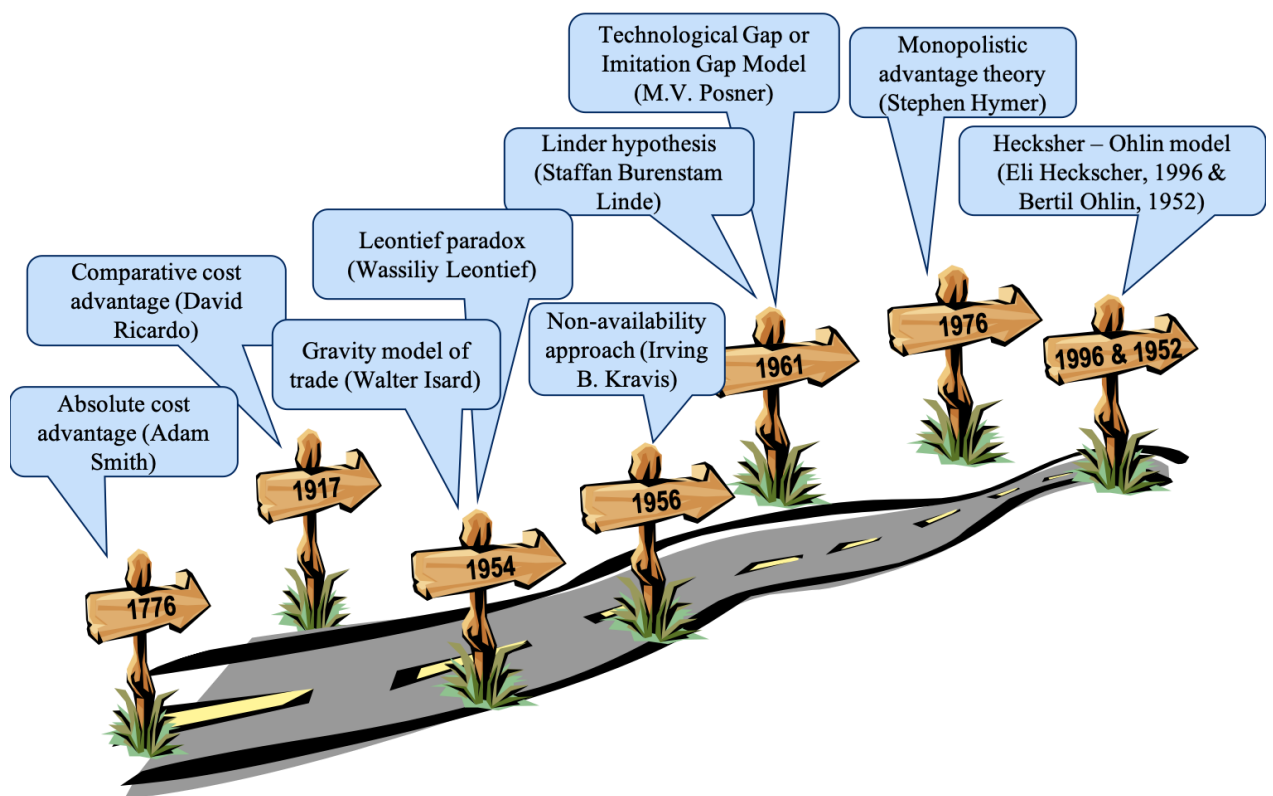


Figure 4. Theories and models of Trade

All the above-mentioned theory and models favor trade and internationalization, believing that it is necessary to the development of

the economy. Companies are incentivized to internationalize due to responsive reasons such as:

- ✓ The likelihood or need for growing sales;
- ✓ Diversifying its operations and or processes, and accompanying risks;
- ✓ Becoming closer to its customers;
- ✓ Lessening costs of labor production or supply;
- ✓ Counterbalancing for home market weakening or fullness.

Although these reasons may seem completely valid however internationalization possesses more proactive reasons which build up a competitive strategy of an SME. An enterprise may want to take advantage of a new market and its growth or development. It may want to benefit from moving its activities or operations in the value chain to a more competitive region where it can lower its overall costs and increase its profit margin or may externalize various processes including but not limited to client services, call centers. Internationalization strategy for an SME may also let it exploit economies of scale and increase its marketing reach. One of the benefits from internationalization is knowledge gain about new and potential customers and markets, cultural diversity and the market's capacity. These researches and know-hows add up to build a strategy that will generate profit for the enterprises. Small and medium-sized establishments can significantly benefit from this knowledge. Expanding customer base internationally can help you fund new product development, learning from shifting markets and their

demands, and get used to working with very challenging and sophisticated customers. An establishment can highly benefit from joining a rough and competitive market and that its initial product design and marketing would develop and support it to perform better around the world.

Following John H. Dunning's research, the motives for internationalization can be categorized into four groups (Dunning, J. H., 1994). He groups natural resources, technological and management competencies, and the fastened supply of the resources into one group identifying it as the motives related to the resources. Secondly, market desirability, the prospect of protecting current markets and exploiting new markets are combined to form the next group so-called the motives related to the market. The third motive is related to the strategy of the establishments which aiming to develop a good brand image and increase

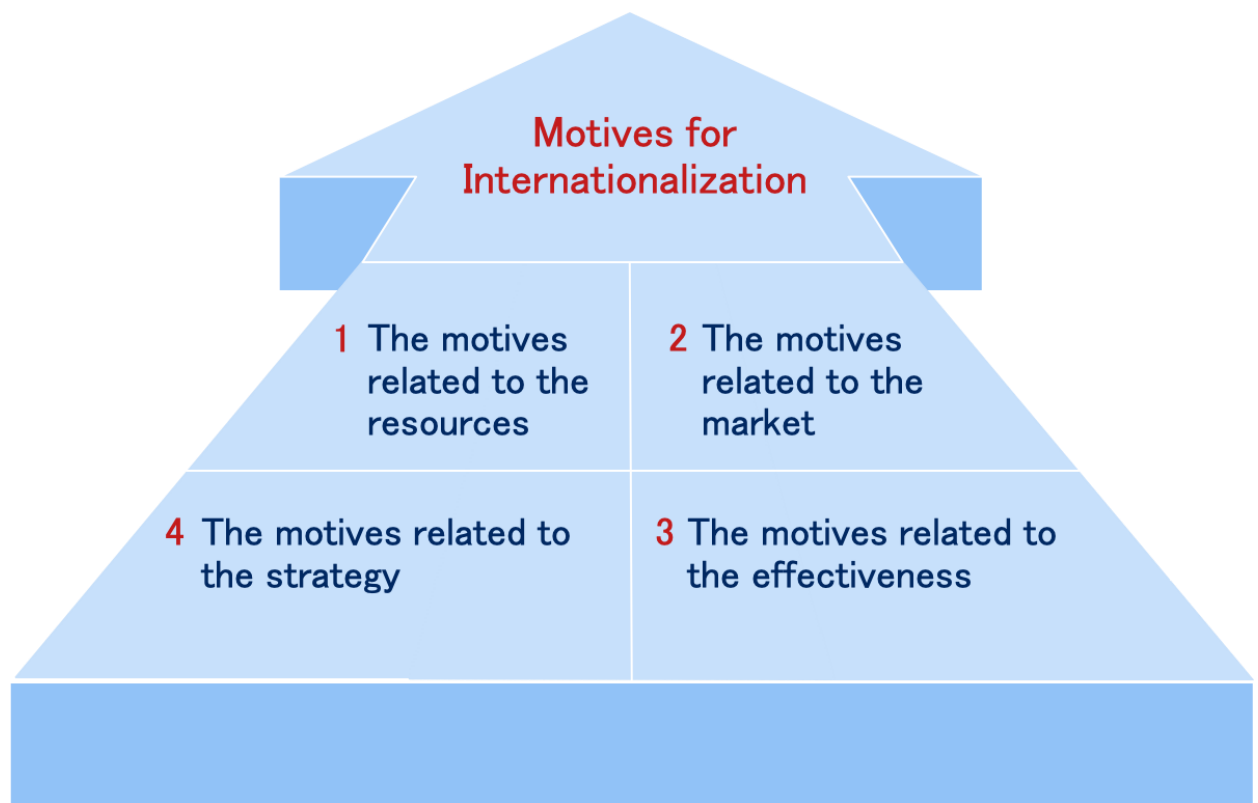


Figure 5. Motives for Internationalization (Dunning, J. H., 1994)

sales thus increasing the profit gained and to increase global awareness. The last group account for utilizing economies of scale and diversification of risk and is called as motives for the effectiveness.

Problems encountered by SMEs. As discussed throughout the paper small and medium-sized enterprises are of great importance for the country's economy that they reside, its citizens' social welfare and the economies of partner countries that they interact with. Thus, it is essential to foster the growth of such establishments. However, the environment is not always supportive and fostering for SMEs. There are, so-called, barriers in the market that decelerates the growth process or makes it tough even to enter the market. A thorough investigation of scientific literature let us unveil several factors, hindering business development of enterprises, that researchers agree upon.

Some academics believe that the international expansion of the enterprise is affected by the interrelationship of internal and external factors (Wattanasupachoke, 2002; Korsakiene 2014). Due to these notes, the subjects of internationalization can be divided into external and internal factors. Volatile economic environment or legal base can be viewed as external, business strategy, resource availability and capabilities can be considered as internal factors in the process. Unfortunately, establishments have no control over the external environment. Still, establishments should consider the external factors surrounding if they intend to gain international acknowledgment. Paunovic and Prebežac (2010) investigate common barriers of small and medium-sized enterprises to understand the reasons and blocks of internationalization. It is evident from their paper that they emphasized the lack of entrepreneurship skills, management and marketing capabilities in general (Figure 6). The barriers of internationalization

the enterprise, the establishment of formal and informal networks; the use of national standards and rules; problematic foreign legal structures; failure to function without license, delivered by the specialized organization; the need to provide service in foreign market; the complications to overcome psychological void; the troubles to provide services related to the distance; the necessity to be registered in the local register; very high costs of local procedures; difficulties of acquiring information about market players; very high administrative costs; the conditions of procurement; the need to develop new business model in foreign market; the unwillingness of customers to pay for the services; cultural barriers; foreign language barriers are all considered as special barriers and can be faced by SMEs. The general barriers are also divided into two parts namely, the barriers to entry and barriers of business operation. The requests of licenses; monopolistic markets; the requirement for local proprietorship; very high financial requirements by the country; the limitations related to the workforce and immense labor unions are grouped under the barriers to entry, while the discriminatory taxation; the unfair purchases of the government; the difficulties in employing foreign citizens; the obstacles related to the international documents or the processing of international document; the competition of the government; the subsidies to local firms provided by the government are considered as the barriers of business operations.

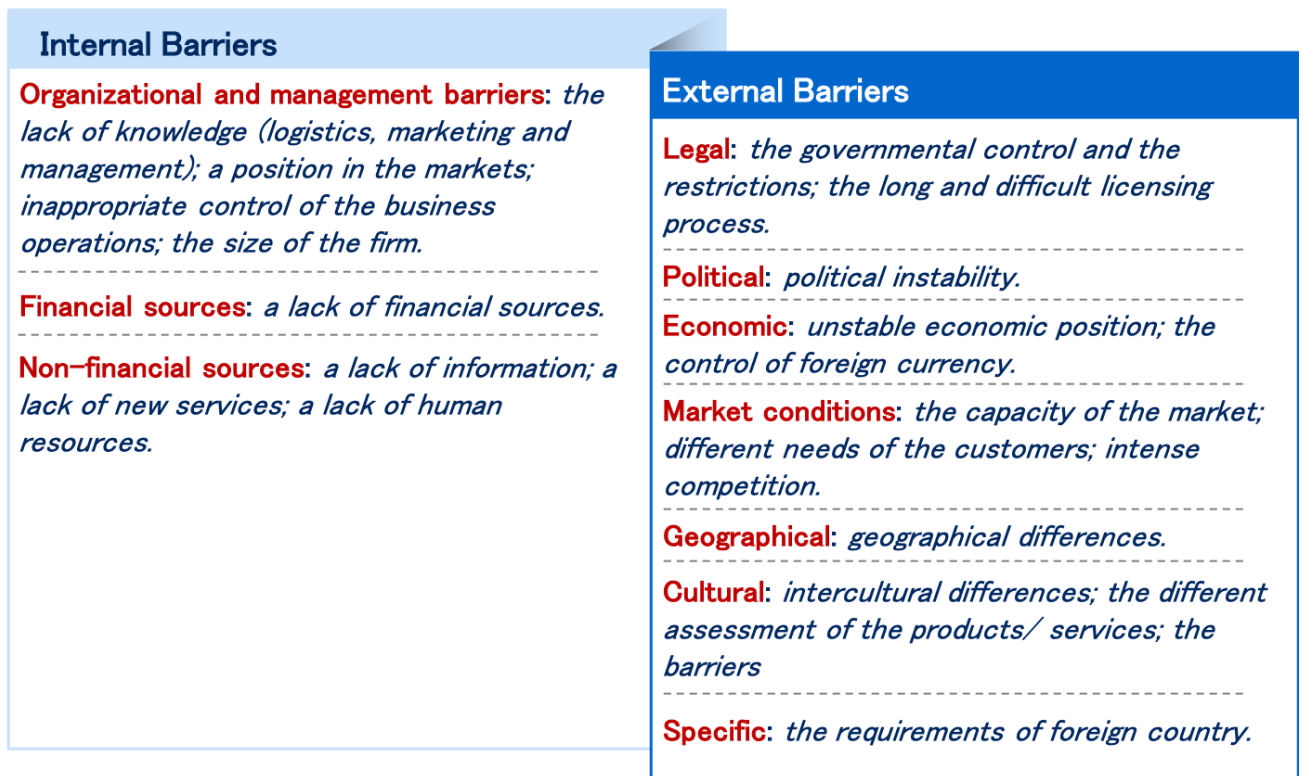


Figure 7. Internal and External barriers for SMEs (Sekliuckiene, 2013)

With Sekliuckiene addition a general observation of barriers can be established to show the overall view. Figure 7 shows the detailed categorization of the difficulties that SMEs face while trying to expand. As it can be seen the main idea of having internal and external factors strongly states its prevalence on the classification. The investigations of barriers of internationalization and thorough literature review on the matter make it evident that opinions on factors and their impacts, rather than offering completely different views, are similar.

Innovation Economy as a cure for SMEs. Small and medium-sized enterprises performed a vital role in the early transition period in all transforming economies. Their features gave them the ability to respond to the prospects formed by the systemic change better than the larger and more reputable firms. They positively engaged in restructuring and privatization processes by absorbing a significant number of employees

that were laid off by larger firms. Additionally, in developed market economies, SMEs played the role of being the medium for innovation and technology diffusion (Piech K., 2004). This supports the idea that SMEs may benefit from the innovation economy by employing its focus, growth strategies and context as visualized in Figure 2.

Innovation economy embracing in itself creativity, growth-oriented entrepreneurship, research and development activities, innovative processes, products, business models, should be the path for SMEs to survive, maintain its distinctive advantages and achieve sustainability. It is important to bear in mind the fact that innovation activities cover a wide range of changes in the production process. The modification can range from being small or to being sizeable such as changing a small part of the process and upgrading to entirely new products or processes respectively. Known as, incremental versus drastic innovations each have a diverse influence on the enterprise's development, particularly in the short run. However, it is broadly recognized that enterprises that innovate are expected to experience superior growth rates than the ones that do not innovate.³

It is noted by several scholars⁴ that innovation activities are also affected by the state of competition in the market that they operate. The competition puts pressure on enterprises to innovate and enhance their productivity in order to survive. Nickell argues in his 1996 paper that competition has a positive impact on innovation (Nickell, S. J, 1996).

³ The advancement of the semiconductor industry in the U.S. is a classic example of the importance of new start-ups and their growth potential for the economy. due to rapid technological innovation and development, the industry's influence on the U.S. economy flourished 265 % from 1987 to 2011. (see, e.g., Rothwell and Zegveld, 1982; Rothwell, 1986).

⁴ Scholars include: Geroski, 1989; Knight, 2000; Bradburd and Ross, 1989; Nickell et al., 1997; OECD 2003

It is also important to remember that SMEs are, while being flexible, also more vulnerable to major shocks than large firms and many of them exit the market when they face such shocks. The focal point here is that surviving SMEs are the ones with entrepreneurial flexibility or innovation. Entrepreneurial culture plays an important role in the success of establishments. Attitude toward entrepreneurial activities, abilities of managers and opportunities available can be determinant of future triumph. S. Venkataraman ("Venkat") article published in Journal of Business Venturing he argues that invested capital need to be supplemented by seven intangibles:

- ✓ access to novel ideas;
- ✓ role models;
- ✓ informal forums;
- ✓ region specific opportunities;
- ✓ safety net;
- ✓ access to large markets;
- ✓ and mainly executive leadership.

He then elaborates his idea by two equilibriums named virtuous and vicious. In virtuous cycle occurs when the region has been conducting economic and cultural activities for long intervals of time and has established an anticipated and comfortable locus. Such state exists when configurations of activity have molded and developed through historical and local possibilities and through perpetual competition. In a virtuous state of mind, entrepreneurship is favored by failure is not tolerated. Hence, by the time it gives it is place to a vicious cycle which has a low culture of entrepreneurship, fear of failure and thus low quality of enterprises. Venkat believes that in order to foster innovation and

entrepreneurship collaborative leadership or entrepreneurship is needed (Figure 8).

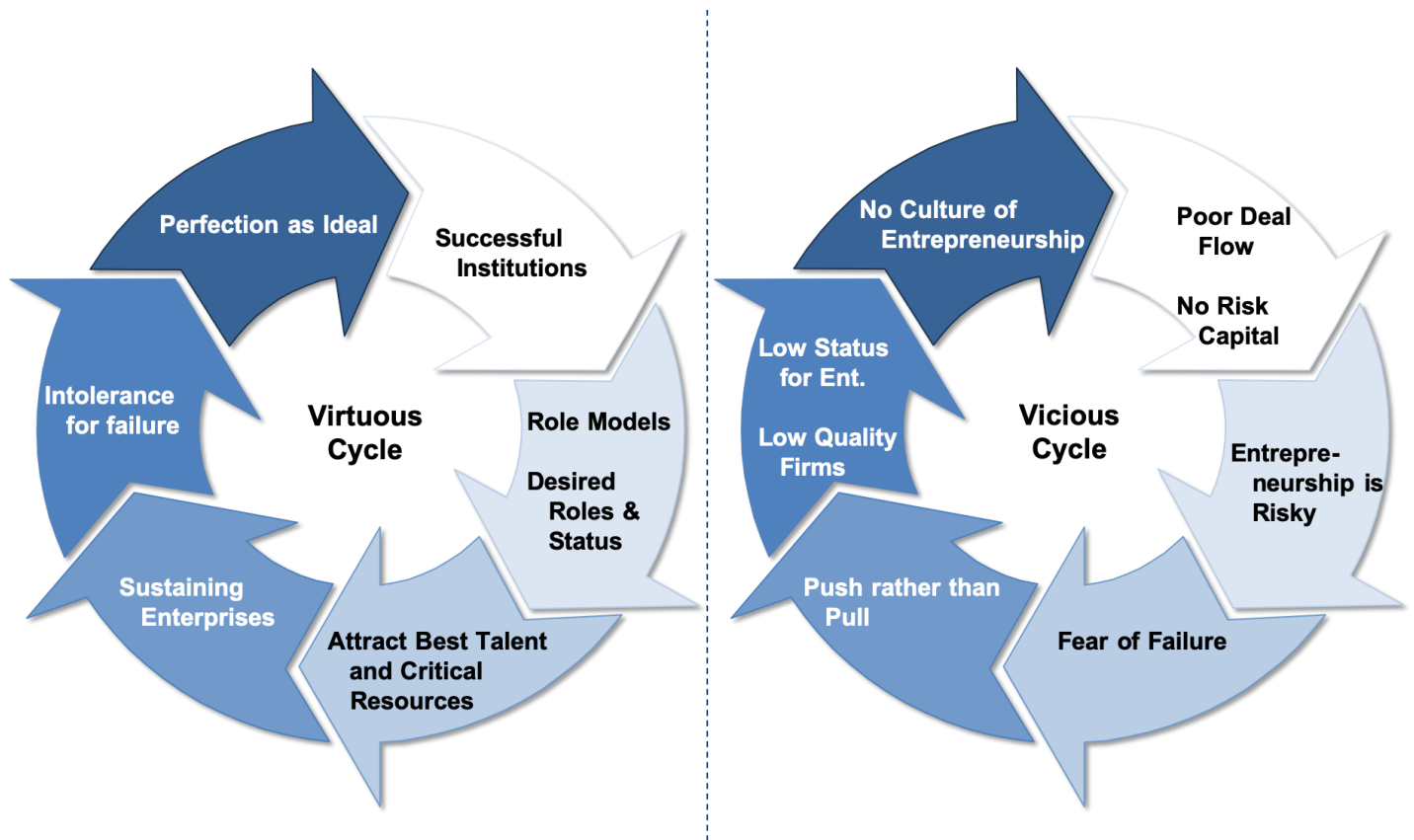


Figure 8. Equilibrium Cycles according to Venkataraman, S. (2004)

It is evident that some intervention is needed to correct the path and the first thing that comes to mind is governments. However, it is not only government that should intervene in the market and has the ultimate control of it. The solution lies in the collaboration among executives from private institutions, market enhancing governments, universities and other public institutions. This collaborative effort will only be successful if the charter will be to extensively and effectively disrupt the vicious cycle and create the proper environment and support structure to nurture innovation.

Case of Germany

It is no coincidence that innovation economy gained further fame with the third industrial revolution which resides automation, computers, and electronics. Currently, with the new wave of industrialization innovation gains a superior significance. Fourth industrial revolution involving cyber-physical systems, artificial intelligence and 3D printing, Internet of Things, genome editing, autonomous vehicles, blockchain, lingers to reveal new business models, products and hence, new customer experiences and interactions. In turn, these positive changes increase the innovation appetite of companies and countries and force them to focus on the context of innovation economy.

An annual study made by Bloomberg analyzes loads of criteria using seven metrics which include but are not limited to research and development spending, manufacturing capabilities, productivity, patent activity, and concentration of high-tech public companies. The company evaluated 200 countries and ranked 95 of them having the necessary data for the “Innovation Index 2019”⁵ (Figure 9). Germany resting in the second place in the index makes it evident that innovation activities are indeed paying back. Coupled up with the fact that Germany is the largest economy of the European Union and have been experiencing steady and sustainable economic growth makes it an attractive case to observe and analyze.

⁵ Sources: Bloomberg, International Labor Organization, International Monetary Fund, World Bank, Organization for Economic Cooperation and Development, World Intellectual Property Organization, United Nations Educational, Scientific and Cultural Organization.

Germany can be regarded as a role model not only for countries to look up by but also for entrepreneurs. The success and growth of Germany's economy and business environment are driven by SMEs.

Bloomberg Innovation Index 2019

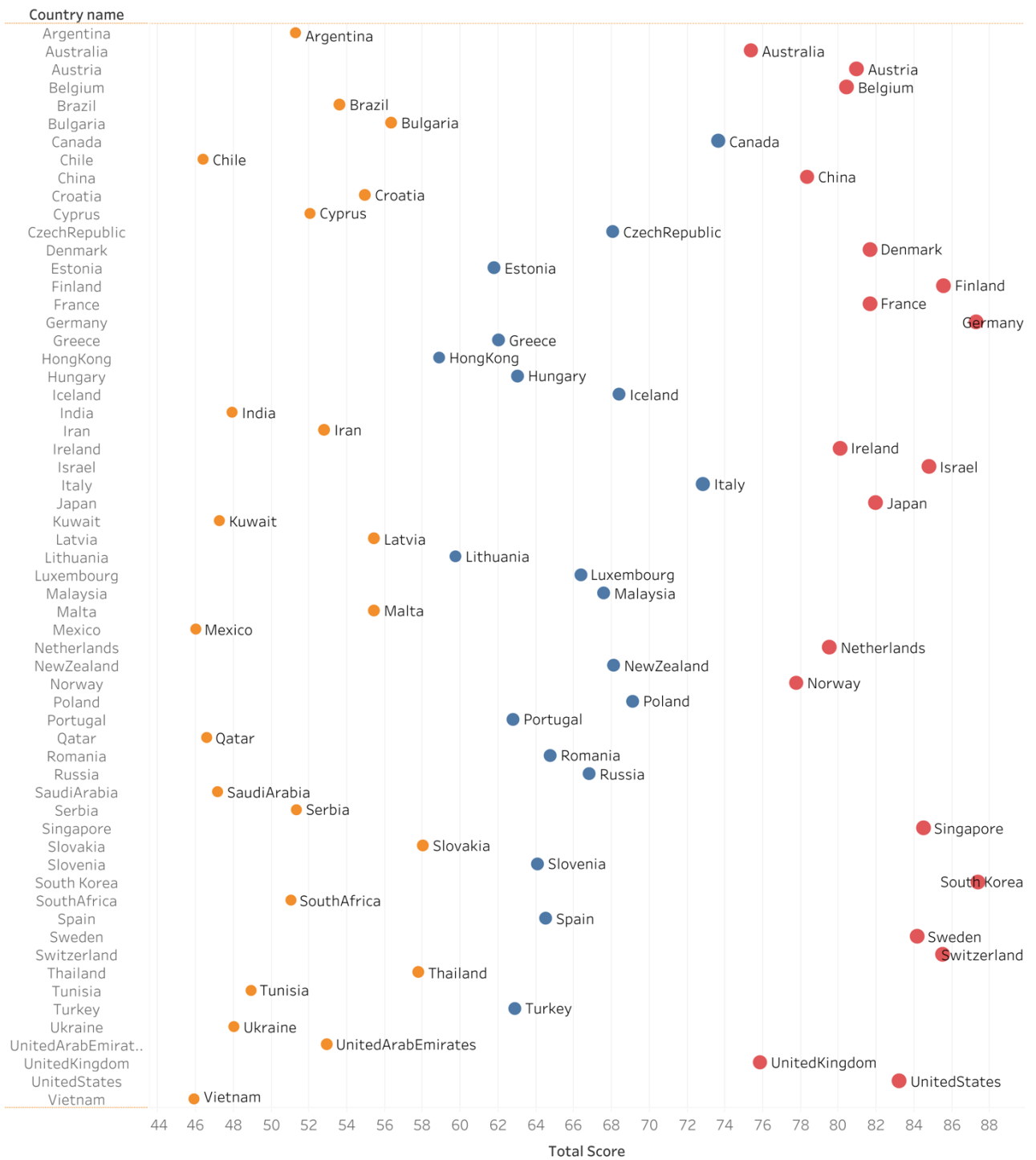


Figure 9. Bloomberg Innovation Index 2019

Low, Medium, High scores

More than 99 percent of all firms in Germany fits to be SMEs. SMEs as known as “Mittelstand” in Germany are countries strongest drivers of innovation and technology. “Mittelstand” model is renowned across the nations of the world. According to the study on SMEs authorized by the Federal Ministry for Economic Affairs and Energy⁶, innovative SMEs will continue to be the driving force behind “Made in Germany” brand. Having the needed mindset, entrepreneurs embrace new trends, especially digitization and high-tech innovations, SMEs have great opportunities to remain prosperous in their selected specific niche markets.

The fact that in times of recession, German “Mittelstand” rely on interacting with labor unions, deciding to decrease work times and wages to appropriate level instead of laying off its workers shows the favorable and creative mindset of managers. This tactic is feasible because the ownership of the firms is under the founder family which is a special business culture that most of the German small and middle-sized firms have in common. They are known to favor continuity and aim for long term success and growth hence they are highly accountable in their negotiations with staff, customers and business associates coupled with fast decision making due to small or no hierarchy.

An additional advantage of “Mittelstand” firms is that they are widely known and perceived by global players around the world. The number of German firms is extremely high amid worlds hidden champions which is because of their exceedingly specialized products and services that are produced by niche market players and aid and supply large multinationals.

⁶ Bundesministerium für Wirtschaft und Energie – www.bmwi.de

Figure 10 shows the achievements of German small and medium-sized firms. It is evident that more than half of the jobs are created by small and medium enterprises. Moreover, the main share of apprenticeships is being provided by SMEs which shows quality human capital accumulations within the market.

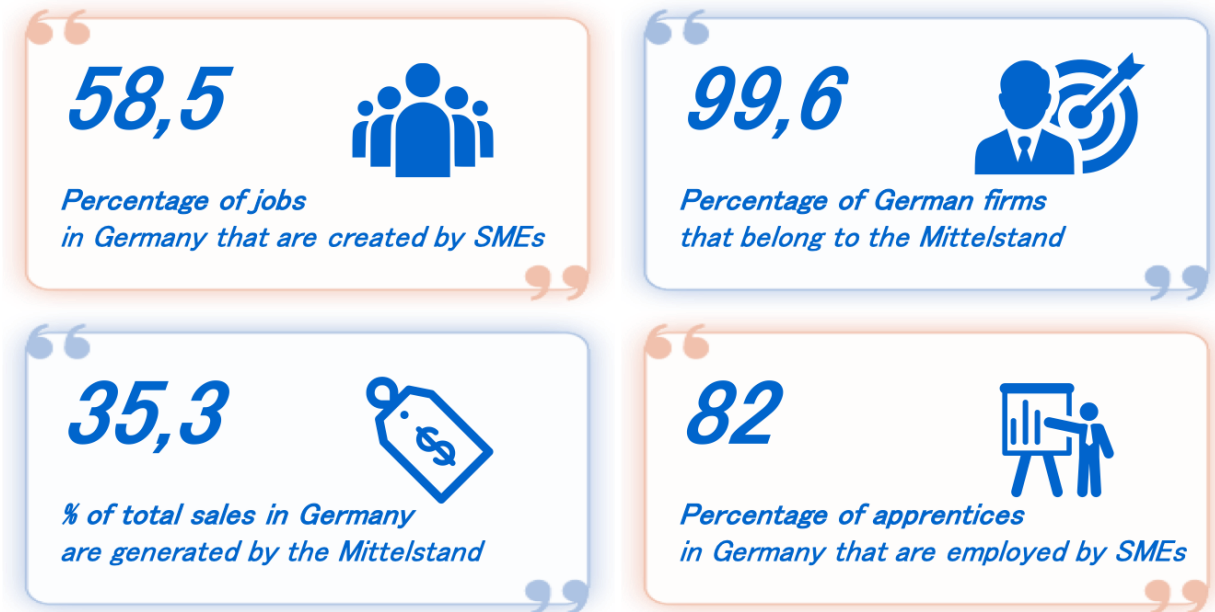


Figure 10. Four main figures on SMEs in Germany

Chapter 3

In the last chapter Germany and Azerbaijan SMEs, overall economy and its specific indicators related to SME segment will be compared. The conceptual framework developed by OECD to assess the environment with the help of selected indicators, bringing together hard and soft components of the business environment, containing institutional and regulatory framework, access to markets, access to resources and entrepreneurial culture. The comparison using selected parts of this framework will yield a holistic view of SMEs in Azerbaijan and help the author give related solutions and recommendations of utilizing innovation economy specific for the Azerbaijani market.

Case of Azerbaijan: Current Situation

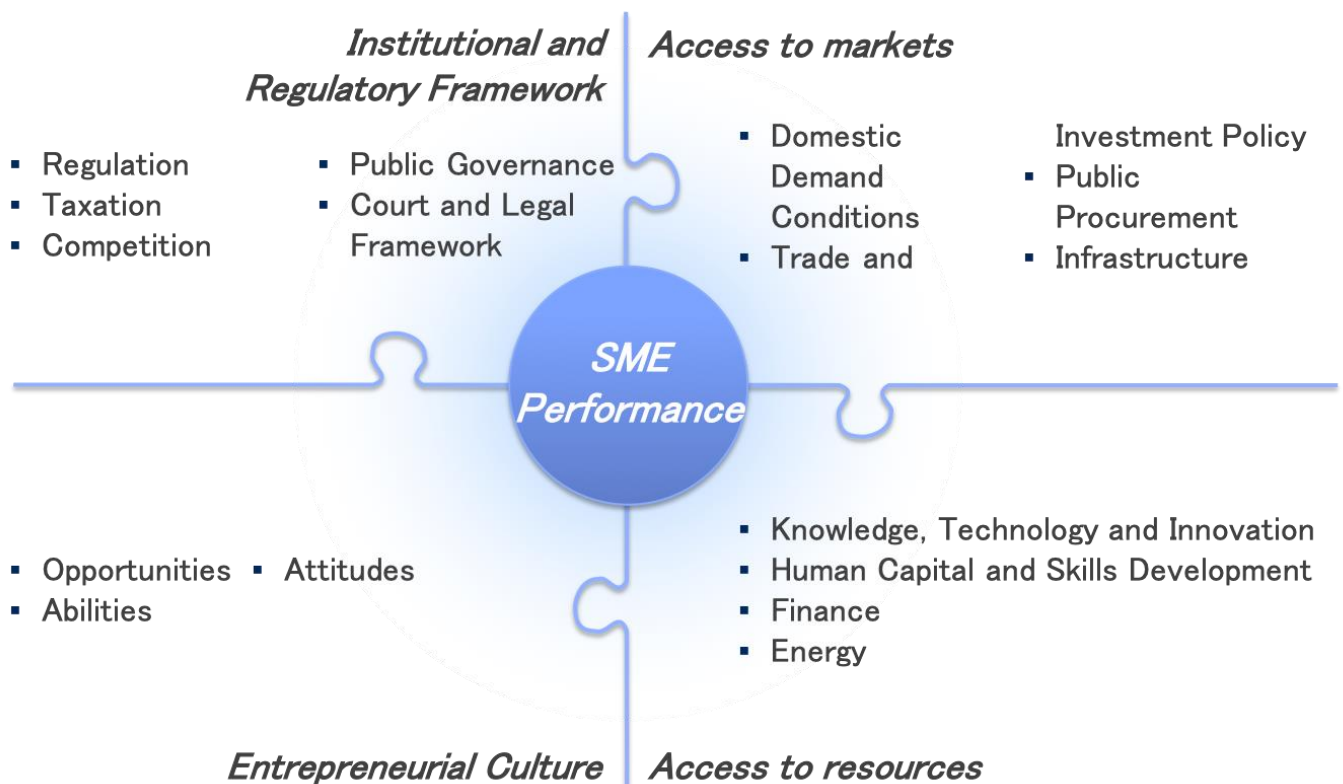


Figure 11. SME business environment: A conceptual framework (OECD)

The Azerbaijani government has been paying special attention to the development of small and medium-sized enterprises. The agenda on

SMEs has moved ahead on government's program because of Azerbaijan's heavy dependence on oil production and export hence being ultimately exposed to external shocks. This argument makes it crucial to focus on diversification of the economy.

With the help of reforms made by government Azerbaijan was able to make a huge leap from 57th place to 15th, advancing 32 steps up among 190 countries being analyzed in the "Doing Business 2019" report published by World Bank Group. This shows the dedication of the government to the improvement of the entrepreneurship environment in the country. While seeing noteworthy advancements in sections such as starting a business, dealing with permits, getting credit, protecting minority investors and paying taxes, however, it descended on trading across borders and enforcing contracts (CESD⁷, 2019).

**Increase the SME
contribution to GDP:**

15%

**Increase the SME
contribution to Employment:**

20%

**Increase the SME contribution to
non-oil export:**

10%

Figure 12. Target indicators according to Strategic Road Map of Azerbaijan

⁷ Center for Analysis of Economic Reforms and Communication of Azerbaijan Republic

Governments support toward SME's may also be seen from 2016 the Strategic Road Map of Azerbaijan which had a section which aimed toward the production of consumer goods at the level of SMEs. By adoption of the road map government targets to increase the contribution of small and medium enterprises to the gross domestic product, employment and non-oil export (Figure 14).

Definitions of SMEs: Germany and Azerbaijan. In order to start comparing economic indicators of two countries and their statistical data, it is necessary to go over the definitions of both countries. According to the decree⁸ of the Cabinet of Ministers of the Republic of Azerbaijan dated on December 21, 2018, new criteria were approved (Table 1).

Table 1. Criteria of SMEs in Azerbaijan (2018)

Entrepreneurship category in terms of size	Average number of employees	Annual revenue (<i>ar</i>) (000's AZN)
Micro	1 – 10	≤ 200
Small	11 – 50	$200 < ar \leq 3\ 000$
Medium	51 – 250	$3\ 000 < ar \leq 30\ 000$
Large	251 and above	$30\ 000 < ar$

Criteria for German firms is quite similar to the one that Azerbaijan uses to define. However, the main difference between them is on annual revenue or turnover of the firms. According to Table 2 for

⁸ No. 556 (<https://cabmin.gov.az/az/document/3251/>)

Table 2. Criteria comparison for SMEs in Germany and Azerbaijan

	AZ	DE	AZ	DE
Entrepreneurship category in terms of size	Average number of employees	Average number of employees	Annual revenue (million EUROS)	Annual revenue (million EUROS)
Micro	1 – 10	up to 9	up to 0.1	up to 2
Small	11 – 50	up to 49	up to 1.6	up to 10
Medium	51 – 250	up to 249	up to 15.6	up to 50
Large	251 and above	more than 249	more than 15.6	more than 50

German small and medium-sized enterprise's annual turnover upper limit is 8.4 million euros and 34.4 million euros higher, respectively, than the criteria approved for Azerbaijani firms. This shows the revenue generation difference between two countries. German SMEs generated greater part of sales within the economy which can be linked to their efficiency and effectiveness achieved due to highly skilled human capital and technological advancements.

Table 3. Main macro indicators of SMEs in Azerbaijan 2017

Indicators	Small	Medium	SME
Value added , million manat	3,051.90	755.70	3,807.60
Number of employees , thsd. person	101.90	188.20	290.10
Average monthly nominal wages , manat	331.50	365.90	348.70
Investments directed to fixed capital , million manat	2,064.80	1,233.80	3,298.60
Output , million manat	4,884.70	1,384.90	6,269.60

Statistical review and comparison. According to the State Statistical Committee in 2017, there were 165,386 small and 4217 medium-sized enterprises in the economy. SME value added inflow amounts to 3,807.60 million manats capturing only 5.9 percent share in the economy of the country. Similarly, SME output production amounts

to 6,269.6 million manats capturing only a 6 percent share in the economy of the country (Table 3 and 4). It is worth to mention that small firms are better at value addition and output production than medium firms which indicates the efficiency of small firm size.

Table 4. Share in the production of economic activity types

Share in Production	Small	Medium	SME
Agriculture, forestry and fishing	0.90 %	0.68 %	1.58 %
Industry	0.70 %	0.81 %	1.51 %
Construction	1.10 %	3.73 %	4.83 %
Trade; repair of transport means	7.50 %	0.56 %	8.06 %
Transportation and storage	8.90 %	1.30 %	10.20 %
Accommodation and food service activities	45.58 %	2.93 %	48.51 %
Information and communication	1.21 %	5.15 %	6.37 %
Real estate activities	7.15 %	19.80 %	26.96 %
Education	10.86 %	22.07 %	32.93 %
Human health and social work	11.72 %	21.55 %	33.27 %
Provision of services in other areas	13.09 %	7.88 %	20.97 %
Total for types of economic activity	4.7%	1.3%	6.0%

In order to understand which industries Azerbaijani SMEs mainly operate it is of help to analyze the number of employees. It can be seen from Figure 13 that there are drastic differences between German and Azerbaijani SMEs on this particular indicator. The primary industry that attracts SMEs; thus its employees is wholesale, retail trade and repair of motor vehicles. On the other hand, Germany "Mittelstand" focus on

service activities including accommodation and food, administrative and support service activities. Information and communication being one of the focus areas of innovation economy see only 7,955 people employed in Azerbaijan by SMEs, while in Germany the same indicator shows 1,476,897 persons. Respectively, German SMEs generate the highest turnover in service activities totaling for 987,021 million euros, whereas in Azerbaijan wholesale and trade SMEs turnover amount for 568,439.20 thousand manats.

Number of small and medium sized enterprise employees

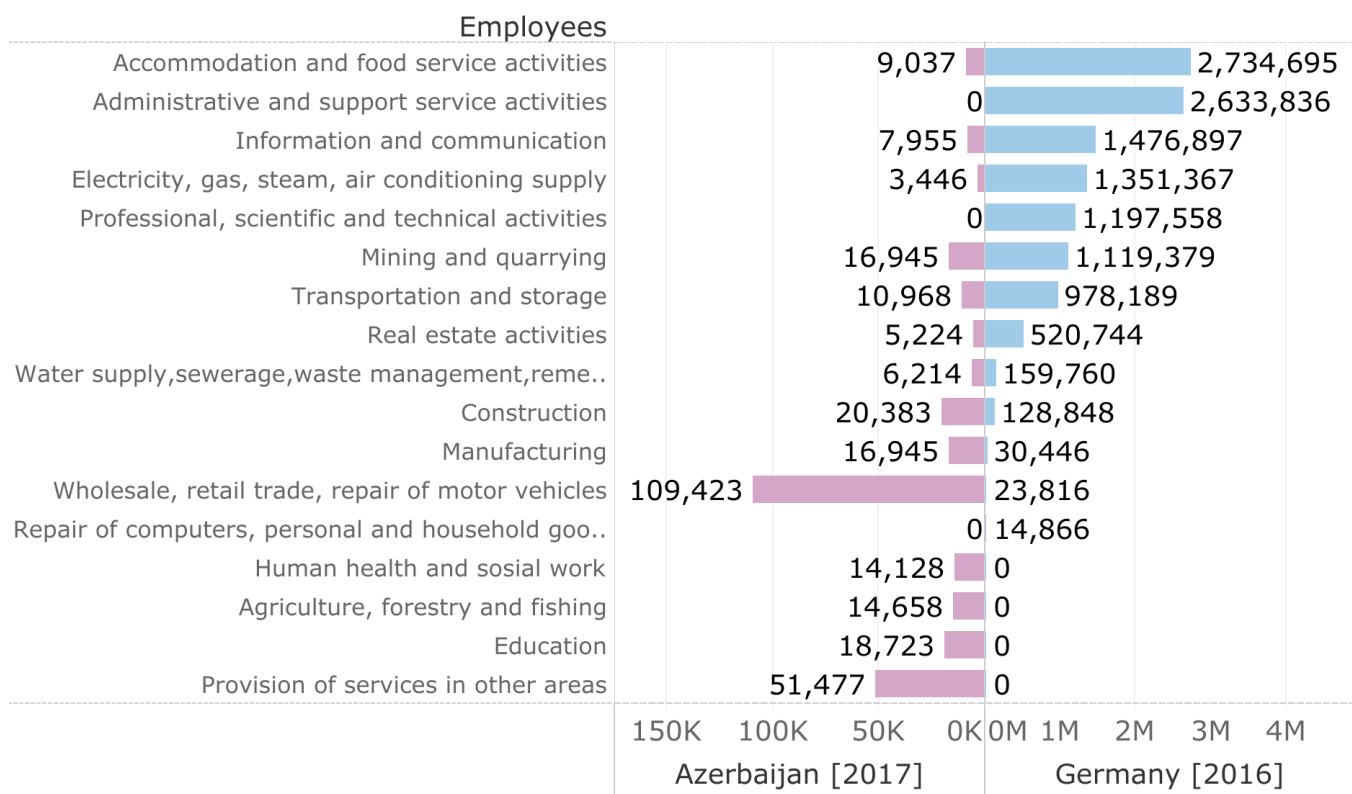


Figure 13. Number of employees in SMEs according to industry types

Summary of data. The data gathered from each country state statistical committee makes it evident that the focus of SMEs in both countries are different from each other. For example, as it can be seen from the figure, there are a number of agricultural as well as educational SMEs prevalent in Azerbaijan while Germany has no employees hence

firms in that industry. However, it should be mentioned that German SME's are especially active in the sphere of professional, scientific and technological activities whereas Azerbaijan has no such small and medium-sized enterprises.

Conclusion

With approaching fourth industrial revolution in advance economies and increasing popularity of the third industrial revolution in emerging economies make it a necessity to use the full potential of innovation economy. Chapter 1 justified the rationale behind the need for an innovative economy whereas chapter 2 showed the importance of small and medium-sized enterprises taking Germany "Mittlestand" model as a benchmark.

The research done for the paper gives the confidence to believe that the role of innovation economy in SMEs are of high significance. Clearly, SMEs with ambitious goals aim to achieve growth and in order to achieve their ultimate goal they use strategies such as internationalization. Hence, they need to increase their effectiveness and efficiency which can be accomplished with the help of innovation economy, remarkably by focusing on research and development, innovation and creative environment and entrepreneurship.

However external factors should also be developed. Barriers of entrepreneurial activities or capabilities, bureaucracy, lack of quality knowledge, lack of related legislative acts should be a high priority for development.

SMEs role in Germany's economy cannot be unseen. The strong support from the government side, long-established entrepreneurial culture, innovative and diverse, and with specific and niche market focus are of some factors that make the German "Mittelstand" model a success. Azerbaijan being a developing country also started focusing on entrepreneurship due to the leaning to diversify from oil and gas industry. Diversification was one of the driving forces for putting SME production

and development in Strategic Road Map. With aggressive 2025 strategic objectives will secure Azerbaijan with a more favorable business environment, increase the employment by SMEs, increase the share of export by SMEs, ensure that primary consumer goods are produced by SMEs. The strategic targets put regarding increasing the role of SMEs in the overall economy includes developing knowledge and skills of SMEs, budding business incubators, promotion of entrepreneurial mindset, expanding the promotion of research and development activities and founding innovation infrastructure encouraging SMEs. These targets suggest the greater role of innovation economy on small and medium-sized enterprises.

Suggestions and implications. It is evident that exploiting innovation economy is for a greater benefit. SMEs are not the only parties in the progression getting the advantage. Moreover, the problems being fixed with the help of innovation economy can be internal as well as external. Thus, it is crucial that institutions, government, society, and firms work together towards the same goal.

The recommendations for policymakers. It is recommended for the government to pursue active internationalization of SMEs and encourage them with subsidies. Internationalization strategy will let SMEs diffuse to other markets hence boosting them to innovate and survive the international competition. They should also help SMEs develop business networks and appropriate knowledge (as of AzPromo).

The recommendation for entrepreneurs and managers. It is recommended that entrepreneurs support the continuous development of employees by stimulating their participation in numerous training programs. Additionally, close cooperation with science and education

institution will be beneficial for future acquiring of research and development.

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Appendix

Table 5. Data on German SMEs (Latest available, 2016)

Germany SME Data, 2016	Enterprises	Persons employed	Turnover, Mill. EUR	Gross investment in tangible fixed assets, Mill. EUR	Gross value added at factor cost, Mill. EUR
Wholesale, retail trade, repair of motor vehicles	124,941.00	23,816.00	4,818.00	420.00	1,772.00
Accommodation and food service activities	74,951.00	2,734,695.00	381,692.00	12,505.00	143,739.00
Manufacturing	64,719.00	30,446.00	18,565.00	1,946.00	5,417.00
Construction	58,311.00	128,848.00	29,650.00	3,824.00	12,948.00
Professional, scientific and technical activities	47,569.00	1,197,558.00	144,691.00	3,879.00	60,284.00
Administrative and support service activities	31,664.00	2,633,836.00	605,329.00	9,837.00	122,303.00
Transportation and storage	29,086.00	978,189.00	96,343.00	6,174.00	41,375.00
Information and communication	16,573.00	1,476,897.00	54,825.00	2,521.00	28,484.00
Real estate activities	12,645.00	520,744.00	71,710.00	1,803.00	35,198.00
Water supply, sewerage, waste management	3,778.00	159,760.00	62,012.00	19,780.00	35,249.00
Mining and quarrying	1,276.00	1,119,379.00	128,006.00	4,406.00	70,273.00
Electricity, gas, steam, air conditioning supply	663.00	1,351,367.00	75,215.00	4,262.00	41,476.00
Repair of computers, personal and household goods	576.00	14,866.00	1,506.00	40.00	609.00

Table 6. Data on Azerbaijani SMEs (Latest available, 2017)

Azerbaijan SME 2017	Trade turnover, thsd. manats	Number of people employed
Agriculture, forestry and fishing	-	14,658.00
Mining industry	398.20	1,551.00
Manufacturing industry	7,554.40	16,945.00
Electricity gas and steam production, distribution and supply	-	3,446.00
Water supply; wastes treatment and disposal	-	6,214.00
Construction	7,586.00	20,383.00
Trade; repair of transport means	568,439.20	109,423.00
Transportation and storage	1,584.90	10,968.00
Accommodation and food service activities	2,493.50	9,037.00
Information and communication	1,899.90	7,955.00
Real estate activities	1,824.80	5,224.00
Education	119.70	18,723.00
Human health and social work	897.20	14,128.00
Provision of services in other areas	23,074.60	51,477.00