T.C.
UNIVERSITY OF GAZIANTEP
GRADUATE SCHOOL OF SOCIAL SCIENCES
DEPARTMENT OF BUSINESS ADMINISTRATION

NATIONAL CULTURE AND INNOVATIVENESS: A CROSS-NATIONAL COMPARISON

MASTER'S THESIS

HAKAN KÖSE

GAZIANTEP
JUNE 2018

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GAZİANTEP ÜNİVERSİTESİ
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National Culture and Innovativeness: A Cross-National Comparison

HAKAN KÖSE

Date of viva: 26.06.2018

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Hakan KÖSE

ABSTRACT

NATIONAL CULTURE AND INNOVATIVENESS: A CROSS-NATIONAL COMPARISON

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The aim of this study is to find out how national cultural characteristics affect innovativeness at the national level, and based on national culture-organizational culture relationship to make inferences about cultural factors support or hinder innovativeness at the organizational level. In this respect, in order to reveal the relationship between innovativeness and culture at the national level were referred to Hofstede's cultural dimensions and to Global Innovation Index (GII) reports. In this regard, multiple linear regression analyses were performed by determining the six cultural dimensions scores of each country as independent variables and the innovativeness scores of these countries as dependent variables. The number of countries consist the sample of our study varies between 73 and 78 depending on mutual available data of two data sets between 2011 and 2017. Findings of the analyses showed that cultural characteristics have a considerable impact on innovativeness. It was found that cultural characteristics of individualism, long-term orientation, and indulgence affect innovativeness positively while large power distance's effect on innovativeness is negative. However, no significant relationship was found between innovativeness and characteristics of masculine and high uncertainty-avoidance cultures.

Keywords: Innovation, Innovativeness, National Culture, Organizational Culture, Hofstede's Cultural Dimensions

ÖZ

ULUSAL KÜLTÜR VE YENİLİKÇİLİK: ULUSLARASI BİR KARŞILAŞTIRMA

KÖSE, Hakan
Yüksek Lisans Tezi, İşletme ABD
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Bu çalışmanın amacı ulusal düzeyde kültürel özelliklerin yenilikçiliği nasıl etkilediğini tespit etmek ve ulusal kültür ile örgüt kültürü arasındaki ilişkiye dayanarak örgütsel düzeyde daha yenilikçi olunmasını engelleyen ve destekleyen kültürel faktörlerin neler olabileceği konusunda çıkarımlarda bulunmaktır. Bu bağlamda, ulusal düzeyde kültürel özellikler ile yenilikçilik arasındaki ilişkiyi incelemek için Hofstede'nin ulusal kültür boyutlarına ve Küresel İnovasyon Endeksi (GII) raporlarına başvurulmuştur. Bu doğrultuda her bir ülkenin altı kültürel boyut skorları bağımsız değişkenler ve bu ülkelerin yenilikçilik skorları bağımlı değişkenler olarak belirlenerek çoklu doğrusal regresyon analizleri uygulanmıştır. Çalışmanın örneklemini oluşturan ülke sayısı 2011 ve 2017 yılları arasındaki iki veri setindeki ortak ulaşılabilir verilere bağlı olarak 73 ila 78 arasında değişmektedir. Analiz sonuçları ulusal kültürel özelliklerin yenilikçilik üzerinde güçlü bir etkiye sahip olduğunu ortaya koymuştur. Bulgular, bireycilik, uzun döneme odaklılık ve hoşgörü gibi kültürel boyut özelliklerinin yenilikçiliği olumlu yönde etkilediğini gösterirken, yüksek güç mesafesinin ise yenilikçiliği olumsuz yönde etkilediğini göstermiştir. Erillik ve belirsizlikten kaçınma kültürel boyutları ile yenilikçilik arasında ise anlamlı bir ilişki bulunamamıştır.

Anahtar Kelimeler: İnovasyon, Yenilik, Yenilikçilik, Ulusal Kültür, Örgüt Kültürü, Hofstede'nin Kültürel Boyutları

ÖN SÖZ

Bu tezin hazırlanmasında çalışmanın başından tamamlanmasına kadar geçen süreçte benden desteğini esirgemeyen, tavsiyeleri ve yönlendirmeleriyle çalışmanın düşünsel temelinin oluşturulmasında katkısı büyük olan, yoğun iş temposuna rağmen bana o değerli vaktini ayıran tez danışmanım Sayın Dr. Öğr. Üy. Özlem YAŞAR UĞURLU'ya ve hayatımın her döneminde bana destek olan, bugünlere gelmemde büyük emekleri olan, haklarını ödeyemeyeceğim babam Fevzi KÖSE ve annem Fatma KÖSE'ye müteşekkir olduğumu belirtmek isterim.

Haziran, 2018
Hakan Köse

CONTENTS

LIST OF TABLES

LIST OF FIGURES

Page No

CHAPTER ONE
1. INTRODUCTION

1.1. INTRODUCTION

At the beginning of the 19th century, when the accumulation of knowledge and technological development was not as developed as today, the alternatives of a specific good or service for consumers were restricted. Since equilibrium of supply and demand was in favor of suppliers, one of their most important objective was to produce the products/services as efficiently as possible.

However, increase in knowledge accumulation, and hence technological development, reflected to the development of communication and transportation means as well as the product diversification and supply quantity. In this period that is called globalization, targeted market audiences have begun to expand for suppliers. By this way, suppliers have begun to not only offer their products to the cities or countries they operate in, but also, thanks to increased communication and transportation means, to the all over the world. Since alternatives of products, which are purchased by consumers in order to meet any need of themselves have increased, suppliers have begun not only to focus on productivity but also on marketing activities.

Thus, alongside the increase in competition among competitors day by day, consumers' mindshare also have increased. Customers have begun to prefer the products/services of companies which are create value for them. In this case, companies have realized that they should produce their products/services in a different way from their competitors in order to compete with them. Unless they do not do so, they would find themselves in a situation unable to compete in a short time.

The business world and academicians who have realized this issue, put forward the concept of innovation. Bessant et. al. (2005) stated that innovation represents the

core renewal process in any organization. Unless it changes what it offers the world and the ways in which it creates and delivers those offerings, it risks its survival and growth prospects. Zahra and Covin (1994) considered innovation as the life blood of corporate survival and growth.

Many researchers who aware of the importance of innovation have been searching answers to the question of "How to be more innovative?" for years. There are lots of studies in literature that investigate the factors can be effective on innovativeness either positively or negatively at the individual, organizational, and national level. There are lots of arguments about what these factors are. Literature submits a wide variety of factors that affect innovativeness. For example Dakhli and De Clercq (2004) examine the effects of social capital and human capital on innovation at the national level. Varsakelis (2006) investigates how the quality of political institutions and of education affects national innovation activity. Steel et. al. (2012) have shown the relationships between personal characteristics and innovation at the individual level. Bayram (2013) investigates the effects of leadership behaviors on innovativeness at organization level. Akmaz et. al. (2016) examine the impacts of technological and social capability components on innovation capacity. On the other hand Jaffe (1989), George et. al. (2002), Motohashi (2005), Hanel and St-Pierre (2006), and Marotta et. al. (2007) point out to the impact of university-industry collaborations on innovativeness.

Because of innovation is the result of human action and culture is one of the most important factors shaping people's behavior, we thought that cultural characteristics must be one of the factors which affects innovativeness. In this respect, we aimed to determine whether the cultural characteristics are effective on innovativeness or not, and if so, to determine the level and direction of these cultural characteristics' effects.

In order to find out the relationship between innovativeness and culture were referred to Hofstede et. al. (2010) cultural classification and to Global Innovation Index reports (https://www.globalinnovationindex.org/).

Hofstede et. al. (2010)'s cultural consideration is based on one of the most comprehensive empirical studies on cultural differences to date. With their study, they aimed to specify the fundamental criteria by which national cultures differs. Based on

the results, they determined six main criteria which they labelled as power distance, individualism versus collectivism, masculinity versus femininity, uncertainty avoidance, long versus short term orientation, and indulgence versus restraint.

On the other hand for conceptualizing and operationalizing innovativeness were referred to Global Innovation Index (GII) reports. The Global Innovation Index (GII) is a project started by Professor Dutta at Insead Business School with the aim of finding metrics and approaches that measure innovativeness better than traditional measurements such as the number of patent and trademark applications.

The above-mentioned GII reports and Hofstede et. al. (2010)'s findings were used to measure the effect of national cultural characteristics on innovativeness. In this regard multiple linear regression analyses were performed by determining the six cultural dimension scores of each country as independent variables and the innovation scores of these countries as dependent variables. Analyses cover the years between 2011 and 2017 and consist of country samples ranging from 73 to 78 depending on the mutual available data of two data sets.

The study consists of four chapters;

First chapter provides the preliminary information for the readers and brief information about the purpose, scope, and the structure of the study.

Second chapter contains the information obtained as a result of the literature review which help to understand the basic concepts of innovation and culture. It consist of three sections. At the first section the concepts of innovation is examined extensively in various dimensions. At the second section the concept of culture is examined extensively in various dimensions includes culture, national culture, organizational culture, and the relations with each other. Third section consist of the studies found which investigates the relationship between innovativeness and culture.

Third chapter comprise the materials and methods used to achieve the specified research purpose. In addition to detailed information about used data sets, research model, and hypotheses, purpose and importance of the study is also included in this chapter.

Fourth chapter contains the findings and the discussion of these findings. Comparison of findings with the findings of previous studies and interpretation of the results are in this chapter.

Finally, study ends up with general conclusions inferred from the whole study and with suggestions for practitioners and academicians who are interested in relationship between culture and innovativeness.

CHAPTER TWO
2. LITERATURE REVIEW

2.1. INNOVATION

2.1.1. Definition of the Innovation

Both Zairi (1994) and Cooper (1998) have suggested that one of the challenges of innovation is the lack of a common definition, which undermines understanding of the nature of innovation. Adams et. al. (2006) stated that the term innovation is notoriously ambiguous and lacks either a single definition or measure. Therefore, in order to deeply understand the term of innovation, first we are going to look at different definitions of it defined in different times by different researchers.

One of earliest definition which is widely accepted in the literature is the definition made by Schumpeter in 1911. He defined the innovation as "the introduction of new goods which are not yet known by the customers or a new feature of an existing product; the introduction of a new method of production, the opening of a new market; the conquest of new sources of supply for raw materials or other inputs; or the carrying out of a new organization" (Vardarlier and Cakir, 2015). As it seen Schumpeter's definition involves not only the introduction of new goods or new feature of an existing products, but also any reform in any step of business process.

After the description of Schumpeter, other studies emerged that dealt in a different way with innovation concept in terms of components and content. In some definitions innovation was only considered as creating new products while in others it is defined as the whole process of creation, development, and implementation of new ideas. However, the common point mentioned in all definitions is to put a new idea into practice that generates economic benefits.

For instance, Amabile (1996) simply defines the innovation as “the successful implementation of creative ideas”. Zaltman et. al. (1973) state that “innovation is any idea, practice, or material artefact perceived to be new by the relevant unit of adoption”.

Wong et. al. (2009) define innovation as “the effective application of processes and products new to the organization and designed to benefit it and its stakeholders”. The definition of Wong et. al. (2009) differs from the definitions we have examined before in terms of aim of the innovation. With a wider scope, they do not only put emphasis on the benefits of innovation to organization itself, but also to the all stakeholders closely or remotely related to the organization.

Similarly, Kanter (1983) defines the innovation and gives some examples to benefits of innovation in her book. She defines innovation as “the process of bringing any new problem-solving idea into use. Ideas for reorganizing, cutting costs, putting in new budgeting systems, improving communication, or assembling products in teams are also innovations. Innovation is the generation, acceptance, and implementation of new ideas, processes, products or services”.

Myers and Marquis (1969) define innovation from system approach point of view and define it as “a complex activity which proceeds from the conceptualization of a new idea to a solution of the problem and then to the actual utilization of economic or social value”. According to them innovation is not just the conception of a new idea, nor the invention of a new device, nor the development of a new idea, nor the development of a new market. The process is all of those things acting together in an integrated fashion.

Some innovation related concepts can be confused with innovation. One of them is invention. Innovation is not invention. It is not about inventing the undiscovered. Its goal is to explore ways which create economic or social value. Innovation requires commercial success, but making inventions cannot guarantee the commercial success. Can be benefited from inventions in order to innovate but unless an invention is commercialized, it could not be considered as an innovation. For example, J. Murray Spengler invented the vacuum cleaner. But his invention was useless for a long time because he could not commercialize it. A leather manufacturer named W. H. Hoover purchased Spangler's patent of the vacuum cleaner and commercialized it by putting it in

a form suitable for usage of people in their daily life. In this example what Spangler did is an invention and what Hoover did is an innovation (Elci, 2006:18).

2.1.2. Characteristics of the Innovation

Although there are many definitions of innovation and there is no completely consensus on a single definition, it is possible to say that there is a great deal of thought on the basic features of the innovation. Determination of characteristics of innovation will provide a better understanding of what exactly desired to be expressed by definitions stated above about innovation. The common characteristics of the innovation can be summarized as follows:

To be simple and focused: Complex innovation processes designed for multiple problems or needs could not be effective enough. Innovation must be focused on a single problem or need and must be designed in a simple, easy, and understandable way in order to be successful (Drucker, 1998).

To be commercialized: One of the most important feature that an idea must have in order to be transformed into innovation is to be commercialized. It seems that many new product or service ideas with revolutionary qualities have failed at the stage of commercialization. Television, for example, which became part of our daily life, was first invented by Philo Fransworth in 1927. However, the idea of making it suitable for consumers' usage and commercializing it was done by David Sarnoff. Sarnoff by commercializing the new product idea, transformed the idea into innovation (Carlson and Wilmot, 2006).

To be an interactive process: Innovation is an interactive process. The perception of innovation is only made by creative people or research and development teams is wrong. During the innovation process is referred to the thoughts and ideas of many people. Diversification of these ideas and thoughts of many people and integration of them for a specific purpose is an important factor that makes innovation process results successfully. This is possible by managing it as an interactive process (Fuglsang, 2008:3).

To be problem solving: The source of innovation is the problems encountered. Any type of innovation emerges as a solution to a problem. Spradlin (2012) states that a

company should produce innovative solutions to their main problems that are compatible with their strategies instead of wasting their time and resources by making innovations that are inconsistent with their strategies. Firstly, the necessary preliminary studies should be done to identify the problem, then the process of resolving the need in an innovative way must be started. In this way, more efficient innovations can be realizable.

To be sustainable and systematic: Innovation does not occur with the development of just a single idea. It does not provide success for once. Innovation is a cycle process with a more systematic approach consists of specific steps. The continuity of innovation activities in a sustainable way is important for successful results (Hargadon and Sutton, 2000).

To be risky: As well as the benefits they provide to business, it is known that innovation carries high risks. There is no guarantee that every commercialized idea will be create demand at market. On the other hand, beside uncertainties in forecasting demand, many factors threatening the continuity of the innovation process such as imitation of innovation, spread of innovation, openness of the sector to innovation, and the lack of highly qualified human resources (Sgourev, 2012; Merton, 2013).

Uzkurt (2008) lists the organizational and social characteristics of innovation as follows:

- Innovation is a process and it is continuous (organizational).
- Innovation is one of the most important competitive tools (organizational).
- Innovation is problem-solving process (organizational).
- Innovation is an output of integration of functions (organizational).
- Innovation is a value that creates economic and social benefit (social and organizational).
- Innovation is an output of a cultural environment that supports it (social and organizational).
- Innovation is a mean which helps to adaption to the environment and integration with the environment (social and organizational).
- Innovation is a mean which increases quality of life and level of welfare (social).

2.1.3. Sources of the Innovation

Innovation may stem from internal factors such as unexpected occurrences, incongruities, process needs, changes in industry and market structure, as well as from external factors such as demographic changes, changes in perception of people, and emergence of new information (Drucker, 1998:4-7).

Unexpected Occurrences: Events occurred unexpectedly that are incompatible with the plans are one of the internal factors that obligates the companies to innovate. Unexpected events create problems or opportunities. Making use of the opportunity or solving the problem may result with an innovation. Entities can make use of the causes or consequences of these events as an input and accordingly can make innovations (Drucker, 1998:4).

Process Needs: If the process used by a company is no longer able to meet the needs, it is necessary to change and develop it to be able to respond to the needs. Improving the existing process or replacing it by the new one is considered as innovation because this involves changes such as cutting costs, improving quality and productivity, creating additional benefits which are increase commercial success (Adiguzel, 2012:18).

Changes in industry and market structure: Slow or fast every sector and market structure is in constant change. These changes are forcing companies to innovate. Market gaps that derived from rapid growth of a sector is an opportunity for innovators. Changes in industry or market should be constantly observed and analyzed by companies in order not to miss the opportunities for innovation (Demirci, 2006:104-105).

Demographic changes: Changes in population average age, education level, income level, and other demographic characteristics create opportunities for innovation. However, in order to be able to catch these opportunities, it is necessary to analyze changes in population structure because demographic changes cause to new needs and new needs triggers innovations. For example in countries, where the young population is growing, lifestyle of young's triggers innovations while in countries where the elderly population is growing, needs of elders trigger the innovations in health, security, and tourism sectors.

Changes in perception: Nowadays mass media has a significant effect on the perception of the societies. Changes in the perception of the society is an external source of innovation for the enterprises. Because changes on perception consequently change the needs of consumers. What is important here is to recognize the changing in perception of the consumers and accordingly making the innovations (Dincer, 2010:29).

Emergence of new information: Information-based innovation arises from the accumulation of information in many areas and their association with each other. Emergence of new information in different areas can be a source of innovation for the products or services already in use or for new products/services that will satisfy our undiscovered needs (Drucker, 1998:7).

2.1.4. Main Types of the Innovation

Although there is no consensus on how to classify innovation types in the literature, similar classifications have been made. Innovation types with the same content and features were named differently. In our paper we will refer to the classification of Oslo Manual which is a joint publication of OECD and Eurostat. OECD and Eurostat (2005:47) classifies the innovation into four main types: product innovations, process innovations, marketing innovations, and organizational innovations.

2.1.4.1. Product innovations

Product innovations can be in the form of a new product or service idea that has not previously been available on the market, but can also be achieved by upgrading and adding various features to an existing product. Product innovation can be realized in the form of a product which has been unprecedented in the market before, technologically new, and presented for the first time in the market or by redesigning the product in such a way that it changes the way it is used, its area, its features, so that users get different values and benefits. For example while digital cameras can be considered as new product innovation, camera feature added to mobile phones also can be considered as product innovation (Ovacı, 2015).

Product innovations in service sectors include remarkable improvements in the way they are provided (e.g. in terms of efficiency or speed), new functions or features

added to existing service or offering completely new services. Internet banking service that offer speed and ease of use for customers or the addition of home delivery services that facilitate the access of customers to rental vehicles can be given as examples to the product innovations in service sector (OECD and Eurostat, 2005:48)

According to OECD and Eurostat (2005:149) product innovations exclude the following:

- Minor changes or improvements,
- Regular upgrades,
- Routine periodic changes,
- Modification for a single customer that does not include considerably different features compared to products made for other customers,
- Formal changes that do not change the function, purpose of use, or technical specifications of a good or service,
- Resale of new products and services that are purchased from other suppliers without adding any value to product or service.

It has become a necessity for enterprises to make product innovations in order to meet the high and complex expectations and needs of customers (Hoonsopon and Ruenrom, 2012). Customers are the main source of product innovations. The appreciation of product by the customers in market shows the success of the product innovation (Jacques et. al., 2009). Therefore, co-operating with customers in this process reduces the possibility of rejecting of product by the market (Tether, 2002). So, making innovations by gathering the opinions of customers through proactive market research is recommended for the process of product innovations (Vrande et. al., 2009).

2.1.4.2. Process innovations

Process innovation is the implementation of a new or significantly improved production or delivery method. Any innovation that is made in production methods such as techniques, equipment, and software used to produce goods or services or any innovation that is made in delivery method which intended to decrease unit cost of production or delivery, to increase quality, or to produce new or significantly improved products involves process innovations (OECD and Eurostat, 2005:49)

"Just in time production method" developed by Toyota is one of the best examples of process innovations. In this system the amount of stock is kept at minimum, the needed product is produced as needed and as much as needed. This increases productivity and provides flexibility to respond quickly to changes.

The most fundamental criterion that enables us to distinguish process innovation from product innovation is that process innovations are connected to the intrinsic structure of enterprise while product innovations are customer and market oriented.

2.1.4.3. Marketing innovations

OECD and Eurostat (2005:49) define marketing innovation as "the implementation of a new marketing method involving significant changes in product design or packaging, product placement, product promotion or pricing".

Marketing innovations' aim is to open up new markets or to position a firm's product in the market in a different way, in order to increase sales of the company, and to respond to the customer needs more successfully (Bicimveren, 2017:31).

Marketing innovations are include product design innovations, product placement innovations, product promotion innovations, and pricing innovations (Shergill and Nargundkar, 2005:32).

Product design innovation: Marketing innovation involve distinctive modifications in product design. Product design modification mentioned here express the changes in appearance of product that do not change the product's function (OECD and Eurostat, 2005:50).

Product placement innovation: Product placement innovation includes developing of new sales channels. The sales channels mentioned here do not imply the logistics methods such as transport, warehousing, and administration of products that are primarily concerned with productivity, but refer to the methods used for sales. (Eskiler et. al., 2011:38). Introduction the franchising system for the first time can be given as an example to the product placement innovations (OECD and Eurostat, 2005:50).

Product promotion innovation: Introduction of new models for the promotion of a company's products and services are product promotion innovations. For example,

using different techniques in media such as product positioning in cinema, or using famous people's advices in advertisements firs time are examples of product promotion innovations (OECD and Eurostat, 2005:50).

Pricing innovation: Pricing innovations are covers the use of new pricing methods. The implementation of new way for the first time that enable customers to select the preferred product properties via the company's website and to see the price of the designated product is an example to price innovation. The new pricing policy, which is differentiate single-purpose prices according to customer segments is not considered as innovation (OECD and Eurostat, 2005:50).

Vitra's "junior bathroom" for children is a good example of marketing innovation. These products are targeted specifically for kindergartens and day-care centers and designed with child ergonomics in mind. Simple ideas such as different color options, products in frog form, tile series in which cartoon characters are placed, and product sizes varies accordance with the length of children help the company to acquire a unique place in market (Elci, 2006:12).

2.1.4.4. Organizational innovations

OECD and Eurostat (2005:51) define organizational innovation as "the implementation of a new organizational method in the firm's business practices, workplace organization or external relations".

Organizational innovations are carried out in order to reduce administrative costs and increase the satisfaction and productivity of the employees. It includes the development of new concepts for structuring activities such as the integration of business activities and organizational units, new methods of distribution of responsibilities among decision-making employees, and the integration of different business activities. Organizational innovation facilitates product innovation early in the process and at the same time provides competitive advantage since it provides inimitable self-capabilities to the organizations (Kavak, 2009).

In order to identify the difference between organizational innovation and process innovation, one can look at these criteria (OECD and Eurostat, 2005:55):

- If the innovation creates a new or significantly modified production or supply method which reduce the operating costs of the business, this type of innovation is process innovation,
- If the innovation offers a new or significantly modified method of its relationship with the environment or the way it does business, then this is organizational innovation.

"Kaizen" (continuous improvement) approach, which has been implemented in Japanese companies such as Komatsu and Toyota since the 1990s and then spread to other companies is a good example to organizational innovation. Accordingly, all employees in a firm, including the labors, have a say in improving the work-related processes related to their working area. Hence, employees consistently develop ideas to upgrade their business processes (Elci, 2006:10).

2.1.5. Innovation Process

Innovation is considered as a source of success and development, yet it has a complex structure. Development and advancement through innovation is possible only if considered in a systematic framework (Pervaiz and Shepherd, 2010). İnnovation is not an automatic process that results absolutely in success. For this reason, it is important to establish and manage the right steps in order to develop and present innovative activities successfully. Firms, which successfully manage these activities, have the opportunity to develop, produce, and market their products and services by providing competitive advantage. Communication, relationship, and coordination among the units of the organization is vital to achieve the skills, abilities, knowledge, and resources required for innovation.

One of the most important approach need to be taken into account in this process is that innovations emerge as a result of many failures, retries, and experiments. It is necessary to evaluate the failures as an output and continue to develop the process by making use of these outputs (Kuczmarski, 1996).

Another important point should be considered is that focusing on radical ideas may cause to missing the growth opportunities could arise from the small and simple

ideas. Also it is important to realize innovations that are consistent with the strategy of the organization (Ovacı, 2015).

Enterprises should follow an innovation process that is consistent with their innovation strategies. Innovation strategies have a guiding role for enterprises in setting and developing innovative activities, which help to achieve organizational goals. In order to build up innovation strategies effectively in the enterprise, innovation strategy needs to be created by (Demiraglar, 2015:54):

- Recognizing the planned and/or entered market,
- Knowing who are the owners and partners of the company and what are their expectations,
- Ensuring that innovation vision is shared and embraced by all,
- Understanding the needs and expectations of employees,
- Determining the enterprise's mission and objectives integrated with innovation strategy

The innovation process is driven by the combination of multiple activities. In addition to realize these activities in a best way, integration of these activities also has a critical importance. Some components of the innovation process include (Gokcek, 2007:46):

- Invention process,
- Product development process,
- Decision process,
- Process of determining needs,
- Evaluation process,
- Experiment and adoption process,
- Sales and persuasion process,
- Behavior formation and change process,
- Market analysis process,
- Demand creation process.

Each innovation process includes a mix of these listed processes. Innovation management consist of management of these components. There are multiple ways to manage various innovations. Some methods are better than others, but some of them are

completely inefficient. Some methods can only provide efficiency under certain conditions. Instead of just one best practice, there are multiple effective methods. It is necessary to determine the best one based on the conditions. The nature of technology, the nature of the market, organizational skills, economic climate, managerial experiences are some of the factors which influence the selection of the best methods for the innovation process. The relative efficiency of each process should be analyzed in various environmental conditions (Gokcek, 2007:47).

Elci (2006:161) states that innovation is a continuous activity. He treats the process of innovation under the name of "innovation cycle" and explains it as follows:

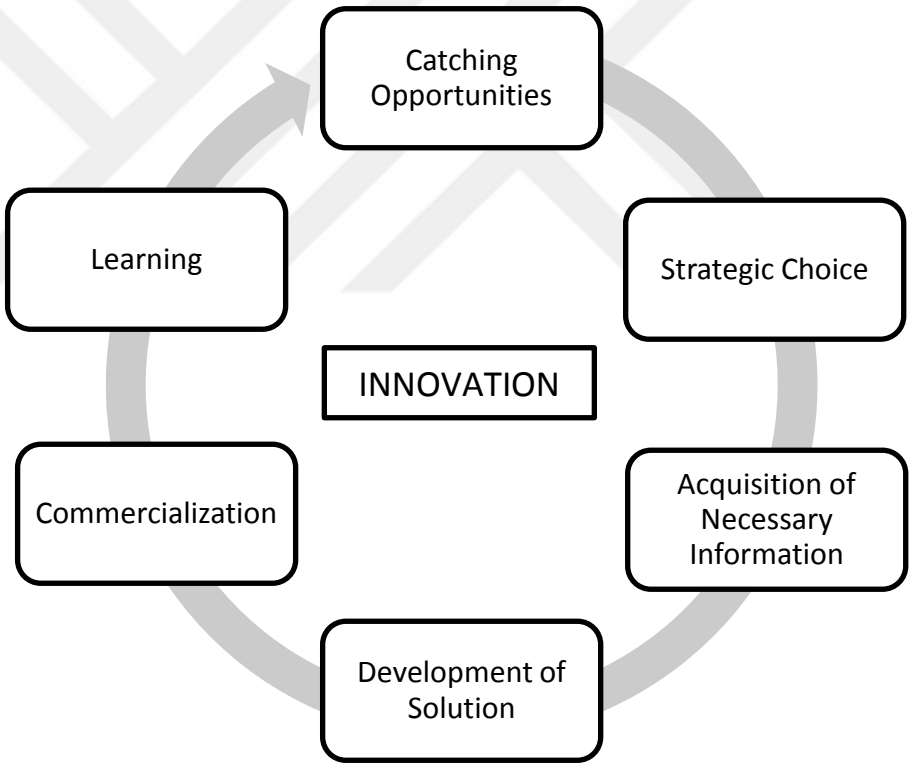

Figure 2.1. Innovation cycle (Elci, 2006:161)

Catching opportunities: A company must constantly identify and evaluate opportunities for potential innovation ideas. These opportunities may stem from changing needs of customers, work of competitors, newly developed technologies,

suppliers, consequences of R&D activities run by domestic or foreign organizations, or from the obligation to comply with a new regulation, law, or standard (Elci, 2006:161).

Strategic choice: Before allocating resources in order to start an innovation activity, strategically the most important ones must be selected from the opportunities caught. The first factor to be considered in this selection is the needs and expectations of the customers. Even large companies, which are reserve significant amount of sources for innovation activities, cannot and should not evaluate all opportunities. The most important thing should be considered at this stage is to choose the opportunities that offers the greatest competitive advantage that are consistent with the company's strategy (Tidd and Bessant, 2009:73).

Acquisition of necessary information: Before put into practice the idea of innovation with the greatest potential, resources needed to be allocated. To this end, firstly the necessary information should be gathered so that the product, service, or process can be developed. It is also important to have access to unwritten information besides the written information. To hire a competent expert on the subject of the innovation activity or receive consultancy, or to receive services from universities or R&D institutions some ways of reaching to non-written information. Whichever path is chosen, it is important for the firm to interiorize the acquired information and make it as written as possible (Elci, 2006:162).

Development of solution and commercialization: After the information and information resources needed for innovation are collected and the innovation project is designed it is time to apply it. This stage continue until the product, service, or process takes its final form (Demiraglar, 2015:57).

Learning: This phase allows to assess successes and failures of all stages by feedbacks to produce the necessary information and their usage for a better management of innovation process. Since the effect of learning reflects to all other stages, it is of great importance for the continuity of innovation activities (Tidd and Bessant, 2009).

2.1.6. Innovation Models

Innovation has been tried to be explained by various models. These models were shaped in parallel with developments in economics and technology. While until the 1960's innovation models were consisted of innovations emerged from enterprise's own

innovation efforts such as research and development activities, integration of intrabusiness functions like marketing, production, etc.; after the 1980s, external environment factors and the contribution of stakeholders were taken into account in innovation models (Uzkurt, 2008).

Rothwell (1994) splits innovation models into five basic generation. In the following period, the sixth generation was added to these models by Oguzturk and Turkoglu (2004). These models are illustrated in table 2.1 as follows:

Table 2.1. Innovation models (Rothwell, 1994; Oguzturk and Turkoglu, 2004)

Period	Model	Process	Causative Factors	Featured Properties
First Generation (1950-1960)	Technology Push Innovation Model	Simple, linear, successive	Scientific Researches and Technological Developments	- R&D focused - R&D output is presented to the market - Presented outputs are bought by consumers
Second Generation (1960-1970)	Market Pull (Need Pull) Innovation Model	Simple, linear, successive	Market Needs	- Market Oriented - Customer needs are the source of innovation
Third Generation (1970-1980)	Interactive (Coupling) Innovation Model	Non-linear, Complex, Backed up with feedback	Collaboration	- Interdepartmental cooperation - Interdepartmental communication and information sharing - The main idea of Technology-push and Market-pull innovation models' are taken into account together
Fourth Generation (1980-1990)	Integrated Innovation Model	Non-linear, Complex, Backed up with feedback	Parallel Collaboration	- Interdepartmental, parallel development - Horizontal cooperation for innovation process concurrently
Fifth Generation (2000-...)	System Integration and Networking Model	Non-linear, Complex, Backed up with feedback	System Approach	- Product development with stakeholders - Interactive relationships - The system is self-renewing, flexible and has a learning structure.
Sixth Generation (2000-…)	Knowledge Based Innovation Model	Non-linear, Complex, Backed up with feedback	Knowledge Creation	-Make use of knowledge creation in innovation process.

2.1.6.1. Technology push linear innovation model

From the 1950s until the 1960s, the technology push linear innovation model regarded as the dominant model (Kiper, 2010:13,18). A linear view of the innovation process in technology push model indicates that science leads to technology and technology satisfies market needs (Edquist and Hommen, 1999:64).

This model handles the innovation process as a discovery process in which information is transformed into new product with a fixed set of steps. According to this model, for innovation, all the efforts should be made at the first phase of innovation process, namely in research and development stage, by using technology. In reference with this approach science is necessary for technology and technology is necessary for innovation. Accordingly, more research and development activities results in more innovation.

As it seen in figure 2.2, according to technology push innovation model, scientists who dealing with basic sciences make various inventions. In order to put these inventions into a form of product, designers and engineers work on various prototypes. After the selection of prototype among alternatives it comes to manufacturing. Then, manufactured product is transmitted to potential consumers through marketing and sales channels. According to this model, the idea of innovation arises entirely from the work of research and development department.

Figure 2.2. Technology push linear innovation model (Rothwell, 1994:8)

2.1.6.2. Market pull (or need-pull) linear innovation model

At the second half of the 1960s, a great emphasis put on marketing activities in order to overcome increased competition. In products and services, emphasis were placed on innovations in line with customer needs. Customer's desires and expectations was shown to drive the innovation process. Unlike the previous model, in the market-pull innovation model the key input of the innovation process is not research and development activities, but customer needs (see Figure 2.3). Market was seen as a

source of ideas for directing the activities of research and development (Oguzturk and Turkoglu, 2004:17).

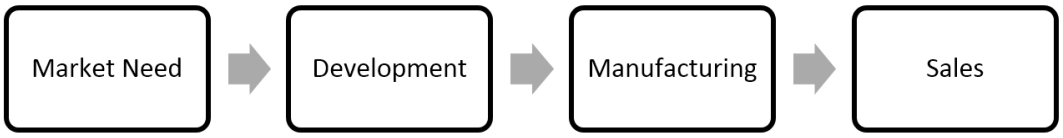

Figure 2.3. Market pull (need pull) linear innovation model (Rothwell, 1994:9)

From the 1950s until the late 1970s, linear models (technology push and market pull innovation models) was regarded as the dominant models. After 1970s it was noticed that the linear view is very simplistic and widely criticized in some ways. These criticisms can be summarized in two general ways. The first and the most important one is that these models were portrayed as a very strict stage series rather than interaction and feedback among its stages. It ignores feedback paths at all levels. Secondly, by giving too much emphasis to the research and development activities (for technology push innovation model) or to the customer needs (for market pull innovation model), many other inputs needed for innovation are ignored (Neely and Hii, 1998:12).

2.1.6.3. Interactive (or coupling) innovation model

By studies of Nelson and Winter (1982) and by Kline and Rosenberg (1986), was realized that the innovation system was not only "technology push" or "market pull" but both (Oguzturk and Turkoglu, 2004).

It was noticed that innovation model cannot be oversimplified that much and innovation model started to be regarding as interactive models. Rothwell and Zegveld (1985) described the interactive innovation process as "a complex set of communication paths, both intra-organizational and extra-organizational, linking together the various in-house functions and linking the firm to the broader scientific and technological community and to the marketplace." (Neely and Hii, 1998:13).

As shown in figure 2.4 this model emphasizes the importance of inter-departmental relations within the company during the innovation process. According to model, new ideas that can contribute to the any step of innovation process can come

from any unit of the company, and as a consequence, interactions between all the units are vital in terms of innovation (Rothwell, 1994:10).

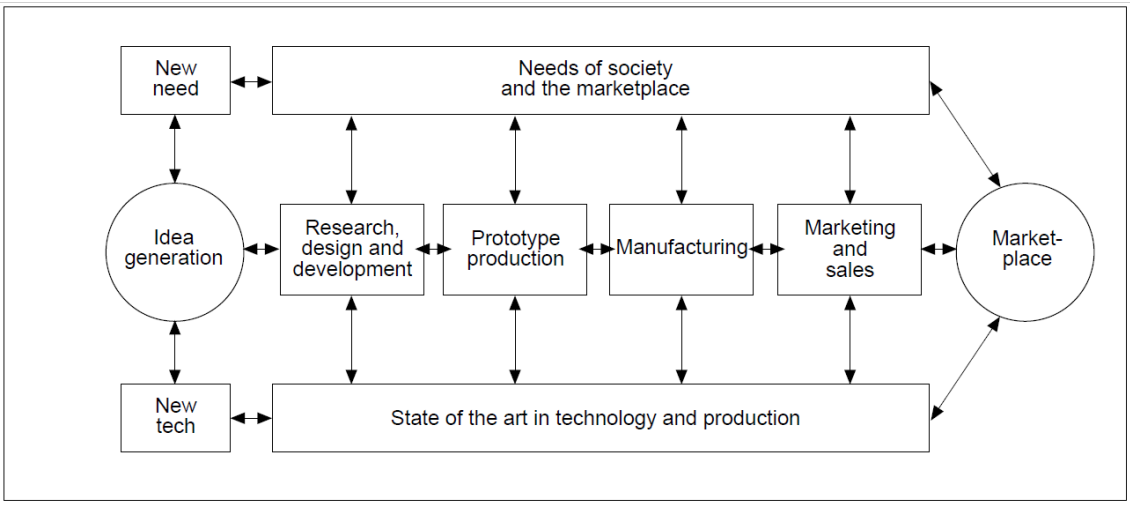

Figure 2.4. Interactive (coupling) innovation model (Rothwell, 1994:10)

2.1.6.4. Integrated innovation model

Previous discussions have showed that innovation process is a complex, nonlinear and feedback required process. In the mid-1980s, innovations in the electronics and automobile sectors in Japan led to a fourth generation innovation model: the integrated innovation model. This model is based on knowledge sharing. Studies have showed that product development process is more effective and faster through information sharing between different units. According to this model, if different units in firm (R&D, marketing, product development, manufacturing etc.) work together parallelly for innovation activities, the time period of new products to be presented to the market will be shortened. As it seen in figure 2.5 model is based on parallel activities across functions and around a high level of functional integration. Information sharing is provided by regular joint meetings (Rothwell, 1994:12).

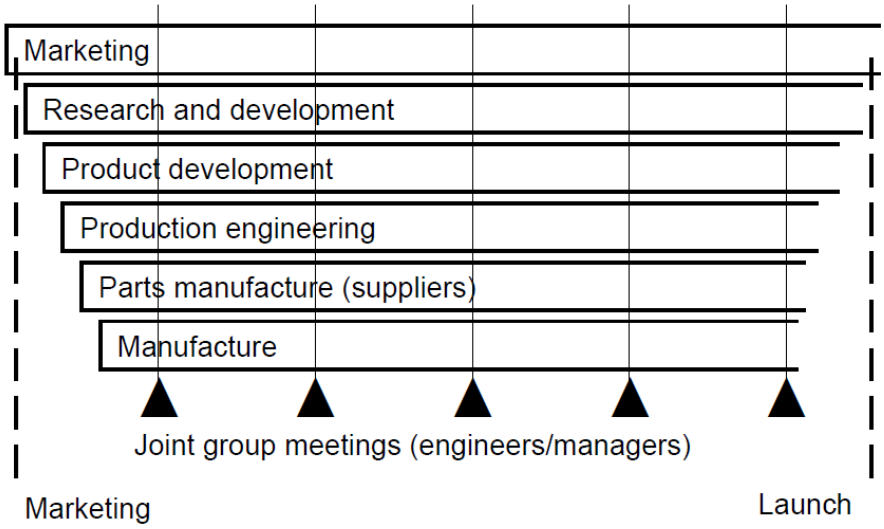

Figure 2.5. Integrated innovation model (Rothwell, 1994:12)

2.1.6.5. Systems integration and networking innovation model

In the 1990s the focus shifted from integration innovation model to the networking innovation model. According to the model developed by Rothwell (1994) networking model is an innovation model in which interactions among system components are emphasized, based on learning, taking into account stimuli from internal and external factors. In addition to integrating the different units and activities of company for innovation, relations of company with its stakeholders also crucial. The main idea is that it is not enough for companies to integrate the different units and activities to innovate, but also strong links should be built with other companies, universities, research institutes, customers, and suppliers, which are other sources of information.

Freeman describes the concept of networking as the establishment of the links by a company with a group of complementary forces operating in the same ecosystem in order to reduce all the major uncertainties that may arise. Increasing the number of strategic alliances, conducting R&D activities jointly, and hence successful results show us the importance of networking (Oguzturk and Turkoglu, 2004).

Uzkurt (2008) is another researcher who draw attention to the importance of system integration and networking for innovation activities. He illustrates the systems integration and networking innovation model as it seen in Figure 2.6.

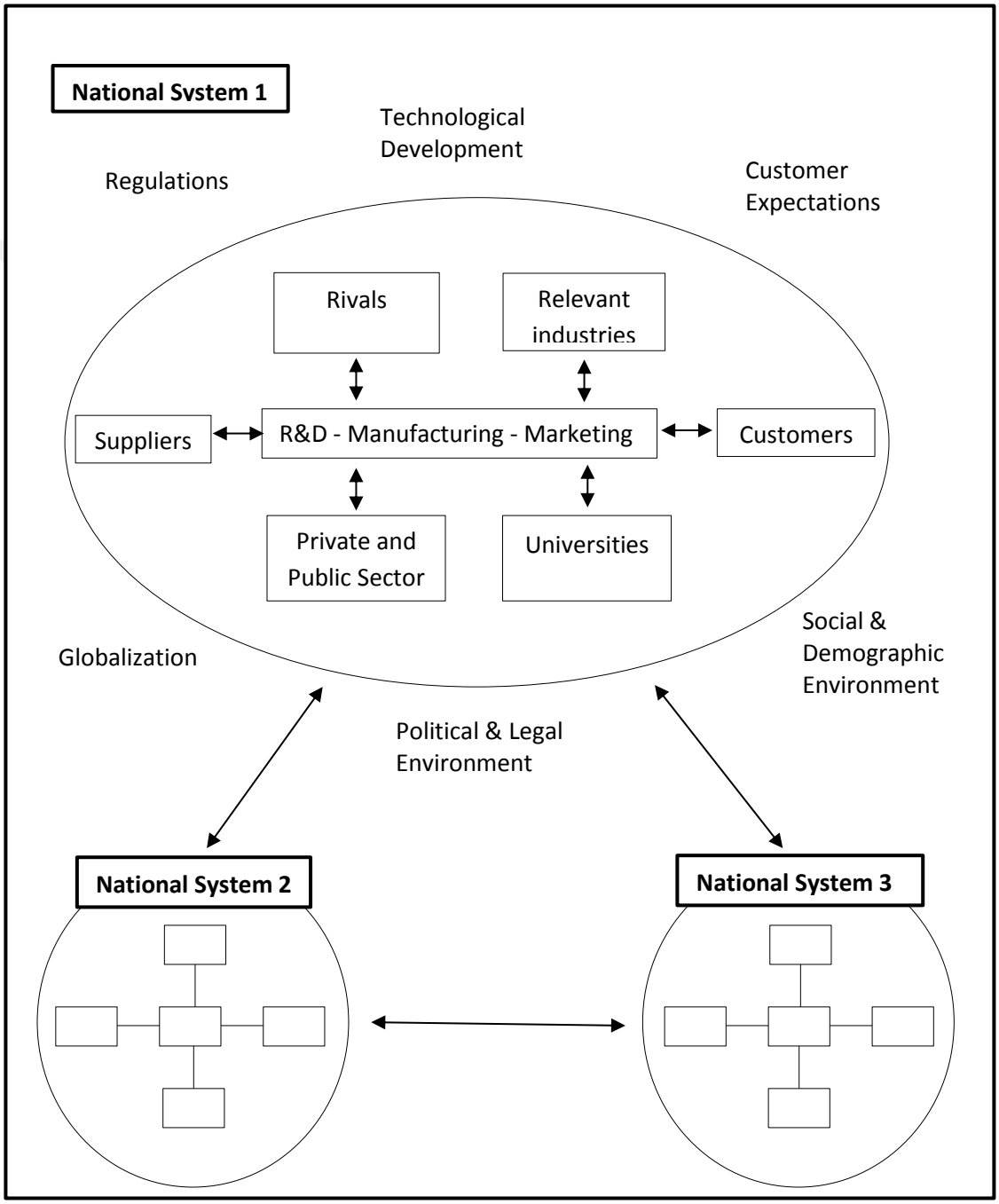

Figure 2.6. Systems integration and networking innovation model (Uzkurt, 2008)

Uzkurt (2008) states that the difference of this model from the interactive (coupling) innovation model is that all stakeholders are effective on the innovation process and innovation process is influenced by wider environmental factors. According to this model, innovation is being developed in a more complex environment. The flow of innovation from business toward marketplace is left to a dynamic structure where there is a double-sided interaction. According to this model it is not enough to follow only scientific and technological developments or market needs in order to innovate. National innovation systems and interactions with each other, legal regulations, sociocultural and demographic changes, should be considered as important factors which affect innovations. For this reason, in order to ensure the continuity of the innovation process, it is necessary to ensure the communication and sharing of information between the parties effectively and the process should be kept alive through feedbacks. According to this model, innovation should not be regarded only as an output of R&D activities. All environmental factors must be considered in order to be able to evaluate the opportunities of innovation outside the enterprise.

2.1.6.6. Knowledge based innovation model

The main contribution of the fifth generation innovation model to the innovation models was the emphasis put on the effect of the networking and integration to the innovation process.

However networking was only seen as a formal and explicit links which are means of exchanging and storing of information and data (Fischer, 2001).

Although this has been the case until the 1990s, by the end of the decade an interest started in “organizational learning” which is considered as the main source of the competitiveness. As a result of this interest, the introduction, acquisition, transfer, integration, and use of knowledge have been the focus of most theories. With reference to the “knowledge is the most important source”, firms are portrayed as unique combinations of resources and capabilities. New approaches emerged such as knowledge-based firm theory and resource-based firm theory. These theories also influenced innovation theories. According to this approach the most competitive companies are those of the most innovative ones; the most innovative companies are

those of use the information resources most effectively. The faster the companies learn, the faster they can adapt and respond to market change (Fischer, 2001; Oguzturk and Turkoglu, 2004).

As a result, it can be said that the main points related to the organizational learning concept constitute the sixth generation innovation model. The distinctiveness of sixth generation innovation model from the fifth one is the creation of different types of knowledge resources and make use of them to contribute to the innovation process.

What meant by the creation of knowledge is creation of knowledge by transmitting of different kinds of knowledge to another, such as from tacit to explicit (externalization), from explicit to tacit (internalization), from explicit to explicit (combination) and from tacit to tacit (socialization) knowledge and utilization from them at the process of innovation (Fischer, 2001).

2.1.7. Objectives of Innovation

In today's competitive business environment, to being able to survive and to provide sustainable and profitable growth requires to be innovative. The quality and cost advantages that were sufficient to provide competitive advantage in past can only provide temporary competitive advantage today. Therefore to gain competitive advantage for long term, organizations should improve their innovation ability and ensure continuity of innovation activities (Arikan et al., 2006:22).

There are many reasons for organizations to innovate. These reasons also determine the objectives of enterprises to innovate. Kaplan (2010:36-47) lists objectives of organizations to innovate as follows:

- Differentiate products,
- Increase product quality,
- Increase product functionality,
- Increase product diversity,
- Differentiate production processes,
- Reach new production methods,
- Differentiate products presentation,
- Differentiate sales method of products,

- Enter new markets,
- Expand customer portfolio,
- Maintain and increase market share,
- Reduce costs,
- Increase productivity,
- Increase distribution performance,
- Increase marketing performance,
- Increase the profitability,
- Shorten the time period of new products to be presented to the market,
- Adapt to the rapidly developing technology,
- Be recognized as an innovative enterprise and increase the business image,
- Develop more eco-friendly product and production processes.

OECD and Eurostat (2005:108) in addition to listsing factors relating to objectives of innovations for organizations, they also provide additional information about the relevance innovation type of these objectives (see table 2.2).

Table 2.2. Factors relating to objectives and effects of innovation (OECD and Eurostat 2005:108)

Relevance Innovation Type:	Product	Process	Organizational	Marketing
Competition, Demand and Markets				
Replace products being phased out	*			
Increase range of goods and services	*			
Develop environment-friendly products	*			
Increase or maintain market share	*			*
Enter new markets	*			*
Increase visibility or exposure for products				*
Reduced time to respond to customer needs		*	*	
Production and Delivery				
Improve quality of goods and services	*	*	*	
Improve flexibility of production or service provision		*	*	
Increase capacity of production or service provision		*	*	
Reduce unit labor costs		*	*	
Reduce consumption of materials and energy	*	*	*	
Reduce product design costs		*	*	
Reduce production lead times		*	*	
Achieve industry technical standards	*	*	*	
Reduce operating costs for service provision		*	*	
Increase efficiency or speed of supplying and/or delivering goods or services		*	*	
Improve IT capabilities		*	*	
Workplace Organization				
Improve communication and interaction among different business activities			*	
Increase sharing or transferring of knowledge with other organizations			*	
Increase the ability to adapt to different client demands			*	*
Develop stronger relationship with customers			*	*
Improve working conditions		*	*	
Other				
Reduce environmental impacts or improve health and safety	*	*	*	
Meet regulatory requirements	*	*	*	

2.1.8. Factors Hampering Innovation Activities

Even though innovation is crucial for firms, there are many factors that prevent firms from innovating. Major obstacle faced when it comes to innovate (especially for SMEs) is the financing and cost of innovation. The second important factor is the lack of knowledge about production, technology, market, or management for innovation. Unqualified employees and employees who do not open to change is another factor that makes difficult to innovate. On the other hand institutional factors such as lack of infrastructure, weakness of property rights, regulations and taxation militate against innovation. OECD and Eurostat (2005:113) lists factors that could act as barriers to innovation and their relevance for innovation types as illustrated in table 2.3.

Innovation process brings along significant uncertainties that makes innovation process difficult to control and manage. Foremost among of these uncertainties are financial, technological, organizational, and market uncertainties (Uzkurt, 2010:42).

For innovation, it is difficult to predict how much financial resources should be allocated from it at the very beginning in addition to resources such as raw materials and personnel. This presents a major obstacle to innovation activities, particularly for companies that do not have a strong financial infrastructure and do not prefer to take risk.

In today's world of technology, latest technology can be outdated very soon. The cost of replacing the technology used in a company with a new one is too high. Sometimes innovations may require technologically more advanced production equipment and cost of it is one of the reasons that enterprises avoid from innovating.

On the other hand, if organizational culture and structure do not have the features that support innovations, employees of this organization will show resistance to innovation. Successful innovation needs a cultural infrastructure that supports it.

Finally, when we consider the fact that very high percentage of new products and services offered to the market has a little chance of success, the risk of not accepting of market the new products and services introduced can be considered as an area of uncertainty that would create significant handicap to innovate for companies.

Table 2.3. Factors hampering innovation activities (OECD and Eurostat, 2005:113)

Relevance Innovation Type:	Product	Process	Organizational	Marketing
Cost Factors				
Excessive perceived risks	*	*	*	*
Cost too high	*	*	*	*
Lack of funds within the enterprise	*	*	*	*
Lack of finance from sources outside the enterprise:				
Venture capital	*	*	*	*
Public sources of funding	*	*	*	*
Knowledge Factors				
Innovation potential (R&D etc.)insufficient	*	*		*
Lack of qualified personnel:				
Within the enterprise	*	*		*
In the labor market	*	*		*
Lack of information on technology	*	*		
Lack of information on markets	*			*
Deficiencies in the availability of external services	*	*	*	*
Difficulty in finding co-operation partners for:				
Product or process development	*	*		
Marketing partnerships				*
Organizational rigidities within the enterprise:				
Attitude of personnel towards change	*	*	*	*
Attitude of managers towards change	*	*	*	*
Managerial structure of enterprise	*	*	*	*
Inability to devote staff to innovation activity due to production requirements	*	*		
Market Factors				
Uncertain demand for innovative goods or services	*			*
Potential market dominated by established enterprises	*			*
Institutional Factors				
Lack of infrastructure	*	*		*
Weakness of property rights	*			*
Legislation, regulations, standards, taxation	*	*		*
Other Factors				
No need to innovate due to earlier innovations	*	*	*	*
No need because of lack of demand for innovations	*			*

2.1.9. Innovation Management

As mentioned previously innovation does not occur with the development of just a single idea. It does not provide success for once. Innovation is a continuous cycle process. Successful development of this complex process depends on the success of innovation management.

For the management of innovation an exciting vision is needed. It is important to explain the big picture that can happen in the future as a result of innovation in order to stimulate the passion and enthusiasm of the employees and to keep it alive. It is also required in order to make stay employees focused on the same target. So, a high level of motivation is required for innovation management. This can be achieved with an exciting vision (Martins and Terblanche, 2003:69).

Organizing in innovation management should be inclusive. It should not be limited to R&D activities only. It must include the whole of the organization. Even beyond the organization, all stakeholders. On the other hand establishing an innovation center in an organization and recruiting a limited number of employees for it, mostly ends with failure. Because those who do not exist in this center see themselves as being excluded from innovation activities. However, everyone in an organization from the security guard to the top management should be a part of this environment. All of the employees together should feel the same excitement about innovation (Basar et. al., 2013:85-86).

Hierarchical and bureaucratic structures are one of the biggest obstacles for innovation development and management. Innovation activities in the hierarchical structures in which the top management dictates orders to the employees obstruct innovation management. High walls should not be built between functions for successful innovation management process. It is necessary to create an organizational structure in which employees interact with each other, horizontal relations between functions are developed, and cooperation is enhanced. Interdepartmental interactions are more influential than interactions among the employees of the same department for the development of innovation. It brings people together who have different perspectives (Martins and Terblanche, 2003:71).

An environment which provide to sharing knowledge, ideas, and power between its members is vital for successful innovation management. Creating organizational structure that put people in the center help innovation management process. As is known, creativity is needed for innovation and therefore those who manage the innovation process should consider that each person is valuable and should make people feel that they and their ideas are valuable for development. Managers of innovation process should use a common language in the organization and create a culture of mutual trust and equality. This reinforces the relationship and communication among employees and between employees and management. As a result it contributes to the innovation process to continue successfully (Tidd and Bessant, 2009:115).

It is important to respond quickly to those who create ideas for innovation in terms of evaluation results. Since not to give feedback or giving feedback late reduces employees' enthusiasm for innovation. The ideas gathered on the idea platforms should be open to those who produce ideas for the same aim. Created ideas can trigger the creation of other ideas and this may lead to more creative ideas. It must be clearly stated at the beginning of the innovation process that once the planned innovation has taken place, how this innovation will create benefits to organization, to customers or to the stakeholders. Additionally, a single innovation management model could not provide success for all innovation processes. In innovation management innovation should be measured frequently. One, cannot manage something unmeasurable (Basar et al., 2013:85-86).

2.1.10. Importance of Innovation

Innovation has become an indispensable source of dynamism for today's national economies and businesses. In this respect, it is possible to summarize the importance of innovation for economies, societies, and businesses under three headings. Innovation has become the basic dynamics of:

- Sustainable economic growth for national and regional economies,
- Social development and level of welfare for the societies,

- Competitive power for both businesses and national economies (Uzkurt, 2010:38).

In the framework of the above basic dynamics, it is possible to list the positive outcomes of innovation for economies, societies, and businesses would have as follows (Uzkurt, 2010:38-39):

Business results:

- Increase in competitiveness,
- Decrease in costs,
- Increase in productivity,
- Increase of market share,
- Increase of profitability,
- Enhance in effectiveness usage of raw materials,
- Improvement in quality,
- Transformation of information into economic value,
- Get into new markets,
- Expansion of product line and product mix,
- Maximization in customer satisfaction,
- Ease in entering new markets,
- Flexibility in production, procurement, and marketing,
- Shortening in the production times of products and services, and minimizing wastage,
- Improve in working conditions,
- Improve in communication with customers, suppliers, and intermediaries to ensure information sharing.

Results for society and economics:

- Increase in social welfare,
- Increase in living standards,
- Sustainable economic growth,
- Decrease in unemployment,

- Efficiency and effectiveness in resources usage,
- Discovery of new sources of raw materials,
- Increase in export,
- Increase in patent numbers,
- Contribution to regional development,
- Effective use of energy resources,
- Increase in entrepreneurship,
- Decrease in foreign dependency.

Baumol (2002:38) stated that "virtually all of the economic growth that has occurred since the eighteenth century is ultimately attributable to innovation".

As a result, businesses face various challenges. Rapidly advancing technological developments, more efficient use of natural resources, meeting different and diverse customer demands, progress of globalization and increasing industrialization pushing companies to be innovative in order to survive (Binicioglları, 2008:53).

Companies should produce their products/services in a different way from their competitors in order to compete with them. Unless they do not do so, they would find themselves in a situation unable to compete in a short time. Therefore innovation is vital for sustainable growth.

2.2. CULTURE, NATIONAL CULTURE, ORGANIZATIONAL CULTURE, AND RELATIONS WITH EACH OTHER

2.2.1. Culture

Life has forced people to communicate with each other at different levels and to develop tools in order to survive and to make life easier. Over time, social life has made it necessary to put some code of conducts between people. Whether it is stated legally or traditionally, the various rules have led to the different characteristics between communities and this led to some differences between societies. So, these differences arose the concept of culture.

The word culture originated from the Latin word "cultura" or "colere" that refers to cultivate. It was used in the same meaning in French until the 17th century.

Then, “cultura” was first used by Voltaire to mean formation, development, and exaltation of human intelligence. The word passed from there to German and was included as a "cultur" in the German language dictionary dated 1793 (Guney, 2000:152).

Due to culture is an interdisciplinary concept, the meaning of the concept of culture differs as the point of contact is different. Even in the science of anthropology there is no completely consensus on a single definition of culture. The difficulty of fully defining the concept of culture is not the lack of knowledge and material but the wide range and scope it has. So each researcher whose study field involve cultural studies are trying to define a part or an aspect of the culture with regard to his/her area. As a consequence, each definition brought about in the cultural context is concerned only with a specific field of it. From this point of view, we can say that a satisfactory definition of culture may arise by combining all the definitions of culture (Basim, 1998:5).

Even more than half a century ago, Kroeber and Kluckhohn (1952) identified 164 different definition of culture as a result of their study.

One of the oldest and widely accepted definition of culture is made by E. B. Tylor in 1871 (Guney, 2000:152). In his book "Primitive Culture", Tylor suggested that human behavior and thought systems do not occur randomly and therefore culture can be examined scientifically. He defined culture as “a complex whole which includes knowledge, beliefs, arts, morals, law customs, and any other capabilities and habits acquired by a human as a member of society” (Icli, 2002:80).

In terms of behavioral sciences, culture is a form of life that is inherited from the society which is transmitted from generation to generation. Human beings develop partly the material and moral elements that they inherited from previous generations and transmit them to the next generations. Today's culture is the result of the efforts and experiences of past generations and by the experiences of the people at the present it is constantly in change. In this case culture defines as the set of learned behaviors and the common life style of society in behavioral sciences (Basim, 1998:5).

In sense of sociology, culture is all the collective behavioral patterns or habits learned from innate to death and shared by the vast majority of people within a society. Accordingly, culture includes all kinds of information, interests, habits, standard of

judgment, vision, mentality, and all forms of behaviors in society. In this framework, anything done or performed by people or by society can be expressed as a cultural element (Basim, 1998:5).

Culture is not something that is brought by one's inheritance or found in nature, on the contrary, it is the name of everything that human being have contributed to the nature materially or morally. So culture includes every kind of thought, rule, activity, and sense of community that people have set up when they are organizing relationships with each other, and with other things of nature. Culture is the relationship of people with these objects, rules, ideas, and emotions. In the context of the characteristics of these relations culture is a way of life that is perceived as common in the majority of its members and that is differentiates societies from each other. Thus, culture is the whole of symbols that arise from behaviors, goods, ideas, and emotions (Cecen, 1985).

When the point of touch to the definition of culture is philosophy culture refers to all the realities that a person exists and reveals in it. Culture is creation of a world in which people can feel themselves at home. In this regard, culture is the sum of everything created by people that can be seen or felt (Uygur, 1996).

Above, some definitions of culture have been briefly mentioned in terms of some different branches of science. Sisman (2007:13-14) reached the following conclusions from the different definitions and discussions of culture and from the developed theories and approaches on culture:

- Culture, from the mental point of view, is the whole of learned habits and thoughts that distinguish humans from animals.
- Culture, from structural perspective, is interrelated opinions, symbols, and behavior patterns.
- Culture, from functional point of view, is a way of solving the problems that people face in adapting to the environment they live in.
- Culture, from symbolic perspective, is system of shared meaningful symbols.
- Culture, from historical point of view, is tradition or social heritage passed down from generation to generation.
- Culture, from behavioral perspective, the sum of learned and shared human behaviors through life.

- Culture, from normative point of view, the whole of ideals, values, and rules about how people should act.

Schein (2010:18) who is known by studies done in the field of culture defines culture as "pattern of shared basic assumptions learned by a group as it solved its problems of external adaptation and internal integration, which has worked well enough to be considered valid, and therefore, to be taught to new members as the correct way to perceive, think, and feel in relation to those problems".

Alvesson (2012:6) describes culture broadly as "shared and learned world of experiences, meanings, values, and understandings which inform people and which are expressed, reproduced, and communicated partly in symbolic form".

Hofstede et. al. (2010:6) state that "culture is the collective programming of the mind that distinguishes the members of one group or category of people from others. It consists of the unwritten rules of the social game". As in response to this, Beamer and Varner (2001:3) state that "if culture is mental programming, it is also a mental map of reality. It tells us from early childhood what matters, what to prefer, what to avoid, and what to do. So, culture is the coherent, learned, shared view of a group of people about life's concerns that ranks what is important, furnishes attitudes about what things are appropriate, and dictates behavior".

Although there are many definitions of culture and there is no completely consensus on a single definition, it is possible to say that there is a great deal of thought on the basic features of the culture. Determination of characteristics of culture will provide a better understanding of and will facilitate understanding of the effect of culture on directing human behavior. Some of the characteristics of culture are as stated below:

Culture is learned: One of the most important features of the culture is that it is learned through formal education or informal learning. Culture is not instinctual or hereditary, it is the habits that individuals gain throughout their life (Icli, 2002:81-82). Beginning from childhood, a person learns behavioral pattern of cultures, way of thinking and cultural elements through formal or informal means through different institutions such as family and school. Cultural rules and behaviors are often learned unwittingly (Samovar et al., 2013). People recreate their natural environment by taking advantage of past generations' experience and knowledge. New members of a society

learns the culture within the process of socialization through their lives (Icli, 2002:81-82).

Culture is shared: Culture is formed and shared jointly by a group of people. Talking about a common culture means talking about a certain group of people. If the acquired knowledge, experiences, beliefs, and values were not shared among people, today it would not be possible to talk about a common culture. People who come to the world as a member of a culture or who become a member of culture learn and share that culture through ways such as observing, listening, speaking, interacting, and imitating (Sisman, 2007:14).

Culture is historical and continuous: Culture, which is learned and transmitted from generation to generation, is historical and continuous. Even though all animals have the ability to learn, fully transfer of the gained habits and acquired information to the next generations is only specific to human beings. The ability of human beings to use a language is one of the most important advantages in transmitting the culture to the next generations. The transition of culture from one generation to the next generations shows the historical and continuous characteristic of culture (Guvenc, 1974:103).

Culture is dynamic: Cultures are in constant change. Change occurs through adaptation. Over time, cultures adapt to the natural environment in order to meet the biological and psychological needs of the individuals who form the cultural system. As conditions change, the satisfaction of traditional solutions decreases. When new needs emerge and these new needs reach to consciousness; tries and edits are made within culture to meet these needs and to solve new problems (Guvenc, 1974:105-106). B.C. In the 5th century, Heraclit emphasized the continuous change in natural and cultural events while expressing that "No man ever steps in the same river twice, for it is not the same river and he is not the same man." (Zıllıoglu, 2003:93).

Culture is an integrated system: Culture is a complicated system and the components of it are in mutual interaction. Therefore, a change that will take place at any component of it, can affect others. As a result of the adaptation process, elements of culture tend to form a harmonious and integrated whole. However, as some scientists have suggested, it is impossible to admit that cultures are fully integrated systems. Due to the influence of historical and environmental factors, completely integration is not

possible in any cultural system. While fully integration is almost achieved, a change in the external or internal dynamics shakes the foundation of integration. Integration is a direction, a tendency to the ideal and it is continuous (Guvenc, 1974:107).

Culture is socially constructed: Cultural elements are created and shared jointly by individuals living in communities. For this reason, culture belongs not to a single individual or a group but to all the members of the society. Current culture is shaped by the previous generations and its future depends on the social interactions among current generation.

Culture is a system of rules: Culture is both a social process and a regulator of this social process. As a regulator of social process, culture provides the cultural integrity and continuity by written and non-written rules. Sisman (2007:14) stated that as a normative system, culture, regulates the behaviors of the groups of people, determines their actions, and shows the solution of the basic life problems.

The definitions and characteristics of the culture give us certain clues about the functions of it. Culture is formed in order to systematize the fulfillment of social needs of people. It regulates the life of groups and community and meets social needs of people through its basic and auxiliary institutions. It has more different functions than the sum of the functions of the institutions that consists it (Icli, 2002:85). Culture prevents social dislocation by directing individual behaviors and provides social integrity and harmony.

On the other hand, Fichter (1996) lists some of the functions of culture as follows:

- Regulates the social behaviors,
- Constitutes one of the foundations of social solidarity,
- Distinguishes societies from each other,
- Makes the values of society a whole and interpret them,

Dressler and Carns point out the main function of the culture as follows (Silah, 2005:256):

- Culture provides a systematic means of communicating with people through language.

- Culture allows us to anticipate the possible reactions of other individuals in the society to our actions.
- Culture sets standards of behavior that distinguish qualities that can be considered as evil-good, right-wrong, abnormal-normal, ugly-beautiful, forbidden-permitted.
- Culture provides the necessary knowledge and skills to the individual in order to meet physiological needs.
- Culture allows individuals to identify themselves with other people who have similar experiences and intentions.

2.2.2. National Culture

National culture, which is characterized by the emergence and development of the concept of "national state" especially after the industrial revolution (Kongar, 2008:13-14), can be expressed as the values developed, embraced, and shared by people living within a certain political borders. In this regard, Robbins (1990) defines national culture as fundamental values and practices that characterizes a country. Similarly, Hofstede (1981:24) describes culture as "the collective mental programming of the human mind that distinguishes the members of one human group from those of another". In this sense we can say that national culture is a system of collectively shared values within a country that helps programming of people's minds by shaping their attitudes, competencies, behaviors, and perceptions.

Each person in a nation has various cultural characteristics because they can be members of different sub-groups simultaneously. For example, an individual, at the national level, has the cultural characteristics of the country in which he or she lives or a citizen; at the regional level, has the cultural characteristics of the region which is born or raised; at the ethnical level has the cultural characteristics of the ethnic group which is been member of while at the social class level, has the cultural characteristics of profession which is occupied or the educational level which is received. Although there are different sub-groups within it, it can be said that the most proper level of culture that can be used in determining cultural differences is the level of nation because the concept of nation is historically a whole. There are some powerful factors provide highly to the

integration of subgroups within a nation such as a dominant language, a common educational system, a certain political system, and a media, which are shared by the vast majority of people (Kartarı, 2014) cited in (Calıskan, 2015)p16-17.

Hofstede (1981:24-25) mentions about the existence of a mechanism that shapes cultures of nations. The mentioned mechanism which points to the formation of national culture is as illustrated in Figure 2.7.

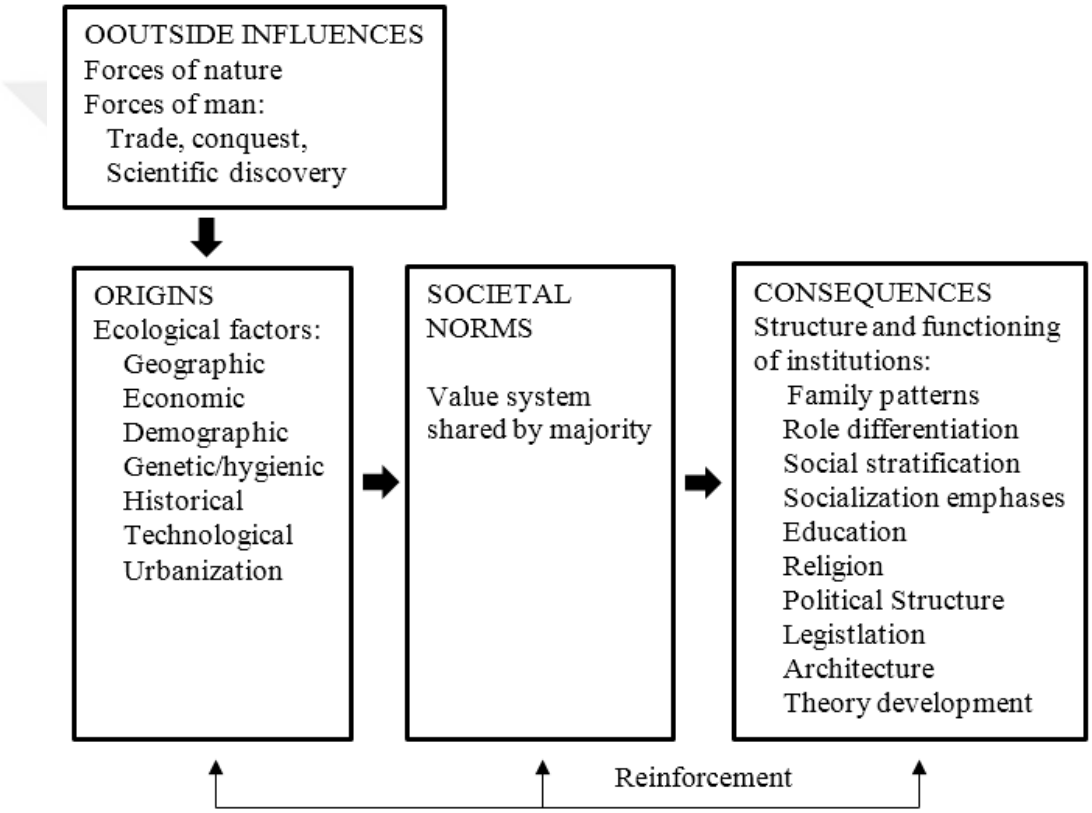

Figure 2.7. Formation of national culture (Hofstede, 1981:25)

As it seen in figure each society faces with various problems such as natural disasters, climate change, and wars in its historical process and these problems affect the ecological factors that constitute the origins of each society. Societies must find solutions to the faced problems so as to survive. A society first tries to find a solution at the individual level to the problems encountered at the social level. The solution proposal, which emerged as a hypothesis of an individual or of a group of people, to be able to be taken the form of common learning at the cognitive level and to be shared and

accepted by the majority of the other members of the society, can only be achieved if the other members of the society apply the suggested solution when they encounter with similar problems and get the desired results. Over time, favorable outcomes that are emerged from solution proposals, provide to internalization of these solutions, to accept them as values and beliefs and eventually to be part of the system values of the national culture. These values that are embraced and shared by people living in bounded geographies manifest themselves in their family structures, religious beliefs, political and educational systems, and arts. Thus, we can observe and examine the fundamental differences of national cultural differences (Caliskan, 2015:15-16)

By the middle of the 20th century, social scientists, and especially anthropologists had intensified their work on the discovery of societal similarities and differences. This led to the emergence of many different cultural dimensions (Hofstede et. al., 2010:29).

There are numerous different frameworks in cultural literature on how to deal with intercultural differences, which resemble each other in certain points, but differ in some points. The common side of these studies is that intercultural differences were usually tried to explain the national differences by building bipolar cultural dimensions (Kluckhohn and Strodtbeck, 1961; Geert Hofstede, 1980a; Schwartz, 1992; Trompenaars and Hampden-Turner, 1997; House et. al., 2004). These researches are not basically different from each other, but they differ from some points such as measurement tools or subdivisions they contain, or only dimensions' name. For example, Schwartz (1992) describes the dimension of sovereignty in terms of how strongly the individual sees himself / herself against environment, especially against nature. Hofstede (1980a) deals with the pretty much the same phenomenon as masculine-feminine dimension and explains the concept through gender equality and gender roles. In other respects, House et. al. (2004) explain the same phenomenon by dividing it into dimensions of performance orientation, assertiveness, gender egalitarianism and humane orientation (Koparan, 2014:12).

However, it is not easy to determine national cultural values and the extent to which they differ from each other. Researchers have benefited from two different approaches to identify cultural values and to reveal differences between them. One of

them is "emic approach". Emic approach focuses on a specific culture. Research in this approach is conducted from a point within the system, only one culture is examined, and the scales used in the research are in a relative relationship with the internal properties of the context. In spite of emic approach, in “etic approach” research is conducted from a point outside the system, two or more cultures are compared with each other, and the criteria are assumed to be universal (Sargut, 1994:325; Berry et. al., 2002:291).

Although there are many studies in the literature concerned emic or etic approach, it is seen that researchers especially those who investigating the differences between national cultures (Kluckhohn and Strodtbeck, 1961; Geert Hofstede, 1980a; Schwartz, 1992; Trompenaars and Hampden-Turner, 1997; House et al., 2004), adopt the etic approach. They emphasize cultural values in order to identify and compare national cultures.

After referring to these researchers’ cultural classifications briefly, Hofstede’s national culture classification, which consist the basis of our study, will be discussed in detail at the end of this section with its relation with organizational culture.

2.2.2.1. Kluckhohn and Strodtbeck's values orientation theory

According to the "value orientation theory" put forward by Kluckhohn and Strodtbeck (1961) culture is the foundation of social behavior, and invisible values are the essence of culture. In the context of this theory, it is argued that members of all cultures produce solutions to encountered humanity problems, and there are a variety of solutions available, and although all solutions are known in all cultures, each member of culture tends to benefit from certain solutions (Caliskan, 2015:18).

Set out from these assumptions, Kluckhohn and Strodtbeck (1961) stated that the cultural values can be determined and differences between cultures can be revealed by examining human nature, human activities, and relational trends of people with nature, people, and time. Cultural dimensions determined by Kluckhohn and Strodtbeck are as follows (Nardon and Steers, 2009:4):

- Relationship with Nature : Mastery / Harmony / Subjugation
- Relationship with People : Individualistic / Collateral / Lineal
- Human Activities : Being / Becoming / Doing

- Relationship with Time : Past / Present / Future
- Human Nature : Good / Neutral / Evil

2.2.2.2. Schwartz's basic values theory

Shalom H. Schwartz has brought a new perspective to the studies of cultural differences through a psychological view with reference to individual values. He identified ten universal human values in terms of underlying motivations reflected in needs, social motives, and social institutional demands. These values are "universalism, benevolence, tradition, conformity, security, power, achievement, hedonism, stimulation, and self-direction" (Kagitcibasi, 1997:15).

Schwartz (1992) stated that, analyses at the individual level and at the cultural level are theoretically examined with different approaches. While individual-level dimensions express the psychological driving that individuals experience when behaving in accordance with their values in their daily life, cultural-level dimensions express the practices that societies find to organize human behaviors. Schwartz identified three dimensions at the cultural level of analysis (Nardon and Steers, 2009:7):

- Conservatism versus Autonomy
- Hierarchy versus Egalitarianism
- Mastery versus Harmony

2.2.2.3. Cultural analysis of Trompenaars and Hampden-Turner

The Dutch business scholar Trompenaars and Hampden-Turner (1997) presented a cultural model which is based on study done by Harvard sociologists Parsons and Shils (1951). The model emphases the variations of values and personal relationships between cultures. It consists of seven dimensions. While the first five dimensions focus on relationships among people, the others focus on time management and society's relationship with nature. These dimensions are (Nardon and Steers, 2009:5):

- Universalism versus Particularism
- Individualism versus Collectivism
- Specific versus Diffuse

- Neutral versus Affective
- Achievement versus Ascription
- Past/present oriented versus Future oriented
- Inner-directed versus Outer-directed

2.2.2.4. Hall's cultural classification

Edward T. Hall a prominent American cultural anthropologist introduced a cultural model based on ethnographic research in several societies including Germany, France, United States and Japan. His research mainly focuses on how the culture of interpersonal communication differs. Many of the terms used today in the field of cross-cultural management (e.g., monochronic-polychronic) were obtained from this study. Cultural dimensions determined by Hall are as follows (Nardon and Steers, 2009:4):

- Context : Low context versus High context
- Space : Center of power versus Center of community
- Time : Monochronic versus Polychronic

2.2.2.5. Globe study

The study organized by House et. al. (2004) called GLOBE is a cross-cultural leadership study involving 62 countries that are representing key regions of the world. As a result of the analyses made on 17300 mid-level managers in 951 organizations 9 cultural dimensions were identified. Societies were assessed within the context of 9 cultural dimensions, 6 culturally adopted leadership dimensions, and 21 primary leadership dimensions. The cultural dimensions were labelled as "power distance, uncertainty avoidance, humane orientation, institutional collectivism, in-group collectivism, assertiveness, gender egalitarianism, future orientation, and performance orientation".

While some of these dimensions have been previously identified (e.g., power distance, uncertainty avoidance), others are unique (Nardon and Steers, 2009:6).

2.2.3. Reflection of Cultural Differences on Management and Organizational Theories

Management phenomenon, which extends to the beginning of mankind, is necessary for all activities related to the production of goods and services. However dealing with management activities and events scientifically is not old that much. The earliest management practices came to fruition in society (tribe, site, state etc.) management and in defense organizations (army) management while managerial practices in economic activities were later developed. After the second half of the 18th century, the works in the field of management have begun to increase rapidly. One of the most important reasons for this increase was the necessity of adapting to the rapidly changing environment which was found after the industrial revolution (Nisancı, 2015:258-259).

With the Industrial Revolution the difficulty of managing organizations based on traditional methods, which expanded their fields of activity and became more complicated, required the management practices to be based on a set of principles. For this reason, the classical organization and management approach, which emerged in response to the traditional management approach, defended the necessity of using scientific methods in management practices. In the framework of this understanding of the Western theoreticians such as Frederick Taylor (Scientific Management), Henri Fayol (Administrative Process Approach) and Max Weber (Bureaucratic Model), took economical and technical efficiency as a basis for success. This concept, which is also referred to as “the principles approach”, has attempted to determine the "best" organizational structure and the principles to be followed for management practices. It was argued that efficiency and effectiveness will increase if these principles are followed (Kocel, 2001:139-168). Furthermore, it was stated that these principles are universal, given the fact that these principles can be applied to any organization under any circumstance.

The views of Taylor, Fayol and Weber, who set the foundations of scientific management and represent the classical period, began to be questioned as the result of the world economic crisis in 1929 and as a result of various organizational problems. In this period, contrary to the view of the mechanical organization of the classical period,

some developments such as Hawthorne researches which carried out by E. Mayo et. al, D. McGregor's x and y theories, Rensis Likert's system1 - system4 models, Chris Argyris' theory of immaturity - maturity personality, and Maslow's needs theory led to a trend which suggests that the organization is a social structure formed by human elements in addition to technical and material elements. This movement initially was called the "human relations approach" since it dealt with the human element that ignored by classical approach. Then, described as a neo-classical organization and management approach since it was seen as complementary of classical approach in this respect (Kocel, 2001:169-180).

In this period, although the culture was not taken into consideration in theories of management and organization, social and psychological approach to human beings and to their problems within the organizations enabled the development of new aspects on relations between human, organization, and the environment. In other words, this understanding provided a basis to the organization and management theories and practices in order to be taken into account the cultural differences (Caliskan, 2015:34).

After the Second World War, socioeconomic changes, especially in economically developed countries, have led to the need for different perspectives from classical and neo-classical perspectives in solving the problems faced by business world. In this period "systems approach" and "contingency approach", which are complement each other, have made the greatest contribution to the development of new era in management and organization history called "modern management approach" (Kocel, 2001:181-204).

In parallel with the development of systems and contingency approaches, it has been questioned whether administrative methods and techniques that result in success in a specific culture can have the same effect if it is applied in another culture.

Another fact has made the intercultural differences one of the issues to be discussed in the management and organizations theories is that Japan, an East country, has become one of the world's leading industrial powers and has become dominant in international markets despite the visible decline in the economies of many Western countries after the Second World War. In this respect, in comparative studies on American and Japanese businesses, significant differences were found between the two

countries in terms of managerial understandings and applications and it is concluded that organizational structures and management styles that succeeded in Japan were successful because of their compatibility with Japanese culture (Morgan, 1998:139).

In addition to the success that Japan has shown, the rapid changes and developments in the world, the obstacles companies faced in the globalization process, and the challenges faced by different cultures in their search for new markets, has led to an increase in the importance of culture in management and organizational literature (Caliskan, 2015:36).

By virtue of all the factors considered above, the culture phenomenon became a hot topic in the management field in the early 1970's and has led the management theorists to deal with the national culture and the link between the national culture and management (Morgan, 1998:140).

In this context, publications of researchers such as Pettigrew (1979), Deal and Kennedy (1982), Denison (1990), Schein (1992) and Peters and Waterman (1995) have played an important role in establishing the concept of culture in relation to organizational theories (Ilhan, 2006:273).

Researchers such as Gonzales, McMillan, Oberg, Farmer and Richman who have studied cultural factors influencing the management process have concluded that the national culture is influential in the management process (Caliskan, 2015:36). Thus, in comparative studies, it has been scientifically demonstrated that the culture that represents the system of learned behaviors and values, vary from nation to nation (Williams, 1993), and organizational and management practices are effected by national culture.

2.2.4. Organizational Culture

When the management and organization literature is reviewed, it is seen that the concept of organizational culture is not introduced suddenly in the literature. Although the concept of organizational culture has been widely used in the management science since the early 1980s, works carried out in the context of organizational culture is date back to 1930s.

Some management scientists, especially with the trend of “human relations” between 1930 and 1960, focused on topics such as informal groups, group norms, symbols, and organizational values which later on would be effective on the emergence of the concept of organizational culture. Later, Katz and Kahn's studies which draw attention to the social and psychological aspects of organizations; Barnard, Selznick, Gouldner, Dalton, and Blau’s studies which focused on the moral values of organizations can be regarded as studies in the context of organizational culture. Some organizational theorists, such as Arygris, Bennis, Likert, Maslow, McGregor, and Burns, who focused on human resources in relation to organizations, have expressed opinions about some issues related to organizational culture. While the concept of organizational culture was not directly used in these studies mentioned above, they can be considered as the first studies in the context of organizational culture (Sisman, 2007:72).

After the 1980s, the notion of culture was discussed more in the management and organization literature in terms of the influence of the national culture on administrative and organizational practices. The comparative management researches that have been carried out since the 1980s has showed that in addition to the influence of national cultures on organizations, organizations also had their own cultures (Sisman, 2007:73).

In this direction organizations, which have to maintain their existence like all living organisms, have begun to be considered as social systems and it has been understood that the successes of organizations are not limited to material elements such as structure, technology, capital, etc. This has provided to the recognition of a number of new factors, such as organizational culture, which need to be considered for organizational success (Caliskan, 2015:39).

The concept of organizational culture has attracted much interest since its emergence. Interest to the concept has been increased incrementally by social scientists and management scientists. Many administrative practices and theories (organizational learning, total quality management, empowerment etc.) that have been developed since then often lay emphasize on organizational culture.

Sisman (2007:73-80) lists some of the reasons why the concept of organizational culture has widespread that much around the management theoreticians as follows:

- Paradigmatic transformations in philosophy of science,
- Reflections of developments in social theories on organizational theories,
- Development of new metaphors for defining organization,
- Inadequacy of theories developed in management science,
- Controversies on modernism and postmodernism,
- Shift from Fordism to post Fordism,
- Some cultural problems in social life,
- Some problems in social life reflected in organizations,
- Crises in the economic arena,
- Changes in organizational structures,
- Changes in organizational life and work expectations.

As stated in previous section the concept of culture is described from different points of views by different researchers due to their own expertise, working areas, and purpose of their studies. With reference to these approaches, the concept of organizational culture has also been defined in many different ways by various perspectives.

Organizational culture is a field of research involving multiple disciplines. Using concepts, perspectives, models, and methods from different disciplines such as psychology, sociology, anthropology, communication, education, management, etc. has led to the diversification of definitions made for organizational culture (Gizir, 2003:376). Although organizational culture is defined in different ways by different disciplines, we will be limited to the definitions has been made in the management and organizational literature in accordance with the purpose of our study. Even in the science of management and organization there is no completely consensus on a single definition of organizational culture.

One of the earliest explanations we identified about the organizational culture is that of Jaques (1952). He notes:

> *"The culture of the factory is its customary and traditional way of thinking and of doing things, which is shared to a greater or lesser degree by all its members, and which new members must learn, and at least partially accept, in order to be accepted into service in the firm. Culture in this sense covers a wide range of behavior: the methods of production; job skills and technical knowledge; attitudes towards discipline and punishment; the customs and habits of managerial behavior; the objectives of the concern; its way of doing business; the methods of payment; the values placed on different types of work; beliefs in democratic living and joint consultation; and the less conscious conventions and taboos."* (Brown, 1998:7).

During the 1980s and 1990s several definitions were made regarding the concept, and various opinions were put forward as to what the concept of organizational culture includes or not includes. For instance Williams et. al. (1993) defined the organizational culture as "the commonly held and relatively stable beliefs, attitudes, and values that exist within the organization". As reported by Scholz (1987:80) organizational culture is "the implicit, invisible, intrinsic, and informal consciousness of the organization which guides the behavior of the individuals and which shapes itself out of their behavior". Pacanowsky and O'Donnell-Trujillo (1982) stated that "organizational culture is not just another piece of the puzzle, it is the puzzle. From their point of view, a culture is not something an organization has; a culture is something an organization is" (Brown, 1998:7).

In other respects, Schein (1984:3) defines organizational culture as "the pattern of basic assumptions that a given group has invented, discovered, or developed in learning to cope with its problems of external adaptation and internal integration, and that have worked well enough to be considered valid, and, therefore, to be taught to new members as the correct way to perceive, think, and feel in relation to those problems".

Based upon the definitions made in literature, Sisman (2007:84) compiled definitions of organizational culture as follows:

- The way things are done in an organization,
- The basic values and norms shared by members of the organization,

- The cognitive structures of members of the organization and is the basis of perception,
- The behavioral rules and patterns shared by members of the organization,
- The basic beliefs and assumptions shared by members of the organization,
- The meaningful symbols shared by members of the organization,
- The meanings, feelings, philosophy, ideology, understanding, expectations and attitudes shared by members of the organization.

When it comes to characteristics of organizational culture Eren (2007) summarizes the characteristics of organizational culture as follows:

- Organizational culture is a phenomenon that is learned or acquired.
- Organizational culture is a phenomenon that is shared by the members of the organization.
- Organizational culture is not in a form of written text; it takes part in minds, consciousness, and memories of the members of the organization as beliefs and values.
- Organizational culture is in the form of behavioral patterns that are repeated on a regular basis.

Since organizational culture provides inimitable self-capabilities to the organization it is considered as an asset. In this regard, several functions have been attributed to organizational culture. For example, Hampden-Turner (1990:11) has suggested that "culture of an organization defines appropriate behavior, bonds and motivates individuals and asserts solutions where there is ambiguity. It governs the way a company processes information, its internal relations and its values".

Cameron and Quinn (2011:19) put forward that "organizational culture represents how things are around here. It reflects the prevailing ideology that people carry inside their heads. It conveys a sense of identity to employees, provides unwritten and often unspoken guidelines for how to get along in the organization, and it helps stabilize the social system that they experience".

2.2.5. Relationships between Culture, National Culture, and Organizational Culture

Organizations are structures and social facts that are created later by humans as an entity. Individuals who come together in an organization are primarily members of the national culture they live in. Therefore, when these individuals form an organization or become a member of an organization, they bring together with themselves the main characteristics and values of the culture they grow up in to the organization. Therefore, organizational culture is not a completely distinct culture from the culture of the society in which it is involved. Organizational culture is the sub-culture of national culture (Sisman, 2007:71-72). So, the cultural characteristics of the organizations are in a sense a reflection of that community.

Different cultural characteristics of societies create differences in organizations such as expectations from institutions, the general operating system of institutions, the perception of management and manager concepts, etc. (Eginli and Cakir, 2011:40-41).

Based on the fact that the organizations are open systems and organizational culture is the sub-culture of the national culture, the relationship between national culture and organizational culture can be seen in figure 2.8.

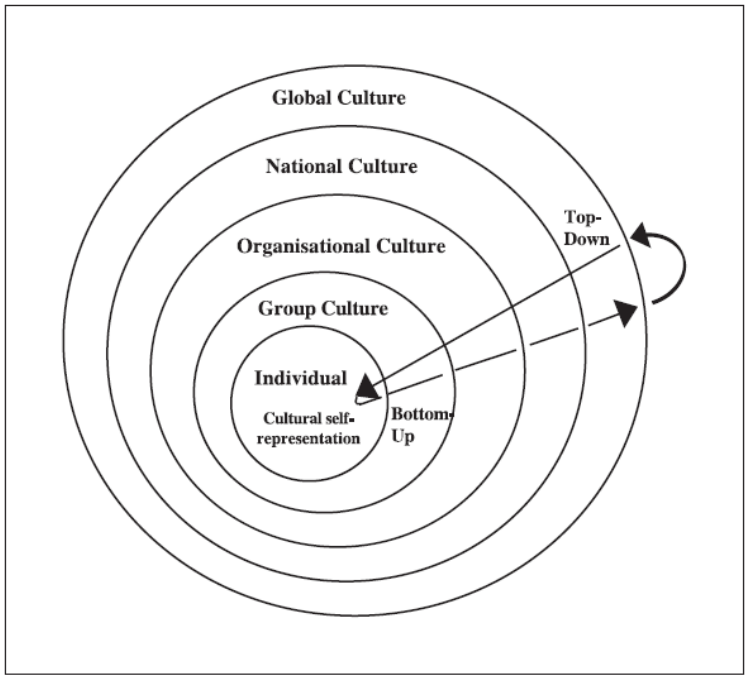

Figure 2.8. Multi-level model of culture (Erez and Gati, 2004:588)

In this sense, organizations are constantly in an interaction with their environment to be able to sustain their existence, and are affected by an upper system including them, or in other words, the culture of the country they are in: national culture. Organization, which is an open system, produces outputs for its environment by using the inputs provided by its environment. Inputs such as technology, knowledge, and workforce used within the organization carry the characteristics of the national culture in which they are involved (Caliskan, 2015:53).

Tayeb (2000:147-148) gives answer to the questions of "to what extent are the values, attitudes and patterns of behavior that managers and employees display in an organization rooted in their national cultural background?" as follows:

> *"…Just as each individual member of a society shares some characteristics in common with others in the society, and yet retains unique personal traits, each individual organization has its own unique culture and 'personality', while at the same time it shares many characteristics in common with all other organizations in the country as a whole."*

Lee and Barnett (1997) observed significant differences among organizational cultures of a Taiwanese-owned, a Japanese-owned, and an American-owned banks located in their respective countries, but found little difference between the Taiwanese-owned bank and an American-owned bank located in Taiwan. These findings highlight the powerful effect of national culture on values which are determine organizational cultural characteristics (House et al., 2004:78).

In their study, which consist of 51 international joint ventures implanted in Hungary, Meschi and Roger (1994) confirmed the strong influence of national culture on organizational culture by reporting a strong linear relationship ($r = .71$) (House et al., 2004:78).

In a study of more than 800 participants from 10 countries, Van Oudenhoven (2001) found similarities between the concepts that individuals use to describe the organizations and to describe their national culture.

In their study which is covers 24 countries, Schuler and Rogovsky (1998) findings showed that national cultural characteristics are highly influential on commonly accepted methods of human resources management practices across nations.

2.2.6. Hofstede's National Culture Dimensions and Organizational Culture

Geert Hofstede's cultural consideration is based on one of the most comprehensive empirical studies on cultural differences to date. He was asked by U.S.-based multinational corporation International Business Machines (IBM) to advise them on the fact that despite of many attempts of IBM to establish common procedures and standards around the world, there were still significant differences between the operation of some plants that are located in different countries, for example between Brazil and Japan (Gillert, 2003:20).

Thereupon, Hofstede (1980b) conducted a research between 1967 and 1973 with the participation of more than 116.000 IBM employees from 40 different countries through questionnaires prepared in 20 different languages.

Since factors such as the employee profile, organizational structure, rules and procedures of IBM almost same in every location, Hofstede concluded that any difference found between the different locations had to be resulted from the culture of the employees in a particular plant and by that, largely from the culture of the host country (Gillert, 2003:20).

At that time, although ideas were raised about the concept of national culture, there was a little consensus on what represents the national culture of a specific country for example, French, American, Mexican, or Japanese culture. With his study, Hofstede aimed to determine the main criteria by which national cultures differs. Based on results of his study he determined four main criteria which he labelled as power distance, uncertainty avoidance, individualism-collectivism, and masculinity-femininity (Hofstede, 1980b:43). The results published in his book Culture's Consequences (Hofstede, 1980a).

Then, study have attracted attention of many researchers. Therefore, besides the extensive efforts of Professor Geert Hofstede, Gert Jan Hofstede and Michael Minkov, thanks to the contributions of many other scholars, replication studies, and collaborations of some other researchers, the research has been expanded to 76 countries and to six dimensions. These six dimensions are measured and described extensively and scored in the third edition of their book named "Cultures and Organizations: Software of the Mind" (Hofstede et. al., 2010). New findings obtained from the ongoing research

after 2010 are continually updated at website: https://www.hofstede-insights.com/product/compare-countries/. It is now possible to access the data of 103 countries based on six dimensions. These dimensions are:

- Power distance,
- Individualism versus collectivism,
- Masculinity versus femininity,
- Uncertainty avoidance,
- Long-term versus short-term orientation,
- Indulgence versus restraint.

The point to be considered for this research is that the purpose of the study is not to compare individuals or organizations, but to compare differences between national cultural features based on country-level correlations between mean scores of country samples. The aim is to find out how the values prevailing in a particular society differ from other societies. The second point is that scores of dimensions represent relative (not absolute) positions of countries (Hofstede and Minkov, 2013).

The study has been considered by many authors as one of the most comprehensive (Reimann et. al., 2008:65), the most influential (Gursoy and Umbreit, 2004:58), the most widely utilized (Crotts and Erdmann, 2000:412), massive and pioneering (Drogendijk and Slangen, 2006:363), "groundbreaking" and "conversion provider" (Erkenekli, 2011) study among the cultural value dimensions studies in the literature. Chapman (1996:18-19) indicated that cultural approach proposed by Hofstede (1980a) has a high potential of contribute to researches, especially in the managerial and organizational field.

Hofstede's study was taken as the basis for the determination of the cultural characteristics of the countries and the comparison of the countries in our study. The reason for this decision is the above-mentioned distinctive features of his work. Each cultural dimension and its relation with organizational culture is examined extensively as following.

2.2.6.1. Power distance dimension

Although the fact that everybody were born equal under the law and have some common universal rights, they differ from each other socially. These differences between individuals in society reveal inequalities. Such inequalities may arise from their status, economic wealth, occupation, social class, and family they belong to etc. Hence, less or more, social inequalities exist in every society (Hofstede et. al., 2010:54). These inequalities make some individuals and groups stronger and more dominant than others in societies.

The main point considered in Hofstede et. al. (2010) is how much inequality is tolerated within communities. Different responses to this question in different cultures represents the level of power distance dimension. Thus, power distance is defined as "the extent to which the less powerful members of institutions and organizations within a country expect and accept that power is distributed unequally." (Hofstede et. al., 2010:61).

In small power distance cultures inequality between individuals are minimized. People in society are depended on each other. Hierarchy implies the inequality of roles. Those who are in the lower layer of the society and those who are in the upper layer are accepted as equal to each other. In small power distance societies strong people are avoid from privileges and status symbols. Social system can be questioned. People at different levels of power perceive themselves less threatened. There is a hidden coherence between the strong and the weak ones and cooperation between the weak ones can be formed on solidarity (Sargut, 2001:70).

On the other hand, in large power distance societies people think that in a world, where there is an order of inequality, everybody deserves the position he or she occupies. The powerful and the weak ones are protected in this order. Very few people are free and the most people are dependent on others. Hierarchy means existential inequality. People who are in the lower and upper layers of society see each other in different categories. Powerful individuals are prefer to be privileged and to have status symbols. Powerless ones are belittled. The way to change the social system is to change the power owners. The power of one is a potential threat to another one and can rarely be trusted. There is a hidden conflict between the powerful and the weak ones and the

cooperation between the weak ones is difficult because of the low level of trust in each other (Sargut, 2001:70).

The above mentioned characteristics of small and large power distance societies are visible by the role pairs such as parent-child, student-teacher, doctor-patient, employer-employee, superior-subordinate, and authority-citizen in a society (Hofstede et. al., 2010:73).

Almost everyone opens their eyes to the world as a member of a family. All of them starts to acquire their "mental software" soon after birth. They start to model themselves by the observation of the relationships between the members of the family. Modeling themselves continue with the experiences gained at school, in workplace, and in various areas of social life (Hofstede et. al., 2010:67-72).

Differences between small-power-distance and large-power-distance cultures first manifest themselves in parent-child relationships. In large power distance cultures children are expected to be obedient to their families. Loyalty, respect, love, and devotion to family elders are the highest virtues. It is not desirable for young people to act independently of their parents. It is expected that the elders of the family will support their children financially and practically, and will be in their life constantly. Characteristics of such relationship between parent and child continues in the teacher-student relationship in later periods. In high-power distance cultures, teachers are objects of respect or "guru" (Hofstede et. al., 2010:67-72).

Differences in power distance, which are shaped in the family and school, are then transferred to superior-subordinate relationship within the organizations. In countries where power distance is large the protective role of the parent on the child, as it is in the family, continues in the role of the boss - employee relationship (Hofstede et. al., 2010:67-72).

In large-power-distance societies employees are expected to be loyal to the organization. Centralized understanding dominates organization structures and there are more supervisory personnel. Organizational structure emphasizes and reinforces inequalities among people in different roles and statutes. White-collar workers are have higher status than blue-collar workers, so the salary range between them is wide (Sargut, 2001:183).

It is seen that in small-power-distance cultures, organizational structures are found to be formed according to the differentiation in roles while in large power distance cultures organizational structures are found to be formed according to the individuals possessed power. While in cultures with small power distances participation in decisions is at the high levels and the ideal boss is regarded as resourceful democrat, in large power distance cultures participation in decisions is at the low level and the ideal boss is regarded as a benevolent autocrat, or "good father". Therefore, subordinates desire to be guided by their superior in large-power-distance cultures. They prefer to do things by taking orders from their superiors instead of taking initiative (Hofstede et. al., 2010:73-76).

In organizations of large-power-distance culture formal communication channels work from top to bottom. So, it's obvious who owns the authority. That is why people know who they should obey. The boss' word replaces the law (Sargut, 2001:183). Moreover, superiors' counseling in any case can cause distress on subordinates. It is also seen natural and expected from superiors to have a number of privileges and status symbols in communities where power distance is large (Hofstede et. al., 2010:73-76).

2.2.6.2. Individualism versus collectivism dimension

Another dimension that enable us to compare national cultural differences between countries is the dimension of individualism versus collectivism. This dimension refers to the weakness or strength of the social bonds between individuals in a society.

Individualism is relatively explained by concepts such as independence from the group, freedom, autonomy, and distantness while collectivism is clarified by concepts such as group dependence, trust, and intragroup cohesion (Sisman, 2007:61).

Hofstede et. al. (2010:92) define the dimension as "individualism pertains to societies in which the ties between individuals are loose: everyone is expected to look after him- or herself and his or her immediate family. Collectivism as its opposite pertains to societies in which people from birth onward are integrated into strong, cohesive in-groups, which throughout people's lifetime continue to protect them in exchange for unquestioning loyalty".

In individualist societies the relations between individuals are weak. Each individual is expected to behave in accordance with his/her self-interests. On the contrary, in collectivist societies links between members of the society are strong. The interest of the group or the society always more dominant than the interest of the individual (Berberoglu, 1991).

In this sense collectivism mentality emphasizes the significance of belonging to the group. Identity is a social function of a group. The general tendency in society is to think and act together (Erdem, 1996:132). However, in individualist societies people are act primarily based on their self-attitudes rather than norms within the group (Triandis, 2001:909).

In individualist societies individual comes first in society, before group. So that individual interests are also preferred to social interests. In these cultures each individual have the right to live with his/her own way and have the right to have his/her own opinion. Everyone has a right to privacy. The economic system also operates according to individual interests. Political power is distributed by voters. Each individual is equal under the law. The ultimate goal in individualist cultures is to provide the necessary conditions and appropriate environment for individuals in the society in order to enable them to express themselves freely. However, the ultimate goal in collectivist societies is consensus and cohesion within the community (Sisman, 2007:61-62).

While individual-centered behavior and relationships are not welcomed in collectivist societies, group-centered behavior and relationships are not welcomed in individualistic societies. In contrast to individualist societies, in collectivist societies interests of groups come first before interests of individuals. Individuals' private life is invaded by group(s). Mentality is predetermined in groups. Laws and rights can differ according to groups. The economic system operates according to social interests. Political power is controlled by pressure groups (Sisman, 2007:62).

In collectivist societies people keep their clusters apart from others. Member of a group such as relative groups, clans, and organizations differentiate their group from other groups. These groups take care of members interests and expect loyalty from them in return. We can say that determinism is effective in these cultures. The will of the group is expected to determine the beliefs and behaviors of the members. In collectivist

societies individuals are brought under control through social oppression. Feeling of embarrassment plays the main role of this control. However in individualist societies control is provided by self-control. For this reason collectivist cultures also expressed as “culture of shame” and individualist cultures are also called “culture of guilt”. (Sargut, 2001:185).

Like other basic elements of human culture, individual - group relationships are also learned first in family environment. Then, “programming of the mind” continues at the school and reflects to workplace and to various areas of social life (Hofstede et. al., 2010).

When it comes to workplace, cultural characteristics of individualist and collectivist societies manifest themselves in the culture of the organizations. For example in countries like the United States and Canada, where the individualistic cultural characteristic predominates, job descriptions are detailed and tasks and responsibilities are clearly defined, whereas in countries such as Japan, Malaysia, Hong Kong and Indonesia, where the collectivistic cultural characteristic predominates, description of assignments and responsibilities are defined by using collective concepts and terms (Adler and Gundersen, 2007:30).

This cultural feature also influence the decision-making process in organizations. Decisions are taken relatively quicker in individualistic cultures for example in North America because decisions are made by an individual or a few of individuals. By contrast, in collectivist cultures such as Japan, many people are participated to the decision-making process rather than just one or a few of people. Decision making process may takes long time in collectivist cultures but implementation starts immediately and continues fast because almost all the parties that will take role in implementation are already in agreement with each other and things will be done are clearly understood. But in individualistic cultures reasons such as explanations of the decision to parties and to gain concurrence from other members of organization delays implementation of process (Adler and Gundersen, 2007:30).

In individualist societies employees are expected to behave rationally in the direction of their personal interests. In these cultures, it is thought that the employees are "economic people" or that the individuals are from a combination of economic and

psychological needs. For this reason, while in collectivist societies employee-employer relationships are generally based on moral and ethical basis, in individualistic societies this relationship is a contract between parties (Hofstede, 2001).

Those who work in an individualistic societies are focused on individual success and on competing with other employees more than on cooperation within the organization. In contrast to individualist societies, collectivist societies encourage the behaviors that promote the benefit of the group or organization. Establishing good and cordial relationships and continuity of this relationship between individuals is important, whereas in individualistic societies the relationship between the individuals should be terminated when the cost of the relationship exceeds the benefits of it. So in collectivist cultures management is management of groups while in individualist cultures management is management of individuals (Hofstede et. al., 2010:124).

2.2.6.3. Masculinity versus femininity dimension

While in some societies the social roles of men and women overlap, in others the distinction between these roles is obvious. In societies where women and men have different social roles, there is a clear distinction between how men and women should act. While men in these societies play the dominant role, the roles of women's are addressed to taking care of the home and general quality of life (Erdem, 1996:134-135).

Hofstede et. al. (2010:140) attempted to reveal these differences with the dimension of masculinity-femininity and described the masculine and feminine societies as follows: "A society is called masculine when emotional gender roles are clearly distinct: men are supposed to be assertive, tough, and focused on material success, whereas women are supposed to be more modest, tender, and concerned with the quality of life. A society is called feminine when emotional gender roles overlap: both men and women are supposed to be modest, tender, and concerned with the quality of life".

Masculinity refers to dominance of masculine values among males such as success, competition, achievement, power, challenge, winning, and strength over the feminine values such as cooperativeness, helping, establishing interpersonal cordial relationships, and being friendliness and forgiveness (Tuz, 2004:19).

On the other hand, some societies classified as feminine. Societies classified as feminine emphasize interpersonal relationships, interdependence, other people's interests, and the overall quality of life. Social role of men and women overlaps. In these cultures, neither men nor women need be ambitious and competitive. Both play the similar social role (Rodrigues, 1998:32).

In this respect, it is possible to determine whether a culture is a masculine or a feminine. If assertiveness, money, and materialist tendencies stand out as dominant values in a society and the humanistic approach remains in the background, it can be said that the dominant values of such society adopts masculine culture. However if a culture emphasize the importance given to human, to human affairs, and to the general quality of life, it can be said that the dominant values of such a society adopts feminine culture (Tuz, 2004:20).

The influence of masculine and feminine cultural characteristics on organizational culture cannot be denied. Throughout the centuries, works have been classified as female-specific or male-specific works. In progress of time gender related job classification has become tradition. These classifications vary from country to country (Tuz, 2004:21).

These cultural differences in social life also manifest themselves in organizations and in organizational cultures. In organizational life while values specific to men are more dominant in some organizations, values specific to women may predominate in some organizations. If an organizational culture is founded on values such as independence, ambition, aggression, physical power, sovereignty, etc. for example distribution of tasks in organizations in such a culture inevitably will be affected by such values and it will be done by considering such values. In masculine cultures, lower-level jobs are suggested for women. Wages and status given to jobs that are classified as female-specific are at a lower level, whereas in feminine cultures there is a tendency to settle this inequality (Sisman, 2007:60-61).

While in masculine cultures the values of organizational cultures are founded on values such as success, desire to earn, and raise as much as possible, competition, rationality, ambition, aggression, independence etc.; in feminine culture the values of organizational cultures are founded on values such as such as close relationships,

delicacy, intimacy, compassion, helpfulness, emotionalism, modesty, empathies, spontaneity, susceptibility to business unity, mutual commitment and support, etc. (Sisman, 2007:62).

In masculine cultures families lead their children to be competitive and success-oriented. For this reason in organizations of these societies it is expected that the rewards should be distributed in direct proportion to the performance of each individual (Tuz, 2004:22). It is important for employees of these organizations to advance in their career, to have a high wage, to work in an environment in which there is lots of opportunities to learn and to imply, and to keep up with technical developments. Contrarily, in feminine cultures working in a friendly atmosphere, having a good working conditions, good relations with the superiors and colleagues, and cooperation are priorities (Erdem, 1996:135).

In masculine cultures managers have an assertive, aggressive, and self-opinionated personality structure. On the contrary the managers in feminine cultures are side with the low level of supervision, acting and deciding with intuition, taking initiative, and making decisions with consensus (Hofstede et. al., 2010).

2.2.6.4. Uncertainty avoidance dimension

We know that human beings have faced big challenges in adapting to uncertain environment for centuries (Sargut, 2001:180). Excessive uncertainty leads to intolerable anxiety. People have developed many ways to cope with uncertainty and alleviate this anxiety. Religion, legislative regulations, and technology can be considered as some of these ways. Technological developments, for example, helps people to avoid risks caused by nature. Similarly legislative regulations such as laws and rules prevent the individual from unexpected behaviors of others (Hofstede et. al., 2010:189).

Uncertainty avoidance dimension can be described as the level of anxiety experienced by a society when the information is inadequate, or not clear enough, or complicated, and where changes arise in a rapid and unpredictable manner (Basim, 2000:19). Actually this dimension measures the tolerance of ambiguity in a society (Jackson, 2001:1274). It shows the degree to which a society feels threatened by

circumstances that may raise suspicions and the extent to which their attempts to prevent them through rules and other security means (Gillert, 2003:20).

Hofstede et. al. (2010:191) define the dimension of uncertainty avoidance as "the extent to which the members of a culture feel threatened by ambiguous or unknown situations".

In strong uncertainty avoidance societies stability is important for people. People are afraid of and retrain from suspicious and risky situations that are not sufficiently clear to them. They want to secure themselves by staying loyal strictly to the authority, to the hierarchy, and to the written and formal rules (Singh, 1990:76).

So, in these societies, where the avoidance of uncertainty is strong, people are not much tolerant of fluctuations and changes in thoughts and behaviors. They tend to show their emotions and aggression relatively more clearly in comparison with weak uncertainty avoidance societies. On the other side, in weak uncertainty-avoidance societies people prefer to be more free and autonomous, and to be open to new ideas and to change. They have lower stress levels and weaker superegos. So the acceptance of differences in opinions are relatively high in accordance with strong uncertainty avoidance societies. Additionally in weak uncertainty avoidance cultures there is a tendency to take more risks (Tuz, 2004:8).

Uncertainty avoidance in the organizational sense can shortly be expressed as the degree of commitment to the stability in organizational conditions (Berberoglu, 1991:66). In strong uncertainty avoidance societies there is a greater need for formal and written rules. Additionally they tend to find absolute truth and reject unusual ideas and behaviors (Adler and Gundersen, 2007:55).

In strong uncertainty avoidance societies individuals feel threatened and insecure in an uncertain environment. Therefore, they prefer to act within the framework of the rules, and expect their superiors to direct themselves. In these cultures where changes are not welcomed, there is a search of continuity and settlement in working conditions. On the contrary, in weak uncertainty avoidance societies, changes and uncertainties stemmed from changes are welcomed; not perceived as threats. Rather, are seen as the obstacles to be overcome. In such societies, individuals are prone to take more risk and do not avoid from taking initiative (Tuz, 2004:9).

Hofstede et. al. (2010:208-213) state that individuals in societies, in which avoidance of uncertainty is at a strong level, accustomed to live comfortably in a structured environment since very early ages, and little is left to chance. That is why there are detailed formal laws and unwritten rules governing the duties and liabilities of employees and employers. For people living in these societies, laws and rules are an emotional need, and generally individual behaviors are structured in this direction. Individuals work hard and often have little free time because they are in a perception of "time is money."

In weak uncertainty-avoidance societies individuals themselves solve most of their problems without a need for formal rules. They do not need to have written rules unless it is absolutely necessary. Individuals have a high degree of autonomy. They are tolerant to the ambiguity and uncertainty. They work hard only if necessary. Formalization is at low level and in such societies organic organizations are more dominant (Hofstede et. al., 2010:208-2013).

Because of ambiguity and uncertainty is not welcomed and there is a need for precision and formalization, in organizations of strong uncertainty avoidance cultures also there is a strong belief in specialization. Their organizations involve more experts. On the other hand, in weak uncertainty avoidance societies chaos and complexity are occasionally praised as conditions for creativity. They have an equally strong belief in common sense and in generalists beside specialists (Hofstede et. al., 2010:211).

Sisman (2007:64) claimed that in high uncertainty avoidance societies people prefer to work for a long time within an organization and they do not think much to leave the organization they are work in. Similarly, Sargut (2001:182) stated that while in countries tolerance to uncertainty is low such as Japan, Portugal, and Greece there is an understanding called "lifelong employment" that is emerged as natural consequence of strong uncertainty avoidance. In countries such as Denmark, USA, UK and Sweden, where tolerance to uncertainty is high, there is a high transition between different workplaces and positions.

2.2.6.5. Long-term versus short-term orientation dimension

When the result of the study conducted by Michael Harris Bond on 23 countries analyzed in the same way that Hofstede analyzed the IBM data, four meaningful dimensions found that helps to distinguish national cultures from one another. These four dimensions significantly correlated with Hofstede's four dimensions. The discovery of similar dimensions with completely different questionnaire and respondents at another point in time supported the basic nature of what was found by Hofstede's study (Hofstede et al., 2010:37-38).

Then, in order to find a solution to the Western bias problem, Michael Bond asked a number of his Chinese colleagues from Hong Kong and Taiwan to help him compose a list of basic values for Chinese people. The new questionnaire designed by Chinese scholars called Chinese Value Survey (CVS). The result of CVS also correlated with Hofstede's and Bond's previous dimensions except one. The fourth dimension found with CVS did not correlate with the fourth dimension found with IBM survey: uncertainty avoidance. Then, Hofstede adopted this dimension as fifth universal dimension and added this dimension to his model as labelling it long-term versus short-term orientation (Hofstede et. al., 2010:37-38).

This dimension is shaped in the context of Asian cultural values on the basis of Confucius teaching which is characterized by lessons in ethical practices without any religious content. Dimension examines the differences between the countries within the scope of the influence of Confucius teaching (Kitchin, 2010:53).

Hofstede et. al. (2010:239) define the fifth dimension as follows: "Long-term orientation stands for the fostering of virtues oriented toward future rewards—in particular, perseverance and thrift. Its opposite pole, short-term orientation, stands for the fostering of virtues related to the past and present - in particular, respect for tradition, preservation of 'face', and fulfilling social obligations."

The degree of long-term orientation demonstrates the extent to which a society exhibits a pragmatic future-oriented perspective rather than a conventional, historic short-time point of view (Reimann et al., 2008:64). In another word long-term vs short-term orientation indicates the choice of focus for people's efforts: the present or the future (Ayoun and Moreo, 2008:66). It relates to the degree to which people in a society

gives importance and focus on the achievements in long-term, in spite of short-term achievements.

Long-term oriented societies emphasize the importance of two personal characteristics: persistence and thrift. Individuals are taught to be persistent and thrifty from the early ages. Even if the success does not come immediately, one should continue to work hardly. They should be able to postpone their some present needs by acting patiently for long-term achievements. Individuals make long-term plans since they think that the most important events of their life have not happened yet and it will be happen in the future. It is seen that the individuals who raised in long-term oriented societies they allocate high percentage of their income for saving when they become adults. For example while in China in 2005, more than 50% of the gross domestic product (GDP) was saved, the same rate reached only to 2% in the United Kingdom (Kitchin, 2010:54; Dortyol, 2012:69).

On the contrary short-term orientated societies believes in the importance of the values such as spending, consumption, efforts for quick results, and respect for tradition. Within the scope of short-term thinking and as a result of social pressure, individuals tend to spend in order to meet their needs immediately. It is also remarkable that in short-term orientation societies traditions are sacred and the respect for traditions is emphasized (Dortyol, 2012:69).

The following are the types of statements with which people with long-term orientation will agree (Kitchin, 2010:53):

- "Nice people are thrifty, and sparing with resources."
- "People should adapt traditions to new circumstances."

Statements with which people with a short-term orientation will agree are:

- "Nice people are who know how to spend."
- "People should respect traditions."

Table 2.4 illustrates the key differences between short- and long-term orientation societies in terms of business based on Chinese Value Survey (CVS).

Table 2.4. Key differences between short- and long-term orientation societies (Hofstede et. al. 2010:251)

Short-term Orientation	Long-term Orientation
Main work values include freedom, rights, achievement, and thinking for oneself.	Main work values include learning, honesty, adaptiveness, accountability, and self-discipline.
Leisure time is important.	Leisure time is not important.
Focus is on the "bottom line."	Focus is on market position.
Importance of this year's profits	Importance of profits ten years from now
Managers and workers are psychologically in two camps.	Owner-managers and workers share the same aspirations.
Meritocracy, reward by abilities	Wide social and economic differences are undesirable.
Personal loyalties vary with business needs.	Investment in lifelong personal networks, *guanxi.*

2.2.6.6. Indulgence versus restraint dimension

Intrigued by Inglehart's analysis of the World Value Survey (WVS), Misho peformed his own and found that Inglehart's well-being versus survival dimension can be split into two, not only conceptually but also statistically. In the light of result of Misho's study, Hofstede noticed that this dimension did not correlate with the other five dimensions of his model. So, he decided to add this dimension into his model as the sixth cultural dimension. He labelled this dimension as indulgence versus restraint and defined it: "Indulgence stands for a tendency to allow relatively free gratification of basic and natural human desires related to enjoying life and having fun. Its opposite pole, restraint, reflects a conviction that such gratification needs to be curbed and regulated by strict social norms" (Hofstede et al., 2010:280-281).

Since dimension of indulgence - restraint fairly new dimension in comparison with other dimensions, it requires more study (Hofstede et. al. 2010:281).

Indulgence versus restraint dimension rely on clearly defined research items. This is how the added dimension to Hofstede's model were formulated in WVS (Hofstede et al., 2010:280-281):

1. Happiness: "Taking all things together, would you say you are very happy, quite happy, not very happy, or not at all happy." measured was the percentage choosing "very happy".
2. Life control: "Some people feel they have completely free choice over their lives, while other people feel that what they do has no real effect on what happens to them. Please use this scale where 1 means 'none at all' and 10 means 'a great deal' to indicate how much freedom of choice and control you feel you have over the way your life turns out" measured were the average national scores reported by the WVS.
3. Importance of leisure: "For each of the following, indicate how important it is in your life: very important, rather important, not very important, or not at all important: family, friends, leisure time, politics, work, religion, service to others" measured was the percentage choosing "very important" for leisure time.

2.3. Studies Investigates the Relationship between Culture and Innovation

Globalization has brought new sight to the international economic and cultural relations. As a natural consequence of the rapid development of information technologies, transportation systems, and the diversification and acceleration of communication channels, international cultural relations has increased. Developing of international cultural relations brought cultural differences to the agenda. By this way, nations have become more aware of cultural diversity. Being aware of the existence of a wide variety of cultures around the world motived especially the business world and academicians, who works in different geographies and cultural atmospheres, to be more interested in the subject. In the last thirty years, there has been an explosion in intercultural empirical studies which regard culture as a quantitative variable (Erkenekli, 2011).

As a consequence of globalization, economies (at national level), corporations (at organizational level) have begun to feel more and more the pressure of competition.

Those parties who are looking for ways to compete with their rivals realized the importance and competitive advantage of the innovation and they have begun to ask to themselves: How can we be more innovative? What are the factors that support and hinder innovation?

After these developments, researchers who thought that culture could be one of many factors that can influence the innovativeness have started to search about this issue.

Cultural anthropologist H.G. Barnett (1953) was one of the first to mention the relationship between culture and innovation (Herbig and Dunphy, 1998:15). Work on the subject increased rapidly afterwards. As a result of different researches in this subject, various findings were reached. After an extensive literature review the studies identified on culture-innovation relationship indicated below. We divided these studies into two: the studies conducted before 1992, and the studies conducted in 1992 and after. The studies' conclusions on cultural influences on innovation conducted before 1992 shortly indicated in table 2.5 however, for the studies done in 1992 and after were examined in more detail.

Table 2.05. Previous studies' conclusions on cultural influences on innovation (Herbig and Dunphy, 1998:17)

Previous Studies' Conclusions on Cultural Influences on Innovation	
Cultural Traits	**Effects on Innovation**
Barnett (1953) Higher Individualism	Higher Innovation Capacity
Beteille (1977) Political Democracy, Capitalism Competition and Individualism	Related Variables
Hofstede (1980) Weak uncertainty avoidance	Higher Entrepreneurship
Hofstede (1980); Schneider (1989); Haiss (1990) Masculine versus Feminine	Innovation Differences
Twaalfhoven and Hattori (1982) Collectivist	Higher process, less radical innovations
Hofstede (1984) High Individualism Low on Power/Status/Hierarchy	Higher Innovation Capacity
Rothwell and Wissema (1986) Willingness to Take Risks Readiness to Accept Change Long- Term Orientation	Higher Innovation Capacity
Herbig and Miller (1991) Individualism Low Power Distance Homogeneous Society	Higher radical innovations
Mokyr (1991) Openness to New Information Willingness to Bear Risks Religion Value of Education to a Society	Higher Innovation Capacity

In order to find answer to the question of why do some societies invent more than others, Shane (1992) examined the per capita number of invention patents granted to nationals of 33 countries in 1967, 1971, 1976, and 1980 and compared them with the index of power distance (social hierarchy) and individualism which compiled from the survey undertaken by Geert Hofstede in the late 1960s and early 1970s. Study provides a series of cross-sectional analyses of how culture effects rates of invention across

societies. It shows how national values of individualism and small power distance represent characteristics related to innovation and invention at the organizational level.

After a year, Shane (1993) published another article that takes the per capita numbers of trademarks as the basis for innovation indicator instead of per capita number of patents and he added the other two dimensions of Hofstede's cultural dimensions of uncertainty avoidance and masculinity-femininity into his model. Results showed that in addition to the dimensions of individualism-collectivism and power distance, the dimension of uncertainty avoidance also represented characteristics related to innovation but no meaningful relationship was found between the innovation scores and the dimension of masculinity-femininity. Shane (1993) found that high individualism, small power distance, and weak uncertainty avoidance are positively related to higher innovation capacity.

To explore the effect of national culture on new product innovation, Rhyne et. al. (2002) conducted a study covering 121 Belgium and 33 American companies. The questionnaire of study was developed based on Hofstede (1980a, 1993) survey items. The number of patents granted in Belgium and in the US between the years 1993 and 1995 were taken as a basis for new product innovation indicator. The data were obtained from the World Intellectual Property Organization. Results showed that Belgium sample exhibited strong uncertainty, large power distance, and masculine characteristics in comparison to US sample, however, American companies showed a higher innovation rate.

On the basis of Hall (1976)'s and Hofstede (2001)'s cultural framework, Van Everdingen and Waarts (2003) examined the influence of national culture on the adoption of innovations in order to demonstrate how these classifications can help to explain variations in innovation adoption rate across nations. The adoption rate levels were calculated based on the number of companies that had adopted the complex IT-based innovation software called Enterprise Resource Planning (ERP). While Hofstede's dimensions scores were obtained from IBM study (Geert Hofstede, 2001), Hall's cultural dimensions scores were obtained from Morden (1999)'s study. The results of the study, which includes 2647 medium-sized companies across ten European countries (Spain, Finland, the Netherlands, Norway, Sweden, Belgium, Denmark, France, Italy

and the United Kingdom) showed that national culture highly effective on ERP adoption rates. They found that high level of uncertainty avoidance, masculinity, and power distance affect ERP adoption, (consequently innovation adoption) negatively while long-term orientation contribute positively to the ERP adoption.

To reveal the impact of culture on production management and innovation, Lin (2009) investigated the global automakers in 14 countries. Study aimed to explore the performance of companies operating abroad and the effect of foreign culture on technological innovation. The number of issued patents were determined as measurement for technological innovation as dependent variable and Hofstede (1994)'s cultural index as independent variable. The findings revealed that while long-term orientation and uncertainty avoidance influence the innovation positively, no relationship was found between performance of firms' technological innovation and individualism-collectivism and power distance dimensions.

With intent to test cultural characteristics role on innovation performance, Vecchi and Brennan (2009) examined innovation performance of manufacturing firms across 24 countries. They utilized from Hofstede's four cultural dimensions to benchmark cultural characteristics of countries on a global scale. They examined 8 innovation indicators one by one and compiled into an innovation index assessing the overall innovation performance. These innovation indicators are determined as: "use of Enterprise Resource Planning (ERP), R&D investment (% unit's revenues), use of technology for operational activities, training and education (% unit's revenues), process equipment (% unit's revenues), manufacturing overheads (% manufacturing costs), management of product development cycle (factor score), and co-ordination of design and manufacturing (factor score)". The findings showed that large power distance and collectivism associated with higher levels of innovation scores, masculinity only marginally affects innovation performance, but no significant relationship found between innovation performance and uncertainty avoidance.

In an attempt to examine the relationship between cultural dimensions introduced by Hofstede and the capability of initiating innovation, Kaasa and Vadi (2010) conducted a research in which the number of patent applications were taken as the basis for measurement of the ability to initiate innovation. They did not use the

original index scores of Hofstede's but the European Social Survey's (ESS) data which measures the same dimensions introduced by Hofstede. Using the sample of 20 European countries, innovation initiation was measured by the number of patent applications (high-tech patent applications, ICT patent applications, and biotechnology patent applications) to the European Patent Office (EPO). The results showed that uncertainty avoidance, power distance, masculinity, and family-related collectivism have a significant negative relationship with patenting intensity.

In order to investigate the effect of culture on national prosperity and innovation, Williams and McGuire (2010) proposed a study which consist of 63 countries. Their hypotheses were (a) national culture affects national economic creativity, (b) economic creativity affects innovation implementation, (c) innovation implementation affects national prosperity. They determined R&D spending, patents, and scientific publications to capture economic creativity; license fees and trademarks, self-employment rates, and royalty to capture innovation implementation. They have elected the variables and data proposed by Hofstede (1980a; 2001) to operationalize culture. They found that culture has profound effect on economic creativity.

To contribute to the knowledge of relationship between culture and innovation, Rossberger and Krause (2012) investigated the relationship between cultural value dimensions and national innovativeness of 55 countries for years 2009, 2010, and 2011. They utilized from Global Leadership and Organizational Effectiveness (GLOBE) project for conceptualization and operationalization of culture; and from Global Innovation Index reports for innovativeness. With more than eighty indicators, indicators used in this study to measure innovativeness is the best measurement among the studies we examined so far. Results showed that human orientation, uncertainty avoidance, and in-group collectivism dimensions are vital for innovative outcomes. Human orientation (value) has a significant positive relationship with the Global Innovation Index. Uncertainty avoidance (value) showed a significant negative relationship with national innovation index. In-group collectivism (practice) is significantly negatively related to innovation index.

By use of conditional and unconditional Data Envelopment Analysis (DEA) model, Halkos and Tzeremes (2013) provided an empirical evidence for the link

between innovation performance of 25 European countries and their cultural factors. They benefited from the European Innovation Scoreboard (EIS) data for the year 2007 for innovation indicators and from Hofstede's index for cultural classification and scores. European Innovation Scoreboard provides three categories of innovation inputs and two categories of outputs. The three input dimensions cover 15 input indicators and the two output dimensions cover 10 output indicators. The empirical results revealed that the national cultural feature is one of the important factors affecting the innovation performance of a country. They found that large power distance and strong uncertainty avoidance values have a significant negative effect on countries' innovation efficiency level.

In her study that covers the OECD countries, Efrat (2014) analyzed the impact of culture on the motivation to innovate at the national level. Three different measures were used that refers to a different aspects of innovation as indicators to capture innovativeness. These are per capita number of patents, per capita number of the scientific and technical journal articles, and ratio of high-tech exports to total exports. Study consist of 35 countries' information obtained from years 1998, 2003, and 2007. Hofstede's cultural dimensions and scores were used for the classification and measurement of culture. As a result, she noted that cultural characteristics showed strong influence on tendency to innovate. She found that uncertainty avoidance has a negative effect on innovation. Individualism has a positive effect on scientific articles however its impact on patents contrary. The opposite results were found for masculinity. While masculinity has a positive effect on patents as expected, its impact on scientific articles was contrary to the hypothesis. No relationship was found between power distance and innovativeness.

In order to find out how national cultural characteristics influence innovativeness and competitiveness, Celikkol (2015) conducted a study which covers 34 OECD countries. As taking basis of Hofstede's cultural dimensions and scores, he used Instead's Global Innovation Indexes (GII) for innovation performance indicators and Global Competitiveness Reports of World Economic Forum (WEF) for competitiveness performance indicators. As a result, he found that cultural characteristics of large power distance affect innovativeness negatively, on the other hand long-term orientation's

effect on innovativeness is positive. But no relationship was found between innovativeness and characteristics of individualism, masculinity, uncertainty avoidance, and indulgence.

CHAPTER THREE
3. MATERIAL AND METHOD

3.1. PURPOSE AND THE IMPORTANCE OF THE RESEARCH

Innovation has become an indispensable source of dynamism for today's national economies and businesses. The prosperity and standard of living in a country increases if the competitiveness of that country increases and it is necessary to increase productivity in order to increase competitiveness. The most important tool that improves productivity is innovation. Thanks to innovation, resources can be used more efficiently. Hence, innovation is key to economic growth and to increase in quality of life at country level.

When the importance of innovation is evaluated in terms of businesses, we can say that in today's competitive business environment to be able to survive and to provide sustainable and profitable growth requires to be innovative. Globalization, rapid change, increase in uncertainty, technological developments, increase in information, and alternative options of customers are pushing companies to be faster, more creative, more productive, in other words more innovative. In order to gain competitive advantage in long term, organizations should improve their innovation ability and ensure continuity of these innovation activities.

The quality and cost advantages that were sufficient to provide competitive advantage in the past, can only provide temporary competitive advantage today (Arikan et al., 2006:22).

Various studies have been carried out in order to determine the factors affecting innovativeness. Cultural environment is among these factors. The existing cultural environment can increase or decrease the innovation potential of companies and countries. In this respect, we aimed to find out the influence of national cultural

characteristics on innovation performance. If we can determine which cultural characteristics influence innovativeness in which direction, we can identify the cultural characteristics which hampering innovativeness both at the national level for countries and at the organizational level for corporates.

When an overall evaluation is made in terms of the number of countries covered, the number of cultural dimensions included, the number of indicators used to capture innovativeness, and the length of time period investigated, our study is the most comprehensive one among others, which investigates the relationship between innovativeness and national culture based on Hofstede's cultural classification, with 73-78 countries, 6 cultural dimension, 27 indicators to capture innovativeness and 7 years of time period.

3.2. RESEARCH DESIGN AND SAMPLE

The main reason for the examination of the relationship between innovation and culture at the national level is that we think the best way to discover the relationship between culture and innovation is to examine this relationship at the national level. Then, based on national culture - organizational culture relationship, we can make inferences and give suggestions also for organizational culture characteristics which can contribute to innovativeness.

The reason why we think that the examination of the relationship between innovation and culture at the national level is the best method can be explained as follows:

Each person in a nation has various cultural characteristics because they can be members of different sub-groups simultaneously. For example, an individual, at the national level, has the cultural characteristics of the country in which he or she lives or a citizen; at the regional level, has the cultural characteristics of the region which is born or raised; at the ethnical level has the cultural characteristics of the ethnic group which is been member of while at the social class level, has the cultural characteristics of profession which is occupied or the educational level which is received. Although there are different sub-groups within it, it can be said that the most proper level of culture that can be used in determining cultural differences is the level of nation because the concept

of nation is historically a whole. There are some powerful factors provide highly to the integration of subgroups within a nation such as a dominant language, a common educational system, a certain political system, and a media, which are shared by the vast majority of people (Kartarı, 2014) cited in (Caliskan, 2015:16-17).

Additionally it is impossible for us to conduct a research based on primary sources in terms of possibilities, resources, and time. We had to make use of secondary sources and all available sources, which make it possible for us to investigate the relationship between culture and innovativeness is at the national level.

However, in an analysis of organizational culture (micro culture) analyzing national culture (macro culture) is inevitable because there is a strong relationship between organizational culture and national culture. Organizational culture, which is subculture of national culture, is influenced significantly by society's norms, values, and behavior patterns. The value system that constitutes the cultural structures of organizations is greatly influenced by the culture of society. Therefore, one aspect of cultural analysis is the macro-micro culture relationship analysis.

Two different sets of data were used to achieve the specified research purpose. These data sets are widely accepted in the literature with proven reliability and validity. One of them provides the measurement of cultural characteristics at the national level and the other one provides the measurement for the innovation performance of the countries.

Data set, which provides measurement of national cultural characteristics based on 6 cultural dimensions of 103 countries was obtained from the https://www.hofstede-insights.com/product/compare-countries/ website (see appendix A.1. for the 97 of them which were used in this study's analysis). On this web site the most up-to-date results of the on-going work of Hofstede and his colleagues are published regularly. Mentioned 6 dimensions are power distance (PDI), individualism versus collectivism (IDV), masculinity versus femininity (MAS), uncertainty avoidance (UAI), long-term orientation versus short-term orientation (LTO), and indulgence versus restraint (IND) which are consist the independent variables of our model. For detailed information about Hofstede's study and mentioned dimensions please refer to previous chapter of the study (see 2.2.6. Hofstede's National Culture Dimensions and Organizational Culture). For

technical information about methodology of this measurement please refer to the Value Survey Module 2013 Manual (Hofstede and Minkov, 2013).

The reason why Hofstede's work was taken as the basis for the determination of the cultural characteristics of the countries and the comparison of the countries in our study is that his cultural consideration is based on one of the most comprehensive empirical studies on cultural differences to date. With his study, he aimed to determine the main criteria by which national cultures differs. The study has been considered by many authors as one of the most comprehensive (Reimann et al., 2008:65), the most influential (Gursoy and Umbreit, 2004:58), the most widely utilized (Crotts and Erdmann, 2000:412), massive and pioneering (Drogendijk and Slangen, 2006:363), "groundbreaking" and "conversion provider" (Erkenekli, 2011) study among the cultural value dimensions studies in the literature. Chapman (1996:18-19) indicated that cultural approach proposed by Hofstede (1980a) has a high potential of contribute to researches, especially in the managerial and organizational field.

However, because of Hofstede measured values at one point in time, and his study does not provide differences in rankings of cultures across time, taking as basis his study for the cultural classification and comparison of the countries in our study is a limitation of this study.

On the other hand, data set which provides levels of innovativeness of countries obtained from the annual Global Innovation Index (GII) reports (https://www.globalinnovationindex.org/). The Global Innovation Index (GII) is a project started by Professor Dutta at Insead Business School with the aim of finding metrics and approaches that measure innovativeness better than traditional measurements such as number of patent applications and trademarks.

The reason why these reports were taken as the basis for the measurement of innovation levels of countries is that these reports are contain indicators which can most accurately capture the level of innovation of countries presently. The study is one of the most comprehensive studies in terms of both the number of innovation indicators included to capture innovativeness level of countries and the number of countries covered. Additionally, indices published by the Global Innovation Index are

conceptually and statistically analyzed and approved by the European Commission Joint Research Center (JRC).

GII relies on two sub-indices: the innovation input sub-index and the innovation output sub-Index. Figure 3.1 illustrates the conceptual framework of GII. As it seen in figure innovation input sub-index consist of five pillars which capture the elements of the national economy that enable innovative activities. These enabler pillars are institutions, human capital and research, infrastructure, market sophistication, and business sophistication pillars. Enabler pillars define aspects of the environment conducive to innovation within an economy. Each one consist of three sub-pillars.

On the other hand, the innovation output sub-index consist of two pillars which are capture the results of innovative activities within the economy. Although the output sub-index includes only two pillars, it has the same weight in calculating the overall GII scores as the input sub-index. There are two output pillars: Knowledge and technology outputs and creative outputs.

Since our aim is to find out which cultural characteristics influence in which direction the innovativeness, we only used the output sub-index of GII in our analysis in accordance with the purpose of our study. Output sub-index of GII consist of dependent variable in our model.

Innovation output sub-index consist of two outputs. These are knowledge and technology outputs, and creative outputs. Knowledge and technology outputs covers all those variables that are traditionally thought to be the fruits of innovations. However creative outputs covers the intangible assets, creative goods and services, and online creativity. Table 3.1 shows the sub-pillars of innovation output sub-index. Appendix A.2. illustrates the innovation output sub-index scores of countries for years between 2011 and 2017. For the sources and definition of indicators of output sub-index see appendix A.3.

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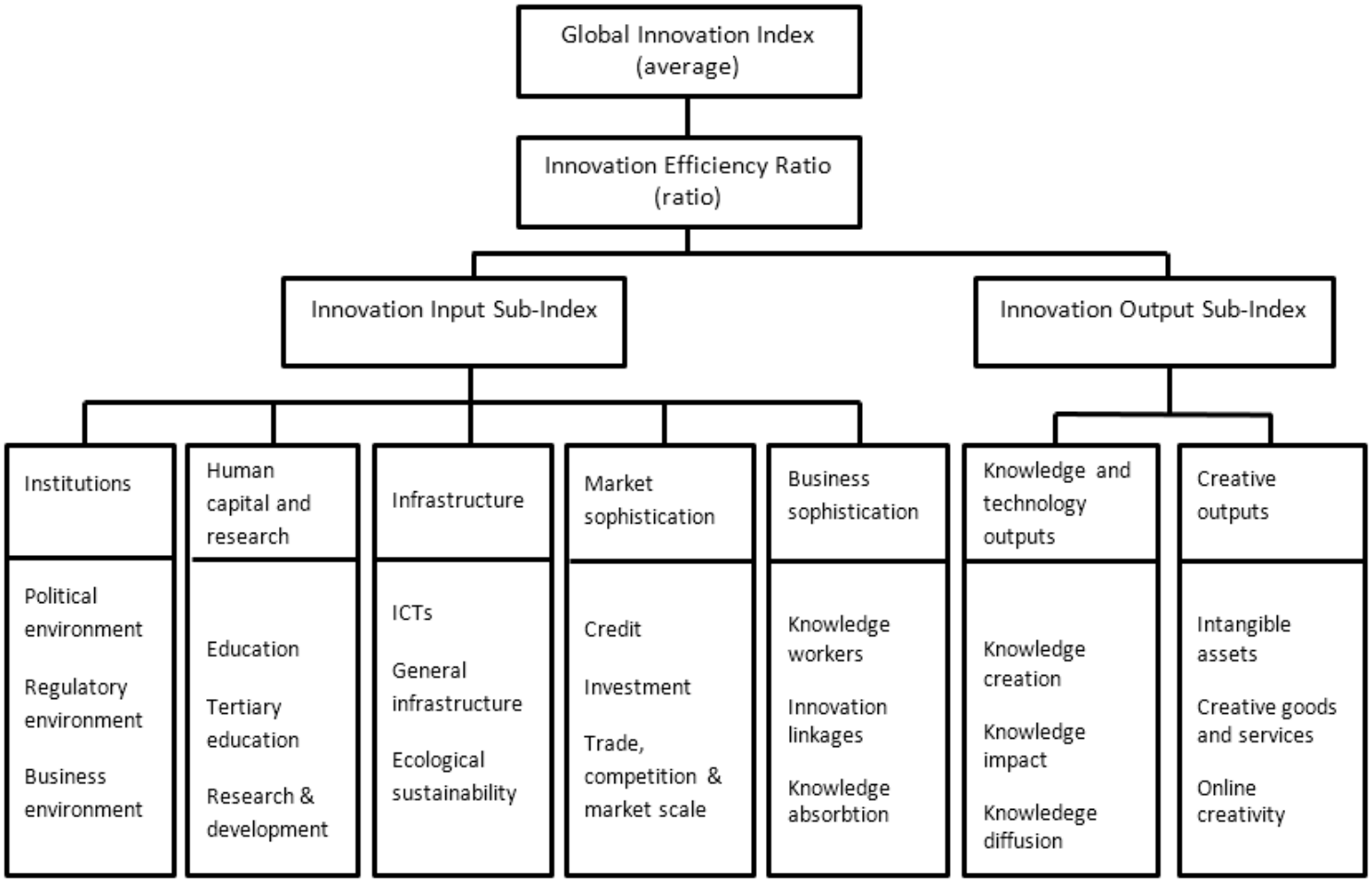

Figure 3.1. Conceptual framework of GII (https://www.globalinnovationindex.org/gii-2017-report)

Table 3.1. Innovation output sub-index of GII (www.globalinnovationindex.org/gii-2017-report)

INNOVATION OUTPUT SUB-INDEX OF GII*	
Knowledge and Technology Outputs	**Creative Outputs**
Knowledge Creation	Intangible Assets
Patent applications by origin	Trademark application class count by origin
PCT international applications by origin	Industrial designs by origin
Utility model applications by origin	ICTs and business model creation
Scientific and technical publications	ICTs and organizational model creation
Citable documents H index	
Knowledge Impact	Creative Goods and Services
Growth rate of GDP per person engaged	Cultural and creative services exports
New business density	National feature films produced
Total computer software spending	Global entertainment and media market
ISO 9001 quality certificates	Printing and publishing output
High-tech and medium-high-tech output	Creative goods exports
Knowledge Diffusion	Online Creativity
Intellectual property receipts	Generic top-level domains
High-tech exports	Country-code top-level domains
ICT services exports	Wikipedia yearly edits
Foreign direct investment net outflows	Video uploads on YouTube
*For each of the 27 indicators' definition, description, and source see APPENDIX A.3.	

Sample of the study consist of 97 countries stated in table 3.2. Depending on available mutual data of two data sets in years between 2011 and 2017, each year's regression analysis consist of 73-78 countries of these 97 countries.

Table 3.2. Countries consist the sample of the study

COUNTRIES CONSIST THE SAMPLE OF THE STUDY			
1. Albania	26. Ethiopia	51. Lithuania	76. Singapore
2. Angola	27. Fiji	52. Luxembourg	77. Slovakia
3. Argentina	28. Finland	53. Malawi	78. Slovenia
4. Australia	29. France	54. Malaysia	79. South Africa
5. Austria	30. Germany	55. Malta	80. South Korea
6. Bangladesh	31. Ghana	56. Mexico	81. Spain
7. Belgium	32. Greece	57. Morocco	82. Sri Lanka
8. Bhutan	33. Guatemala	58. Mozambique	83. Sweden
9. Brazil	34. Honduras	59. Namibia	84. Switzerland
10. Bulgaria	35. Hong Kong	60. Nepal	85. Syria
11. Burkina Faso	36. Hungary	61. Netherlands	86. Tanzania
12. Canada	37. Iceland	62. New Zealand	87. Thailand
13. Cape Verde	38. India	63. Nigeria	88. Trinidad and Tobago
14. Chile	39. Indonesia	64. Norway	89. Turkey
15. China	40. Iran	65. Pakistan	90. Ukraine
16. Colombia	41. Ireland	66. Panama	91. UAE
17. Costa Rica	42. Israel	67. Peru	92. United Kingdom
18. Croatia	43. Italy	68. Philippines	93. USA
19. Czech Republic	44. Jamaica	69. Poland	94. Uruguay
20. Denmark	45. Japan	70. Portugal	95. Venezuela
21. Dominican Republic	46. Jordan	71. Romania	96. Vietnam
22. Ecuador	47. Kenya	72. Russia	97. Zambia
23. Egypt	48. Kuwait	73. Saudi Arabia	
24. El Salvador	49. Latvia	74. Senegal	
25. Estonia	50. Lebanon	75. Serbia	

3.3. HYPHOTHESIS OF THE STUDY

Based on theoretical background expressed in the literature review and the past studies on the subject, research model of the study created as presented in Figure 3.2.

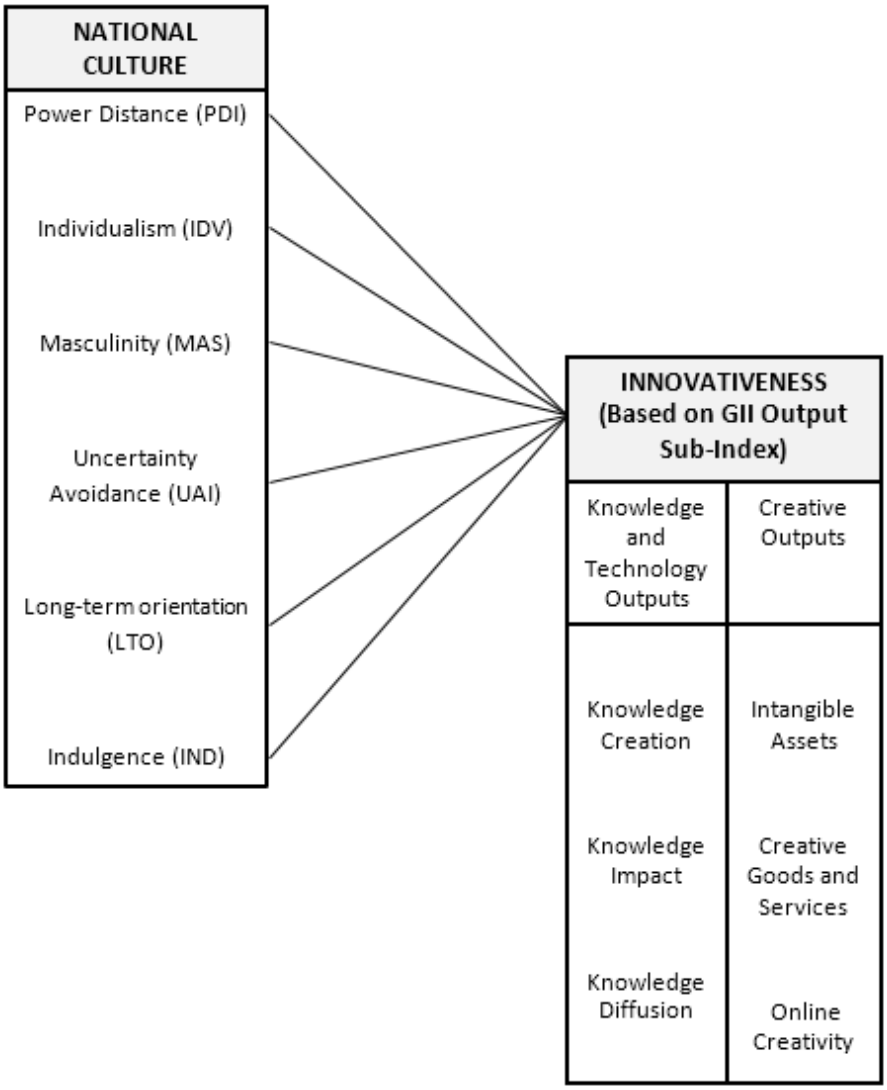

Figure 3.2. Research model

According to model independent variables are consist of national cultural dimensions: power distance (PDI), individualism (IDV), masculinity (MAS), uncertainty avoidance (UAI), long-term orientation (LTO), and indulgence (IND). On the other side level of innovativeness of countries which is measured by GII output sub-index that

include knowledge and technology outputs and creative outputs consist the dependent variable of our model

Based on the developed model and theoretical background stated in literature review following hypotheses were developed:

H1a: Large power distance affects innovativeness negatively.

H2a: Individualism affects innovativeness positively.

H3a: Masculinity has no effect on innovativeness.

H4a: Strong uncertainty avoidance affects innovativeness negatively.

H5a: Long-term orientation affects innovativeness positively.

H6a: Indulgence affects innovativeness positively.

In order to investigate causality between dependent and independent variables in accordance with the hypotheses determined, multiple linear regression analyzes were performed separately for each year between 2011 and 2017.

CHAPTER FOUR
4. FINDINGS AND DISCUSSION

4.1. FINDINGS

Findings of multiple linear regression analyses carried out for each year between 2011 and 2017 are presented in table 4.1. As can be seen multiple regression models conducted for each year with six predictors produced F values in the range of [20.596; 31.558] and for all p values at $\alpha = .05$ significance level; $p < \alpha$ indicating that all 7 models are meaningful. The R^2 values of the regression models are in range of [.652; .730] indicating that the cultural characteristics (PDI, IDV, MAS UAI, LTO IND) are able to account for 65-73% of the variance in innovation scores between 2011-2017.

Table 4.1. Regression analysis findings

Multiple Linear Regression Analysis Findings of the year 2017	Dependent Variable: Innovativeness (N = 74)			
Independent Variables	Standardized Beta Coefficient	Std. Error	t value	p value
PDI	-.191	.062	-1.908	,061
IDV	.336	.054	3.445	.001
MAS	.112	.046	-1.608	.113
UAI	-.125	.040	-1.807	.075
LTO	.561	.043	7.203	.000
IND	.246	.046	3.029	.003
Regression Model	$R = .835$ $R^2 = .697$ Adj. $R^2 = .670$ F=25,677 p= .000			

Table 4.1. (cont.)

Multiple Linear Regression Analysis Findings of the Year 2016	Dependent Variable: Innovativeness (N = 75)			
Independent Variables	Standardized Beta Coefficient	Std. Error	t-value	p-value
PDI	-.207	.062	-2.086	.041
IDV	.372	.055	3.808	.000
MAS	-.105	.045	-1.553	.125
UAI	-.115	.039	-1.730	.088
LTO	.515	.042	6.788	.000
IND	.235	.044	3.056	.003
Regression Model	$R = .846$ $R^2 = .715$ Adj. $R^2 = .690$ F=28.502 p= .000			
Multiple Linear Regression Analysis Findings of the Year 2015	Dependent Variable: Innovativeness (N = 77)			
Independent Variables	Standardized Beta Coefficient	Std. Error	t value	p value
PDI	-.230	.055	-2.456	.017
IDV	.338	.048	3.651	.001
MAS	-.119	.040	-1.832	.071
UAI	-.114	.036	-1.772	.081
LTO	.544	.039	7.239	.000
IND	.271	.039	3.604	.001
Regression Model	$R = .852$ $R^2 = .725$ Adj. $R^2 = .702$ F=30.802 p= .000			

Table 4.1. (cont.)

Multiple Linear Regression Analysis Findings of the Year 2014	Dependent Variable: Innovativeness (N = 77)			
Independent Variables	Standardized Beta Coefficient	Std. Error	t value	p value
PDI	-.193	.050	-2.082	.041
IDV	.393	.044	4.281	.000
MAS	-.106	.036	-1.646	.104
UAI	-.088	.033	-1.378	.173
LTO	.533	.035	7.154	.000
IND	.265	.035	3.563	.001
Regression Model	$R = .854$ $R^2 = .730$ Adj. $R^2 = .707$ F=31.558 p= .000			
Multiple Linear Regression Analysis Findings of the Year 2013	Dependent Variable: Innovativeness (N = 78)			
Independent Variables	Standardized Beta Coefficient	Std. Error	t value	p value
PDI	-.197	.049	-2.029	.046
IDV	.392	.044	4.047	.000
MAS	-.061	.036	-.903	.370
UAI	-.081	.032	-1.215	.229
LTO	.507	.035	6.415	.000
IND	.286	.035	3.649	.000
Regression Model	$R = .836$ $R^2 = .699$ Adj. $R^2 = .673$ F=27.432 p= .000			

Table 4.1. (cont.)

Multiple Linear Regression Analysis Findings of the year 2012	Dependent Variable: Innovativeness (N = 77)			
Independent Variables	Standardized Beta Coefficient	Std. Error	t value	p value
PDI	-.222	.054	-2.391	.019
IDV	.351	.048	3.813	.000
MAS	-.142	.039	-2.212	.030
UAI	-.108	.035	-1.697	.094
LTO	.546	.038	7330	.000
IND	.237	.038	3.185	.002
Regression Model	$R = .854$ $R^2 = .730$ Adj. $R^2 = .706$ F=31.489 p= .000			
Multiple Linear Regression Analysis Findings of the year 2011	Dependent Variable: Innovativeness (N = 73)			
Independent Variables	Standardized Beta Coefficient	Std. Error	t value	p value
PDI	-.230	.053	-2.106	.039
IDV	.283	.046	2.677	.009
MAS	-.109	.039	-1.428	.158
UAI	-.196	.035	-2.616	.011
LTO	.490	.037	5.775	.000
IND	.249	.039	2.838	.006
Regression Model	$R = .807$ $R^2 = .652$ Adj. $R^2 = .620$ F=20.596 p= .000			

Hypothesis H1a states that large power distance affects innovativeness negatively. Table 4.1 shows that the values of PDI beta coefficients for analyzed years are in range of [-.191; -.230] and all p values for each year (except the findings of 2017) at $\alpha = .05$ significance level; $p < \alpha$. For 2017 $p = .061$. So, hypothesis H1a is supported.

Hypothesis H2a states that individualism affects innovativeness positively. Table 4.1 shows that the values of IDV beta coefficients for analyzed years are in range

of [.283; .393] and all p values for each year at $\alpha = .05$ significance level; $p < \alpha$. So, hypothesis H2a is supported.

Hypothesis H3a states that masculinity has no effect on innovativeness. Table 4.1 shows that the values of MAS beta coefficients between 2011 and 2017 are [-.112, -.105, -.119, -.106, -.061, -.142, -.109]. Even though beta coefficients indicates that masculinity has a negative effect on innovativeness, this effect is such a low level that it is not worth to consider. Additionally, since all p values for each year (except the findings of 2012) at $\alpha = .05$ significance level $p > \alpha$, hypothesis H3a is supported.

Hypothesis H4a states that strong uncertainty avoidance affects innovativeness negatively. Table 4.1 shows that the values of UAI beta coefficients between 2011 and 2017 are [-.125, -.115, -.114, -.088, -.081, -.108, -.196,] but all p values for each year (except the findings of 2011) at $\alpha = 0.05$ significance level $p > \alpha$. So hypothesis H4a is rejected.

Hypothesis H5a states that long-term orientation affects innovativeness positively. Table 4.1 shows that the values of LTO beta coefficients for analyzed years are in range of [.490; .561] and all p values for each year at $\alpha = .05$ significance level; $p < \alpha$. So, hypothesis H5a is supported.

Hypothesis H6a states that indulgence affects innovativeness positively. Table 4.1 shows that the values of IND beta coefficients for analyzed years are in range of [.235; .286] and all p values for each year at $\alpha = .05$ significance level; $p < \alpha$. So hypothesis H6a is supported. Table 4.2 demonstrate the hypothesis test results.

Table 4.2. Hypothesis test results

Hypothesis	Result
H1a: Large power distance affects innovativeness negatively.	Supported
H2a: Individualism affects innovativeness positively.	Supported
H3a: Masculinity has no effect on innovativeness.	Supported
H4a: Strong uncertainty avoidance affects innovativeness negatively.	Rejected
H5a: Long-term orientation affects innovativeness positively.	Supported
H6a: Indulgence affects innovativeness positively.	Supported

4.2. DISCUSSION

As a result, findings of the analyses, which consist of samples varies from 73 to 78 countries between 2011 and 2017 showed that the cultural characteristics have a strong influence on innovativeness. It is found that individualism, long-term orientation, and indulgence affects innovativeness positively while large power distance's effect on innovativeness is negative. However, no meaningful relationship found between innovativeness and characteristics of masculine and high uncertainty-avoidanance cultures.

Hypothesis H1a states that large power distance affects innovativeness negatively and findings of analyses supported this statement.

Characteristics of power distance societies such as formal rules and procedures, centralized power, presence of social hierarchy, formal vertical communication flows, and control from up to down are not expected to be associated with suitable environment in which innovation activities are maintenance successfully. Quite the contrary, success is expected to be associated with those characteristics defining limited emphasis on rules and procedures to control operations, less formal hierarchy of authority and control, exchange of information in both vertical and horizontal directions, greater decentralization of knowledge and responsibility. Characteristics large power distance such as excessive rules, rigid stratification, top down control, and central power is generally believed to hinder innovation. Hierarchy constrains information sharing. However, innovation significantly depends on the spread of information. For cultures that exhibit lower power distances, communication across hierarchical or functional boundaries is more common and this makes possible to bring different perspectives, creative ideas, and thinking together which can lead to unusual combinations and even radical breakthroughs. Additionally, it is claimed that bureaucracy reduces creativity because with strict control and detailed instructions people become passive and this eliminate creative thinking (Shane, 1992, 1993; Herbig and Dunphy, 1998; Jones and Davis, 2000; Van Everdingen and Waarts, 2003; Kaasa and Vadi, 2010; Williams and McGuire, 2010).

When previous studies are investigated (Shane, 1992, 1993; Rhyne et al., 2002; Van Everdingen and Waarts, 2003; Kaasa and Vadi, 2010; Halkos and Tzeremes, 2013;

Celikkol, 2015) all investigated studies' findings showed that power distance affects innovativeness negatively as our findings. Only Vecchi and Brennan (2009) found a positive relationship and Lin (2009) and Efrat (2014) found no significant relationship between large power distance and innovativeness.

Hypothesis H2a states that individualism affects innovativeness positively and findings of analyses supported this statement.

Values that are dominant in individualist cultures such as independence, freedom, and autonomy are thought to contribute to innovative efforts. On the contrary, restricted personal autonomy and freedom characteristics in collectivist societies are to the detriment of innovation because initiating of innovation is usually seen as the act of individual. Although the support of the group have great importance at next steps, the idea of innovation first emerges in the head of individual. While individual initiatives is encouraged and rewarded in individualistic societies, in collectivist societies taken initiatives and efforts are group dependent and personal contribution rather belongs to group. Hence, individuals have more reasons to innovate in individualistic societies (Shane, 1992, 1993; Herbig and Dunphy, 1998; Jones and Davis, 2000; Waarts, 2003; Kaasa and Vadi, 2010; Van Everdingen and Williams and McGuire, 2010).

Findings of Shane (1992, 1993), Rossberger and Krause (2012), Efrat (2014) showed that individualism affects innovativeness positively. Vecchi and Brennan (2009) found that individualism affects innovativeness negatively while Celikkol (2015), Lin (2009), and Van Everdingen and Waarts (2003) found no meaningful relationship between individualism and innovativeness.

Hypothesis H3a states that masculinity has no effect on innovativeness and findings of analyses supported this statement.

When the previous studies investigated it is seen that usually no meaningful relationship was found between masculinity and innovativeness. While some characteristics of masculine cultures thought to be contribute to innovativeness, some of feminine cultural characteristics are also thought to be contribute to innovativeness. For example according to Jones and Davis (2000) cultural characteristics of masculine cultures are more associated with innovation in regard to feminine cultures. They state that values pertain to masculinity such as success, achievement, competition, ambition,

reward, acceptance of conflicts are usually associated with innovation. On the contrary Kaasa and Vadi (2010) states that values pertain to femininity such as giving emphasis on relationships, low conflict, group integration, warm environment, and trust are more supportive for innovation activities.

Studies of Shane (1993), Vecchi and Brennan (2009), and Celikkol (2015) found no meaningful relationship between masculinity and innovativeness. On the other hand Van Everdingen and Waarts (2003) found a negative relationship.

Hypothesis H4a states that strong uncertainty avoidance affects innovativeness negatively. It is thought that there will be resistance to innovation in society where there is a strong uncertainty avoidance when it is thought that innovations bring about changes and changes bring about uncertainty. To avoid uncertainty, these cultures adopt rules to minimize ambiguity. Rules and reliance on them, in turn, constrain the opportunities to develop new solutions (Kaasa and Vadi, 2010). But surprisingly, the results of our analyses showed that there is no meaningful relationship between uncertainty avoidance and innovativeness.

Studies of Vecchi and Brennan (2009) and Celikkol (2015) also found no meaningful relationship between uncertainty avoidance and innovation but the most of the studies investigated found negative relationship between uncertainty avoidance and innovation (Shane, 1993; Rhyne et. al., 2002; Van Everdingen and Waarts, 2003; Kaasa and Vadi, 2010; Rossberger and Krause, 2012; Halkos and Tzeremes, 2013).

Hypothesis H5a states that long-term orientation affects innovativeness positively and findings of analyses supported this statement.

The degree of long-term orientation demonstrates the extent to which a society exhibits a pragmatic future-oriented perspective rather than a conventional, historic short-time point of view (Reimann et al., 2008:64). In another word long-term vs short-term orientation indicates the choice of focus for people's efforts: the present or the future (Ayoun and Moreo, 2008:66). It relates to the degree to which people in a society gives importance and focus on the achievements in long-term, in spite of short-term achievements. One of the most emphasized personal characteristic in long-term oriented societies is persistence.

On the other hand we know that innovation does not occur with the development of just a single idea. It does not provide success for once. Innovation is a cycle process with a more systematic approach consists of specific steps. The continuity of innovation activities in a sustainable way is important for successful results. (Hargadon and Sutton, 2000). Therefore characteristics of long-term orientation societies thought to be more supportive for innovation activities.

When previous studies are investigated, it was found that there was not much analysis on the relation of this fifth dimension that Hofstede later added to his model and innovativeness. All encountered studies' findings (Van Everdingen and Waarts, 2003; Lin, 2009; Celikkol, 2015) showed that long-term orientation is affects innovativeness positively.

Hypothesis H6a states that indulgence affects innovativeness positively. We thought that the characteristics of indulgence cultures such as positive attitude, higher optimism, more extroverted personalities, and a perception of personal life control are more supportive for innovation activities. The findings of our analyses also supported this expectation. Results showed that after long-term orientation dimension, indulgence dimension is the second the most contributor characteristic to innovation performance in our regression models.

The sixth cultural dimension indulgence versus restraint is the latest dimension added to Hofstede's model. Except for Celikkol (2015) no study has been found to examine the relationship between this new dimension and innovation. However, Celikkol (2015) found no meaningful relationship between indulgence and innovation.

CONCLUSION AND SUGGESTION

Some cultural characteristics of a society may incompatible with some new necessities of modern life. Like all social phenomena, culture is not static and it is in constant change. The cultural components that are incompatible with modern life will not be transferred to future generations and will disappear from social life over time.

We have determined which cultural characteristics influence innovation performance in which direction and examined the reflection of these cultural characteristics on organizational culture. Results showed that cultural characteristics such as large power distance, collectivism, short-term orientation, and restraint affect innovativeness negatively, on the contrary, cultural characteristics such as small power distance, individualism, long-term orientation, and indulgence affect innovativeness positively.

If countries wish to increase their rates of innovation, public policies that increase the amount of money spent on research and development or industrial infrastructure may not be enough. Countries also may have to change the attitudes of their citizens. Societies in which people do not have values associated with high national rates of innovation may spend money on research and development and industrial infrastructure, but still fail to achieve the desired results in terms of rates of innovation because of the beliefs of their citizens (Shane, 1993:67).

If the influence of cultural features that affect innovativeness negatively is reduced, and cultural features that affect innovativeness positively is supported, can be more innovative at the national level. Because of the greatest share of innovations made at the national level consists of innovations made at the organizational level, reducing the effects of national cultural characteristics which affect innovativeness negatively on organizational culture of companies will bring out more innovative companies, consequently, more innovative countries. More innovative commercial enterprises mean production of higher value added products. Production of higher value added products

means increase in welfare at the national level and to gain sustainable competitive advantage at the organizational level.

Therefore, we suggest to senior officials who develop strategies, make policies, programs, and plans in both private and public sectors at national, regional, or organizational levels and to who execute international companies to take into consideration the effects of cultural characteristics in making decisions for innovation related projects, reports and practices, and in evaluating the effects of different cultural characteristics on innovativeness.

We suggest people who are in decision making mechanism of companies to create an organizational culture in which the influence of cultural characteristics that affect innovativeness negatively is reduced to minimum, and in which the influence of cultural characteristics that affect innovativeness positively is supported for more innovative companies.

At this point, our mind may come up with the following questions. In addition to the difficulty of changing some of the existing cultural characteristics that affect innovation negatively in organizational culture, is it right to try to create an organizational culture that contradict with the national culture? How the organizational culture, as a subculture of national culture, can has characteristics that contradict with the national culture which is an upper culture?

Although ever-changing conditions force managers to change in their management philosophy, it is true that change cannot be realized easily due to social tendencies. But Peter Drucker states that in order for an enterprise to contribute to society, its culture should go beyond of the culture of the society and companies cannot put themselves under the command of society. Rapid alignment with new values, can only be achieved by overcoming cultural barriers (Erdem, 1996:147).

Finally, our last suggestion for researchers. Because of Hofstede's cultural dimension scores measured values at one point in time, and his study did not show differences in rankings of cultures across time, our suggestion for researchers is to examine culture and rates of innovation dynamically by looking at the relationship between changes in cultural values and changes in rates of innovation in further studies.

This would tell if countries can increase their rates of innovation by changing their values.

REFERENCES

Adams, R., Bessant, J., and Phelps, R. (2006). Innovation management measurement: a review. *International Journal of Management Reviews, 8*(1):21-47.

Adiguzel, B. (2012). *Inovasyon ve Inovasyon Yonetimi: Steve Jobs ornegi.* Master Thesis, Gazi University Social Sciences Institude, Ankara.

Adler, N. J., and Gundersen, A. (2007). *International Dimensions of Organizational Behavior*. Thomson South-Western Press, USA.

Akmaz, H. K. (2015). *Teknolojik ve Sosyal Kabiliyetlerin İnovasyon Kapasitesine Etkileri*. Master Thesis, Cankırı Karatekin University Social Sciences Institude, Cankiri.

Alvesson, M. (2012). *Understanding Organizational Culture*. Sage Publications, London.

Amabile, T. (1996). *Creativity and Innovation in Organizations*. Harvard Business School Press, Boston.

Arikan, C., Ulusoy, G., and Karaata, S. (2006). Ulusal Inovasyon Girisimi: Inovasyon Cerceve Raporu. (Der.), Tusiad-Sabancı Universitesi Rekabet Forumu.

Ayoun, B. M., and Moreo, P. J. (2008). The influence of the cultural dimension of uncertainty avoidance on business strategy development: a cross-national study of hotel managers. *International Journal of Hospitality Management, 27*(1):65-75.

Basar, M., Urper Y., Tosunoglu, B.T. (2013). *Girisimcilik*. Anadolu University, Eskisehir.

Basim, H. N. (1998). *Yonetim ve Orgutlenme Sureclerinde Ulusal Kultur Etkisi: Isletme Yoneticilerinin Kulturel Gorus Acıları Uzerine Uygulamalı Bir Arastırma.* Doctoral Dissertation, Gazi University Social Sciences Institude, Ankara.

Basim, N. (2000). Belirsizlikten kacınma ve guc mesafesi kulturel boyutları baglamında asker yoneticiler uzerine gorgul bir arastırma. *Journal of Kara Harp Okul*, *2*:33-53.

Baumol, W. J. (2002). *The Free-Market Innovation Machine: Analyzing the Growth Miracle of Capitalism*. Princeton University Press, New Jersey.

Bayram, S. (2013). *Liderlik Kavramı ve Liderlik Turlerinin Inovasyon Uzerindeki Etkileri.* Master Thesis, Gebze Teknoloji Institude Social Sciences Institude, Gebze.

Beamer, L., and Varner, I. (2001). *Intercultural Communication in the Global Workplace*. McGraw-Hill Irwin Press, New York.

Berberoglu, G. (1991). *Karsılastırmalı Yonetim: Kulturel Ozelliklerin Yonetime Etkisi*. Anadolu University Publications, Eskisehir.

Berry, J.W., Poortinga, Y.H., Segall, M.H., and Dasen, P. R. (2002). *Cross-Cultural Psychology Research and Applications.* Cambridge University Press, New York.

Berry, J.W., Segall, M.H., Kagıtcibasi, C. (1997). *Handbook of Cross-Cultural* Psychology: Social Behavior and Applications. Allyn & Bacon.

Bessant, J., Lamming, R., Noke, H., and Phillips, W. (2005). Managing innovation beyond the steady state. *Technovation*, *25*(12):1366-1376.

Bicimveren, L. (2017). *Pazar Odaklılık, Yenilik Odaklılık, Pazarlama Inovasyonu ve Uluslararası Pazar Performansı: Balıkesir ve Bursa Illerinde Dıs Ticaret Yapan Firmalara Yonelik Bir Uygulama.* Master Thesis, Balıkesir University Social Sciences Institude, Balıkesir.

Biniciogulları, N. (2008). *Turkiye ve AB'de KOBI'lerin Rekabet Edebilirligi Icin Teknolojik Yeniligin Onemi.* Master Thesis, Kırıkkale University Social Sciences Institude, Kırıkkale.

Brown, A. D. (1998). *Organisational Culture*. Pitman Publishing, Great Britain.

Cameron, K. S., and Quinn, R. E. (2011). *Diagnosing and Changing Organizational Culture: Based on the Competing Values Framework [3rd ed.]*. John Wiley and Sons Press, San Francisco.

Carlson, C. R., and Wilmot, W. W. (2006). *Innovation: The Five Disciplines for Creating What Customers Want*. Crown Business Press, Newyork.

Chapman, M. (1996). Preface: social anthropology, business studies, and cultural issues. *International Studies of Management and Organization, 26*(4):3-29.

Cooper, J. R. (1998). A multidimensional approach to the adoption of innovation. *Management decision, 36*(8):493-502.

Crotts, J. C., and Erdmann, R. (2000). Does national culture influence consumers' evaluation of travel services? A test of Hofstede's model of cross-cultural differences. *Managing Service Quality: An International Journal, 10*(6):410-419.

Caliskan, N. (2015). *Ulusal Kulturun Orgut Kulturu ve Paternalist Liderlik Algısı Uzerindeki Etkisi.* Master Thesis, Nevsehir Haci Bektas Veli University Social Sciences Institude, Nevsehir.

Cecen, A. (1985). Kultur yonetimi. *Amme İdaresi Dergisi, 18*(2):113-125.

Celikkol, M. (2015). *Ulusal Kulturel Ozelliklerin Rekabetcilik ve Yenilik Uzerine Etkisi: Uluslararası Duzlemde Bir Calısma.* Master Thesis, Gebze Technical University Social Sciences Institude, Gebze.

Dakhli, M., and De Clercq, D. (2004). Human capital, social capital, and innovation: a multi-country study. *Entrepreneurship and regional development, 16*(2):107-128.

Deal, T. E., and Kennedy, A. (1982). *Corporate Cultures: The Rites and Rituals of Corporate Life*. Addison-Wesley Publishing Company Inc, Canada.

Demiraglar, E. (2015). *Uluslararasi Pazar Arastirmasi Faaliyetlerinin Firmalarin İnovasyon Kapasitesi Uzerine Etkileri.* Master Thesis, Gediz University Social Sciences Institude, Izmir.

Demirci, A. E. (2006). *Isletmelerin Yenilik FaaliyetlerindeSirketici Girisimciligin Temel Faktor Olarak Incelenmesı: Turkiye ve Polonya'da Faalıyet Gosteren Buyuk Olcekli Kimya-Ilac Sektoru Isletmelerinde Karsilastirmali Durum Degerlendirmesi.* Doctoral Dissertation, Anadulu University Social Sciences Institude, Eskisehir.

Denison, D. R. (1990). *Corporate Culture and Organizational Effectiveness* John Wiley and Sons Press.

Dıncer, A. (2010). *Isletmelerin Inovasyon Gucunun Olcumlenmesi ve Eskisehir Ilinde Faaliyette Bulunan Kobilerde Bir Uygulama.* Master Thesis, Dumlupinar Universty Social Sciences Institude, Kutahya.

Dortyol, I. T. (2012*). Ulusal Kulturun Algilanan Hizmet Kalitesi ve Algilanan Musteri Degeri Uzerindeki Etkisi: Turizm Sektorunde Bir Arastırma*. Doctoral Dissertation, Cumhuriyet University Social Sciences Institude, Sivas.

Drogendijk, R., and Slangen, A. (2006). Hofstede, Schwartz, or managerial perceptions? The effects of different cultural distance measures on establishment mode choices by multinational enterprises. *International business review, 15*(4):361-380.

Drucker, P. F. (1998). The discipline of innovation. *Harvard business review, 76*(6): 149-157.

Edquist, C., and Hommen, L. (1999). Systems of innovation: theory and policy for the demand side. *Technology in society, 21*(1):63-79.

Efrat, K. (2014). The direct and indirect impact of culture on innovation. *Technovation, 34*(1):12-20.

Eginli, A. T., and Cakir, S. Y. (2011). Toplum kulturunun kurum kulturune yansıması. Journal of *Sosyal ve Beseri Bilimler, 3*(2):37-50.

Elci, S. (2006). *Inovasyon: Kalkinmanın ve Rekabetin Anahtari*. Nova Press, Ankara.

Erdem, F. (1996). *Isletme Kulturu*. Friedrich-Naumann Foundation and Akdeniz University Joint Publication, Ankara.

Eren, E. (2007). O*rgutsel Davranis ve Yonetim Psikolojisi*. Beta Press, Istanbul.

Erez, M., and Gati, E. (2004). A dynamic, multi-level model of culture: from the micro level of the individual to the macro level of a global culture. *Applied Psychology, 53*(4):583-598.

Erkenekli, M. (2011). Hofstede'nin kulturel degerler modeline gore Turkiye ile ABD'nin karsılastırılmasi. *Scientific Journal of KHO, 21*(2).

Eskiler, E., Ozmen, M., and Uzkurt, C. (2011). Bilgi yonetimi pazar odaklilik ve pazarlama yeniligi iliskisi: mobilya sektorunde bir arastirma. *Journal of Eskisehir Osmangazi University, 6*(1):31-69.

Fichter, J. (1996). *Sosyoloji nedir?* Celebi, N. (Trans.), Attila Press.

Fischer, M. M. (2001). Innovation, knowledge creation and systems of innovation. *The annals of regional science, 35*(2):199-216.

Fuglsang, L. (2008). *Innovation and the Creative Process: Towards Innovation with Care*. Edward Elgar Publishing, Cheltenham.

George, G., Zahra, S. A., and Wood, D. R. (2002). The effects of business–university alliances on innovative output and financial performance: a study of publicly traded biotechnology companies. *Journal of Business Venturing, 17*(6):577-609.

Gillert, A. (2003). *Intercultural Learning T-kit* Council of Europe, Brussels.

Gizir, S. (2003). Orgut kulturu calismalarinda yonetsel yaklasimlar. *Kuram ve Uygulamada Egitim Yonetimi, 35*(35):374-397.

Gokcek, O. (2007). *Yenilik Yonetimi Sureci ve Yenilik Stratejileri: Otomotiv Sektorunde Bir Alan Calısması*. Master Thesis, Istanbul University Social Sciences Institude, Istanbul.

Gursoy, D., and Umbreit, W. T. (2004). Tourist information search behavior: cross-cultural comparison of European union member states. *International Journal of Hospitality Management, 23*(1):55-70.

Guney, S. (2000). *Yonetim ve Organizasyon El Kitabi*. Nobel Press, Ankara.

Guvenc, B. (1974). *Insan ve Kultur*. Remzi Press.

Halkos, G. E., and Tzeremes, N. G. (2013). Modelling the effect of national culture on countries' innovation performances: A conditional Full Fontier Approach. *International review of applied economics, 27*(5):656-678.

Hall, E. T. (1976). *Beyond Culture*. Broadway, New York.

Hampden-Turner, C. (1990). *Corporate Culture: From Vicious to Virtuous Circles*. Economist Books, London.

Hanel, P., and St-Pierre, M. (2006). Industry–university collaboration by Canadian manufacturing firms. *The Journal of Technology Transfer, 31*(4):485-499.

Hargadon, A., and Sutton, R. (2000). Building an innovation factory. *Harvard Business Review, 78*(3):157-166.

Herbig, P., and Dunphy, S. (1998). Culture and innovation. *Cross Cultural Management: An International Journal, 5*(4):13-21.

Hofstede, G. (1980a). *Culture's Consequences: International Differences in Work-Related Values*. Sage Publications, London.

Hofstede, G. (1980b). Motivation, leadership, and organization: do American theories apply baroad? *Organizational dynamics, 9*(1):42-63.

Hofstede, G. (1981). Cultures and Organizations. *International Studies of Management and Organization, 10*(4):15-41.

Hofstede, G. (1993). Cultural constraints in management theories. *The Academy of Management Executive, 7*(1):81-94.

Hofstede, G. (1994). Management scientists are human. *Management science, 40*(1):4-13.

Hofstede, G. (2001). *Culture's Cconsequences: Comparing Values, Behaviors, Institutions and Organizations Across Nations.* Sage Publications.

Hofstede, G., Hofstede, G. J., and Minkov, M. (2010). *Cultures and Organizations: Software for the Mind, (Third Edition).* McGraw-Hill.

Hofstede, G., and Minkov, M. (2013). Values Survey Module 2013 Manual. Retrieved 03.11.2017, from (http://geerthofstede.com/wp-content/uploads/2016/07/Manual-VSM-2013.pdf)

Hoonsopon, D., and Ruenrom, G. (2012). The impact of organizational capabilities on the development of radical and incremental product innovation and product innovation performance. *Journal of Managerial Issues*, 250-276.

House, R. J., Hanges, P. J., Javidan, M., Dorfman, P. W., and Gupta, V. (2004). *Culture, Leadership, and Organizations: The GLOBE study of 62 societies*. Sage Publications, California.

Icli, G. (2002). *Sosyolojiye Giris*. Anı Publications.

Ilhan, T. (2006). Kulturun orgutlerdeki rolu: benimsenen teorik perspektif ve yontem tartismalarina iliskin kavramsal bir inceleme. *Journal of Ataturk Universty Economics and Administrative Sciences, 20*(2):273-294.

Jackson, T. (2001). Cultural values and management ethics: a 10-nation study. *Human Relations, 54*(10):1267-1302.

Jacques, M., Baccarani, C., Baglieri, D., and Consoli, R. (2009). Collaborative innovation in tourism: managing virtual communities. *The TQM Journal, 21*(4): 353-364.

Jaffe, A. B. (1989). Real effects of academic research. *The American Economic Review, 79*(5):957-970.

Jaques, E. (1952). *The Changing Culture of a Factory*. Dryden Press, New York.

Jones, G. K., and Davis, H. J. (2000). National culture and innovation: implications for locating global R & D operations. Management International Review, *40*(1):11-39.

Kaasa, A., and Vadi, M. (2010). How does culture contribute to innovation? evidence from European countries. *Economics of Innovation and New Technology, 19*(7): 583-604.

Kanter, R. M. (1983). *The Change Masters*. Simon and Schuster, New York.

Kaplan, H. (2010). *Isletmelerin Inovasyon Yapma Nedenleri ile Sahip Olduklari Inovasyon Ciktilari Arasindaki Iliskinin Incelenmesi.* Master Thesis, Istanbul University Social Sciences Institude, Istanbul.

Kartarı, A. (2014). *Kultur, Farklilik ve Iletisim*. Iletisim Publications.

Kavak, C. (2009). Bilgi ekonomisinde inovasyon kavrami ve temel gostergeleri. *Akademik Bilisim, 9*.

Kiper, M. (2010). Dunyada ve Turkiye'de universite-sanayi isbirligi. *Turkiye Teknoloji Gelistirme Vakfi, Iskur Press, 1*, 8.

Kitchin, P. D. (2010). "*An Introduction to Organisational Behaviour for Managers and Engineers: A Group and Multicultural Approach*. Butterworth-Heinemann.

Kline, S. J., and Rosenberg, N. (1986). "*An Overview of Innovation".* (The Positive Sum Strategy: Harnessing Technology for Economic Growth Ed. by. Landau and Rosenberg).

Kluckhohn, F. R., and Strodtbeck, F. L. (1961). *Variations in Value Orientations.* Evanston, Illinois: Row, Peterson

Kocel, T. (2001). *Isletme Yoneticiligi*. Beta Publications, Istanbul.

Kongar, E. (2008). *Kultur Uzerine*. Remzi Publications, Istanbul.

Koparan, E. (2014). *Ulusal Kultutrun Kurumsal Sosyal Sorumluluk Faaliyetleri Uzerindeki Etkisi: Kulturler Arası Karsılastırma.* Doctoral Dissertation, Karadeniz Technical University Social Sciences Institude, Trabzon.

Kroeber, A. L., and Kluckhohn, C. (1952). *Culture: A critical Review of Concepts and Definitions*. Papers of the Peabody Museum of Archaeology and Ethnology, Harvard University. 47(1), viii, 223.

Kuczmarski, T. D. (1996). *Innovation: Leadership Strategies for the Competitive Edge.* NTC Publishing Group.

Lee, M., and Barnett, G. A. (1997). A symbols-and-meaning approach to the organizational cultures of banks in the United States, Japan, and Taiwan. *Communication Research, 24*(4):394-412.

Lin, L. H. (2009). Effects of national culture on process management and technological innovation. *Total Quality Management, 20*(12):1287-1301.

Marotta, D., Mark, M., Blom, A., and Thorn, K. (2007). Human capital and university-industry linkages' role in fostering firm innovation: an empirical study of Chile and Colombia. *Policy Research Working Paper 4443.*

Martins, E. C., and Terblanche, F. (2003). Building organisational culture that stimulates creativity and innovation. *European Journal of Innovation Management, 6*(1), 64-74.

Merton, R. C. (2013). Innovation risk: how to make smarter decisions. *Harvard business review, 91*(4):48-56.

Meschi, P.X., and Roger, A. (1994). Cultural context and social effectiveness in international joint ventures. *MIR: Management International Review*, 197-215.

Morden, T. (1999). Models of national culture: a management review. *Cross Cultural Management: An International Journal, 6*(1), 19-44.

Morgan, G., (1998). *Yonetim ve Orgut Teorilerinde Metafor*. Bulut, G.(trans.),Dicleli, Z.(ed.) Turkiye Metal Sanayicileri Sendikası, Istanbul.

Motohashi, K. (2005). University–industry collaborations in Japan: the role of new technology-based firms in transforming the National Innovation System. *Research Policy, 34*(5):583-594.

Myers, S., and Marquis, D. G. (1969). *Successful Industrial Innovations: A Study of Factors Underlying Innovation in Selected Firms*: National Science Foundation, Washington, DC.

Nardon, L., and Steers, R. M. (2009). The culture theory jungle: divergence and convergence in models of national culture. *Cambridge Handbook of Culture, Organizations, and Work*, 3-22.

Neely, A., and Hii, J. (1998). Innovation and business performance: a literature review. *The Judge Institute of Management Studies, University of Cambridge*, 0-65.

Nelson, R., and Winter, G. (1982). *An Evolutionary Theory of Economic Change.* Harvard Business School Press, Cambridge.

Nisancı, Z. N. (2015). Gecmisten gunumuze yonetim dusuncesi. Journal of *Yonetim Bilimleri, 13*(25), 257-294.

OECD, and Eurostat. (2005). *Oslo Manual: Guidelines for Collecting and Interpreting Innovation Data: The Measurement of Scientific and Technological Activities.* OECD Publishing, Paris.

Oguzturk, B. S., and Turkoglu, M. (2004). Yenilik ve yenilik modelleri. *Dogu Anadolu Bolgesi Arastırmaları, 3*(1), 14-20.

Ovacı, C. (2015). *Acık Inovasyon ve Tuketicilerin Birlikte Yaratma Davranıslarını Etkileyen Faktorler.* Doctoral Dissertation, Anadolu University Social Sciences Institude, Eskisehir.

Pacanowsky, M. E., and O'Donnell-Trujillo, N. (1982). Communication and organizational cultures. *Western Journal of Communication, 46*(2):115-130.

Parsons, T., and Shils, E. (1951). *Toward a General Theory of Action: Theoretical Foundations for the Social Sciences.* Cambridge Massachusetts Harvard University Press.

Pervaiz, K. A., and Shepherd, D. C. (2010). Innovation Management, Context, Strategies, Systems and Processes. Pearson Education Limited, England.

Peters, T. J., and Waterman, H. R. (1982). *In Search of Excellence: Lessons from America's Best Run Companies*. Harper Business Press.

Peters, T. J., and Waterman, R. (1995). *Yonetme ve Yukselme Sanatı: Mukemmeli Arayıs*. Sargut, S. (trans.). Altin Kitaplar Publications.

Pettigrew, A. M. (1979). On studying organizational cultures. *Administrative Science Quarterly, 24*(4):570-581.

Reimann, M., Lunemann, U. F., and Chase, R. B. (2008). Uncertainty avoidance as a moderator of the relationship between perceived service quality and customer satisfaction. *Journal of Service Research, 11*(1):63-73.

Rhyne, L. C., Teagarden, M. B., and Van den Panhuyzen, W. (2002). Technology-based competitive strategies: the relationship of cultural dimensions to new product

innovation. *The Journal of High Technology Management Research, 13*(2):249-277.

Robbins, S. P. (1990). *Organization Theory: Structures, Designs, And Applications.* Pearson Education, India.

Rodrigues, C. A. (1998). Cultural classifications of societies and how they affect cross-cultural management. *Cross Cultural Management: An International Journal, 5*(3):31-41.

Rossberger, R. J., and Krause, D. E. (2012). National culture, heterogeneity and innovation: new insights into the relationship between the GLOBE dimensions and national level innovation. *GSTF Journal of Law and Social Sciences (JLSS), 2*(1), 84.

Rothwell, R. (1994). Towards the fifth-generation innovation process. *International marketing review, 11*(1):7-31.

Rothwell, R., and Zegveld, W. (1985). *Reindustrialization and technology*: ME Sharpe.

Samovar, L. A., Porter, R., McDaniel, E. R., and Roy, C. S. (2013). *Communication Between Cultures*. Wadsworth Cengage Learning.

Sargut, A. S. (1994). Bireycilik ve ortaklasa davranıs ikileminde yonetim ve orgut kuramları. *Ankara University Journal of SBF, 49*(01).

Sargut, A. S. (2001). *Kulturler Arası Farklılasma ve Yonetim*. Imge Publications, Ankara.

Schein, E. H. (1984). Coming to A New Awareness of Organizational Culture. *Sloan Management Review, 25*(2):3-16.

Schein, E. H. (1992). *Organizational Culture and Leadership*. Jossey-Bass, San Francisco.

Schein, E. H. (2010). *Organizational Culture and Leadership.* John Wiley and Sons.

Scholz, C. (1987). Corporate culture and strategy: the problem of strategic fit. *Long Range Planning, 20*(4):78-87.

Schuler, R. S., and Rogovsky, N. (1998). Understanding compensation practice variations across firms: the impact of national culture. *Journal of International Business Studies*, 159-177.

Schwartz, S. H. (1992). Universals in the content and structure of values: theoretical advances and empirical tests in 20 countries. *Advances in Experimental Social Psychology, 25*, 1-65.

Sgourev, S. V. (2012). The dynamics of risk in innovation: a premiere or an encore? *Industrial and Corporate Change, 22*(2):549-575.

Shane, S. (1992). Why do some societies invent more than others? *Journal of Business Venturing, 7*(1):29-46.

Shane, S. (1993). Cultural influences on national rates of innovation. *Journal of Business Venturing, 8*(1):59-73.

Shergill, G. S., and Nargundkar, R. (2005). Market orientation, marketing innovation as performance drivers: extending the paradigm. *Journal of Global Marketing, 19*(1):27-47.

Silah, M. (2005). *Sosyal Psikoloji: Davranıs Bilimi.* Seckin Press.

Singh, J. P. (1990). Managerial culture and work-related values in India. *Organization Studies, 11*(1):075-101.

Spradlin, D. (2012). Are you solving the right problem? *IEEE Engineering Management Review, 44*(4):47-54.

Steel, G. D., Rinne, T., and Fairweather, J. (2012). Personality, nations, and innovation: relationships between personality traits and national innovation scores. *Cross-cultural research, 46*(1):3-30.

Sisman, M. (2007). *Orgutler ve Kulturler: Orgut Kulturu*. Pegem A Publications.

Tayeb, M. H. (2000). *The Management of International Enterprises: A Socio-Political View*. MacMillan Press Ltd., Great Britain.

Tether, B. S. (2002). Who co-operates for innovation, and why: an empirical analysis. *Research Policy, 31*(6):947-967.

Tidd, J., and Bessant, J. (2009). *Managing Innovation: Integrating Technological, Market and Organizational Change*. John Wiley and Sons Ltd.

Triandis, H. C. (2001). Individualism-collectivism and personality. *Journal of personality, 69*(6):907-924.

Trompenaars, F., and Hampden-Turner, C. (1997). *Riding the Waves of Culture: Understanding Cultural Diversity in Business.* Nicholas Brealy, London.

Tuz, M. (2004). *İsletmelerde Yonetim Modelleri - Avrupa, Amerika, Japonya, Turkiye Uygulamalı*. Alfa Akademi Aktuel Publications, Istanbul.

Uygur, N. (1996). *Kultur Kuramı*. Yapı Kredi Kultur Sanat Publications.

Uzkurt, C. (2008). *Pazarlamada Deger Yaratma Aracı Olarak Yenilik Yonetimi ve Yenilikci Orgut Kulturu.* Beta Press, Istanbul.

Uzkurt, C. (2010). Inovasyon yonetimi: inovasyon nedir, nasıl yapılır ve nasıl pazarlanır. *Ankara Sanayi Odası Yayın Organı, 39*.

Vrande, V., De Jong, J. P., Vanhaverbeke, W., and De Rochemont, M. (2009). Open innovation in SMEs: Trends, motives and management challenges. *Technovation, 29*(6):423-437.

Van Everdingen, Y. M., and Waarts, E. (2003). The effect of national culture on the adoption of innovations. *Marketing Letters, 14*(3), 217-232.

Van Oudenhoven, J. P. (2001). Do organizations reflect national cultures? A 10-nation study. *International Journal of Intercultural Relations, 25*(1):89-107.

Vardarlier, P., and Cakir, A. R. (2015). A Study on sustainable innovation profile of Turkey. *International Journal of Research in Business and Social Science, 4*(4), 24.

Varsakelis, N. C. (2006). Education, political institutions and innovative activity: A cross-country empirical investigation. *Research Policy, 35*(7):1083-1090.

Vecchi, A., and Brennan, L. (2009). A cultural perspective on innovation in international manufacturing. *Research in International Business and Finance, 23*(2):181-192.

Williams, A., Dobson, P., and Walters, M. (1993). *Changing Culture: New Organizational Approaches*. Institute of Personnel Management, London.

Williams, L. K., and McGuire, S. J. (2010). Economic creativity and innovation implementation: The entrepreneurial drivers of growth? Evidence from 63 countries. *Small Business Economics, 34*(4):391-412.

Williams, R. (1993). *Kultur*. Aydın, S. (Trans.). Imge Publications, Ankara.

Wong, A., Tjosvold, D., and Liu, C. (2009). Innovation by teams in Shanghai, China: Cooperative goals for group confidence and persistence. *British Journal of Management, 20*(2):238-251.

Zahra, S. A., and Covin, J. G. (1994). The financial implications of fit between competitive strategy and innovation types and sources. *The Journal of High Technology Management Research, 5*(2):183-211.

Zairi, M. (1994). Innovation or innovativeness? Results of a benchmarking study. *Total Quality Management, 5*(3), 27-44.

Zaltman, G., Duncan, R., and Holbek, J. (1973). *Innovations and organizations*. Wiley, New York.

Zıllıoglu, M. (2003). *İletisim Nedir*. Cem Publications.

APPENDICES

APPENDIX A.1.

Appendix A.1. illustrates the national cultural dimensions of power distance (PDI), individualism (IDV), masculinity (MAS), uncertainty avoidance (UAI), long-term orientation (LTO) and indulgence scores of countries.

No	COUNTRY	NATIONAL CULTURAL DIMENSIONS SCORES					
		PDI	IDV	MAS	UAI	LTO	IND
1	Albania	90	20	80	70	61	15
2	Angola	83	18	20	60	15	83
3	Argentina	49	46	56	86	20	62
4	Australia	36	90	61	51	21	71
5	Austria	11	55	79	70	60	63
6	Bangladesh	80	20	55	60	47	20
7	Belgium	65	75	54	94	82	57
8	Bhutan	94	52	32	28	*	*
9	Brazil	69	38	49	76	44	59
10	Bulgaria	70	30	40	85	69	16
11	Burkina Faso	70	15	50	55	27	18
12	Canada	39	80	52	48	36	68
13	Cape Verde	75	20	15	40	12	83
14	Chile	63	23	28	86	31	68
15	China	80	20	66	30	87	24
16	Colombia	67	13	64	80	13	83
17	Costa Rica	35	15	21	86	*	*
18	Croatia	73	33	40	80	58	33
19	Czech Republic	57	58	57	74	70	29
20	Denmark	18	74	16	23	35	70
21	Dominican Republic	65	30	65	45	13	54
22	Ecuador	78	8	63	67	*	*
23	Egypt	70	25	45	80	7	4
24	El Salvador	66	19	40	94	20	89

25	Estonia	40	60	30	60	82	16
26	Ethiopia	70	20	65	55	*	*
27	Fiji	78	14	46	48	*	*
28	Finland	33	63	26	59	38	57
29	France	68	71	43	86	63	48
30	Germany	35	67	66	65	83	40
31	Ghana	80	15	40	65	4	72
32	Greece	60	35	57	100	45	50
33	Guatemala	95	6	37	99	*	*
34	Honduras	80	20	40	50	*	*
35	Hong Kong (SAR)	68	25	57	29	61	17
36	Hungary	46	80	88	82	58	31
37	Iceland	30	60	10	50	28	67
38	India	77	48	56	40	51	26
39	Indonesia	78	14	46	48	62	38
40	Iran, Islamic Rep.	58	41	43	59	14	40
41	Ireland	28	70	68	35	24	65
42	Israel	13	54	47	81	38	*
43	Italy	50	76	70	75	61	30
44	Jamaica	45	39	68	13	*	*
45	Japan	54	46	95	92	88	42
46	Jordan	70	30	45	65	16	43
47	Kenya	70	25	60	50	*	*
48	Kuwait	90	25	40	80	*	*
49	Latvia	44	70	9	63	69	13
50	Lebanon	75	40	65	50	14	25
51	Lithuania	42	60	19	65	82	16
52	Luxembourg	40	60	50	70	64	56
53	Malawi	70	30	40	50	*	*
54	Malaysia	100	26	50	36	41	57
55	Malta	56	59	47	96	47	66
56	Mexico	81	30	69	82	24	97
57	Morocco	70	46	53	68	14	25
58	Mozambique	85	15	38	44	11	80
59	Namibia	65	30	40	45	35	*
60	Nepal	65	30	40	40	*	*
61	Netherlands	38	80	14	53	67	68
62	New Zealand	22	79	58	49	33	75
63	Nigeria	80	30	60	55	13	84
64	Norway	31	69	8	50	35	55
65	Pakistan	55	14	50	70	50	0
66	Panama	95	11	44	86	*	*
67	Peru	64	16	42	87	25	46
68	Philippines	94	32	64	44	27	42
69	Poland	68	60	64	93	38	29

70	Portugal	63	27	31	99	28	33
71	Romania	90	30	42	90	52	20
72	Russian Federation	93	39	36	95	81	20
73	Saudi Arabia	95	25	60	80	36	52
74	Senegal	70	25	45	55	25	*
75	Serbia	86	25	43	92	52	28
76	Singapore	74	20	48	8	72	46
77	Slovakia	100	52	100	51	77	28
78	Slovenia	71	27	19	88	49	48
79	South Africa	49	65	63	49	34	63
80	South Korea	60	18	39	85	100	29
81	Spain	57	51	42	86	48	44
82	Sri Lanka	80	35	10	45	45	*
83	Sweden	31	71	5	29	53	78
84	Switzerland	34	68	70	58	74	66
85	Syria	80	35	52	60	30	*
86	Tanzania	70	25	40	50	34	38
87	Thailand	64	20	34	64	32	45
88	Trinidad and Tobago	47	16	58	55	13	80
89	Turkey	66	37	45	85	46	49
90	Ukraine	92	25	27	95	55	18
91	United Arab Emirates	90	25	50	80	*	*
92	United Kingdom	35	89	66	35	51	69
93	USA	40	91	62	46	26	68
94	Uruguay	61	36	38	99	26	53
95	Venezuela	81	12	73	76	16	100
96	Vietnam	70	20	40	30	57	35
97	Zambia	60	35	40	50	30	42

APPENDIX A.2.

Appendix A.2. illustrates the output sub-index scores of countries based on Global Innovation Index between 2011 and 2017.

No	Country	GII Output Sub-Index Scores						
		2017	2016	2015	2014	2013	2012	2011
1	Albania	15.7	16.2	20.3	20.4	22.7	23.3	22.6
2	Angola	*	*	26.5	21.4	22.7	18.1	*
3	Argentina	22.6	21.6	29.4	31.1	36.6	30.2	33.4
4	Australia	39.1	41.3	45.6	45.5	42.0	40.4	36.9
5	Austria	43.3	44.4	47.2	45.5	43.2	46.7	42.2
6	Bangladesh	16.8	15.7	17.9	19.7	22.4	22.6	26.5
7	Belgium	40.2	45.7	43.2	45.2	45.5	48.3	39.7
8	Bhutan	*	12.3	12.9	23.9	*	*	*
9	Brazil	22.7	23.7	27.5	30.8	31.8	33.0	36.0
10	Bulgaria	38.1	37.5	38.2	37.1	38.7	35.8	32.6
11	Burkina Faso	8.4	9.3	23.2	23.5	23.8	19.8	17.0
12	Canada	41.7	44.0	46.4	46.0	50.4	48.0	48.3
13	Cape Verde	*	*	*	*	21.6	*	*
14	Chile	29.1	28.6	33.4	32.8	34.4	38.5	29.6
15	China	50.9	48.0	46.6	47.3	44.1	48.1	46.8
16	Colombia	23.8	24.6	27.4	27.6	32.3	28.7	25.9
17	Costa Rica	30.2	31.9	34.0	33.3	42.0	32.8	33.6
18	Croatia	31.6	30.2	35.7	36.4	37.8	34.9	31.0
19	Czech Republic	46.2	44.5	48.5	46.8	43.3	46.1	41.5
20	Denmark	48.7	49.8	49.5	49.5	50.4	52.5	49.3
21	Dominican Rep.	24.5	23.3	23.3	29.6	31.6	27.3	*
22	Ecuador	22.2	20.3	18.1	21.3	31.8	25.9	24.9
23	Egypt	19.3	20.2	23.4	26.0	23.1	23.3	23.3
24	El Salvador	17.3	17.2	22.4	21.7	27.0	24.5	23.7
25	Estonia	44.9	49.3	48.8	46.3	45.5	53.3	43.5
26	Ethiopia	20.2	22.5	20.3	20.4	21.1	18.1	16.5
27	Fiji	*	*	12.0	15.6	20.6	18.9	*
28	Finland	48.1	51.3	52.0	53.8	52.4	56.1	50.3
29	France	44.9	45.5	45.9	44.8	46.6	44.4	42.9
30	Germany	53.5	54.0	53.1	51.7	51.9	53.7	50.7
31	Ghana	*	19.9	22.9	27.0	27.3	24.1	25.1
32	Greece	28.0	30.1	31.8	32.0	29.7	26.5	25.9
33	Guatemala	19.9	20.9	23.1	24.8	27.7	23.1	25.5
34	Honduras	18.0	18.6	20.0	18.6	22.9	20.9	22.5
35	Hong Kong (SAR)	40.8	42.2	46.9	45.1	48.2	45.5	47.8
36	Hungary	35.1	40.5	37.7	42.2	45.4	41.9	45.2
37	Iceland	51.4	55.3	56.6	51.3	53.1	50.6	47.7

38	India	28.1	26.7	28.0	30.4	36.6	37.3	32.6
39	Indonesia	24.5	24.1	25.8	31.2	32.6	25.5	22.0
40	Iran, Islamic Rep.	28.5	25.3	22.0	19.0	22.2	20.8	25.9
41	Ireland	53.4	55.6	55.4	50.0	51.7	49.9	42.7
42	Israel	46.8	46.8	48.6	49.1	52.1	50.5	48.9
43	Italy	39.5	40.3	39.4	40.1	42.4	37.5	33.5
44	Jamaica	22.0	20.0	21.0	25.7	29.0	22.1	18.9
45	Japan	44.0	43.0	44.1	42.6	41.6	42.0	41.3
46	Jordan	24.0	24.1	28.3	32.1	32.5	34.6	35.5
47	Kenya	24.7	26.3	26.6	29.0	26.4	21.3	19.1
48	Kuwait	31.9	28.4	28.0	30.9	40.6	32.4	30.8
49	Latvia	38.0	38.9	40.6	40.4	39.4	42.6	32.1
50	Lebanon	23.3	27.6	27.1	25.0	28.2	30.6	33.3
51	Lithuania	30.4	32.3	34.7	33.3	33.8	37.8	29.5
52	Luxembourg	55.4	57.6	59.0	54.9	53.2	52.4	41.4
53	Malawi	16.2	23.1	25.4	22.2	24.8	19.9	19.1
54	Malaysia	34.5	34.7	39.2	38.7	42.1	37.6	35.2
55	Malta	46.3	49.9	49.2	50.3	53.4	57.0	*
56	Mexico	27.1	26.6	32.2	29.9	32.9	25.9	23.4
57	Morocco	24.8	25.6	25.8	26.5	26.4	24.7	20.8
58	Mozambique	18.6	25.1	23.3	20.6	21.3	21.0	*
59	Namibia	18.1	19.8	19.1	20.3	18.5	25.9	18.5
60	Nepal	15.9	16.9	12.1	15.7	21.6	24.0	*
61	Netherlands	60.9	52.5	58.9	57.7	58.1	58.2	52.2
62	New Zealand	41.6	45.8	48.7	46.6	46.2	49.9	46.6
63	Nigeria	14.9	18.5	21.1	27.0	26.9	23.1	28.6
64	Norway	42.3	42.0	45.4	48.8	47.9	48.8	44.0
65	Pakistan	18.2	17.7	19.9	22.6	23.0	21.8	26.9
66	Panama	28.7	26.7	32.2	35.2	24.0	23.1	20.8
67	Peru	21.6	21.8	26.2	26.6	31.4	25.8	21.6
68	Philippines	25.6	26.4	26.9	26.8	30.0	26.3	24.0
69	Poland	33.8	31.7	31.9	34.0	32.4	33.6	29.7
70	Portugal	38.3	39.8	39.4	38.7	38.1	38.7	34.5
71	Romania	32.0	31.8	32.4	34.8	37.8	31.7	31.9
72	Russian Federation	29.3	30.3	33.3	34.5	30.6	33.8	30.9
73	Saudi Arabia	25.0	28.5	34.0	35.4	36.5	29.4	26.9
74	Senegal	19.0	20.8	27.8	27.6	29.8	27.2	24.4
75	Serbia	26.9	26.6	31.2	31.7	34.2	38.5	33.5
76	Singapore	45.1	45.4	46.6	44.9	46.6	52.0	45.2
77	Slovakia	37.2	35.4	37.1	37.0	36.2	35.4	29.8
78	Slovenia	37.2	38.9	43.8	41.4	41.4	46.6	38.9
79	South Africa	24.7	25.6	29.7	30.9	31.3	28.5	24.1
80	South Korea	52.1	50.8	50.1	48.4	44.5	45.9	47.9
81	Spain	40.3	41.1	41.1	42.6	41.0	38.5	35.2
82	Sri Lanka	23.4	23.8	26.6	27.0	30.3	28.0	27.5

83	Sweden	57.9	58.7	57.8	57.1	54.9	60.7	59.4
84	Switzerland	65.8	64.2	68.6	63.1	66.7	68.5	58.2
85	Syria	*	*	*	*	14.6	17.6	19.6
86	Tanzania	23.6	23.6	23.6	19.2	21.0	18.0	23.3
87	Thailand	32.2	30.0	33.0	33.8	32.6	31.8	31.9
88	Trinidad and Tobago	21.3	*	25.6	24.5	28.4	26.0	23.5
89	Turkey	35.5	35.5	33.9	36.7	34.1	30.7	30.3
90	Ukraine	34.2	32.5	33.9	34.4	33.7	34.2	30.4
91	United Arab Emirates	28.5	24.2	23.3	30.3	29.8	33.6	29.6
92	United Kingdom	53.5	56.3	57.7	56.5	54.3	54.5	48.3
93	USA	53.9	54.1	52.9	52.3	51.4	49.1	50.3
94	Uruguay	25.6	26.2	28.4	29.3	34.9	30.0	28.7
95	Venezuela	*	14.1	18.4	25.0	27.6	22.8	25.4
96	Vietnam	34.9	32.3	36.7	34.0	34.0	30.8	33.3
97	Zambia	15.5	15.6	20.0	22.8	25.2	24.0	16.7

APPENDIX A.3.

Appendix C complements the data tables by providing, for each of the 27 indicators included in the Global Innovation Output Sub Index in year 2017, its title, its description, its definition, and its source. For each indicator for each country/economy, the most recent value within the 10-year period 2007–16 was used. Further details are explained in Appendix IV Technical Notes of Global Innovation Index 2017. The single year given next to the description corresponds to the most frequent year for which data were available; when more than one year is considered, the period is indicated at the end of the indicator's source in parentheses.

Some indicators received special treatment in the computation. A few variables required scaling by some other indicator to be comparable across countries, or through division by gross domestic product (GDP) in current US dollars, purchasing power parity GDP in international dollars (PPP$ GDP), population, total exports, total trade, and so on. Details are provided in this appendix. The scaling factor was in each case the value corresponding to the same year of the particular indicator. In addition, indicators that were assigned half weight are singled out with an 'a'. Finally, indicators for which higher scores indicate worse outcomes, commonly known as 'bads', are differentiated with a 'b' (details on the computation can be found in Appendix IV Technical Notes of Global Innovation Index 2017). Hard data indicators were distinguished with an asterisk (*) from composite indicators from international agencies; and survey questions from the World Economic Forum's Executive Opinion Survey (EOS), singled out with a dagger (†).

1. KOWLEDGE AND TECHNOLOGY OUTPUTS

1.1. Knowledge Creation

1.1.1. Patent applications by origin

Number of resident patent applications filed at a given national or regional patent office (per billion PPP$ GDP)[a] | 2015

A 'resident patent application' refers to an application filed with an IP office or an office acting on behalf of the state or jurisdiction in which the first-named applicant

has residence. For example, an application filed with the Japan Patent Office (JPO) by a resident of Japan is considered a resident application for Japan. Similarly, an application filed with the European Patent Office (EPO) by an applicant who resides in any of the EPO member states, for example, Germany, is considered a resident application for that member state (Germany).

Source: World Intellectual Property Organization, Intellectual Property Statistics; International Monetary Fund, World Economic Outlook Database, October 2016 (PPP$ GDP) (2010–15). (http://www.wipo.int/ipstats/;https://www.imf.org/external/pubs/ft/ weo/ 2016/02/weodata/index.aspx).

1.1.2. PCT international applications by origin

Number of international patent applications filed by residents at the Patent Cooperation Treaty (per billion PPP$ GDP)[a] | 2016

These are the number of Patent Cooperation Treaty (PCT) international patent applications filed through the WIPO-administered Patent Cooperation Treaty in 2016. A 'PCT international application' refers to a patent application filed through the WIPO-administered Patent Cooperation Treaty (PCT) during the international phase outlined by the PCT System. The origin of PCT applications are defined by the residence of the first-named applicant. The PCT System facilitates the filing of patent applications worldwide, making it possible to seek patent protection for an invention simultaneously in each of a large number of countries by first filing a single international patent application.

Source: World Intellectual Property Organization, Intellectual Property Statistics; International Monetary Fund, World Economic Outlook Database, October 2016 (PPP$ GDP)(2014–16). (http://www.wipo.int/ipstats/; https://www.imf.org/external/pubs/ft/ weo/2016/02/weodata/index.aspx)

1.1.3. Utility model applications by origin

Number of utility model applications filed by residents at the national patent office (per billion PPP$ GDP) | 2015

These are the number of resident utility model applications filed at a given national or regional patent office in 2014. A ‘resident UM application’ refers to an application filed with an IP office of, or an office acting on behalf of, the state or jurisdiction in which the first-named applicant has residence. For example, an application filed with the IP office of Germany by a resident of Germany is considered a resident application for Germany. A utility model grant is a special form of patent right issued by a state or jurisdiction to an inventor or the inventor’s assignee for a fixed period of time. The terms and conditions for granting a utility model are slightly different from those for normal patents and include a shorter term of protection and less stringent patentability requirements. A utility model is sometimes referred to in certain countries as ‘petty patents’, ‘short-term patents’, or ‘innovation patents’.

Source: World Intellectual Property Organization, Intellectual Property Statistics; International Monetary Fund, World Economic Outlook Database, October 2016 (PPP$ GDP)(2010–15). (http://www.wipo.int/ipstats/; https://www.imf.org/external/pubs/ft/ weo/2016/02/weodata/index.aspx)

1.1.4. Scientific and technical publications

Number of scientific and technical journal articles (per billion PPP$ GDP)[a] | 2016

The number of scientific and engineering articles published in those fields, including: agriculture, astronomy, astrophysics, automation control systems, biochemistry molecular biology, biodiversity conservation, biotechnology applied microbiology, cell biology, chemistry, computer science, construction building technology, dentistry oral surgery medicine, engineering, environmental sciences, ecology, evolutionary biology, food science technology, general internal medicine, life sciences and biomedicine, marine freshwater biology, materials science, mathematical computational biology, mathematics, metallurgy and metallurgical engineering, meteorology atmospheric science, microbiology, nuclear science and technology, plant sciences, radiology nuclear medicine medical imaging, reproductive biology, research experimental medicine, science and technology, telecommunications, telecommunications, transportation, and veterinary sciences. Article counts are from a

set of journals covered by the Science Citation Index (SCI) and the Social Sciences Citation Index (SSCI). Articles are classified by year of publication and assigned to each country/economy on the basis of the institutional address (es) listed in the article. Articles are counted on a count basis (rather than a fractional basis)—that is, for articles with collabo-rating institutions from multiple countries/economies, each country/economy receives credit on the basis of its participating institutions. The data are reported per billion PPP$ GDP.

Note: Formerly the Intellectual Property and Science business of Thomson Reuters, Clarivate Analytics is now an independent company.

Source: Clarivate Analytics, special tabulations from Thomson Reuters, Web of Science, Science Citation Index (SCI) and Social Sciences Citation Index (SSCI); International Monetary Fund, World Economic Outlook Database, October 2016 (PPP$ GDP) (2016). (https://apps.webofknowledge.com;https://www.imf.org/external/pubs/ft/weo/2016/02/weodata/index.aspx)

1.1.5. Citable documents H index

The H index is the economy's number of published articles (H) that have received at least H citation*[a] | 2016

The H index expresses the journal's number of articles (H) that have received at least H citations. It quantifies both journal scientific productivity and scientific impact, and is also applicable to scientists, journals, etc. The H index is tabulated from the number of citations received in subsequent years by articles published in a given year, divided by the number of articles published that year.

Source: SCImago (2017) SJR—SCImago Journal & Country Rank. Retrieved February 2017. (http://www.scimagojr.com)

1.2. Knowledge Impact

1.2.1. Growth rate of GDP per person engaged

Growth rate of GDP per person engaged (constant 1990 PPP$) | 2015

Growth of gross domestic product (GDP) per person engaged provides a measure of labour productivity (defined as output per unit of labour input). GDP per per-

son employed is GDP divided by total employment in the economy. PPP$ GDP is converted to 1990 US$, converted at Geary Khamis PPPs.

Source: The Conference Board Total Economy Database™ Output, Labor and Labor Productivity, 1950–2016, May 2016. (https://www.conference-board.org/data/econo mydatabase/)

1.2.2. New business density

New business density (new registrations per thousand population 15–64 years old)[a] | 2014

Number of new firms, defined as firms registered in the current year of reporting, per thousand population aged 15–64 years old.

Source: World Bank, Doing Business 2016, Entrepreneurship (2009–14). (http://www. doingbusiness.org/data/exploretopics/ entrepreneurship)

1.2.3. Total computer software spending

Total computer software spending (% of GDP)[a] | 2016

Computer software spending includes the total value of purchased or leased packaged software such as operating systems, database systems, programming tools, utilities, and applications. It excludes expenditures for internal software development and outsourced custom software development. The data are a combination of actual figures and estimates. Data are reported as a percent-age of GDP.

Source: IHS Global Insight, Information and Communication Technology Database. (https://www.ihs.com/index.html)

1.2.4. ISO 9001 quality certificates

ISO 9001 Quality management systems— Requirements: Number of certificates issued (per billion PPP$ GDP)[a] | 2015

ISO 9001:2015 specifies requirements for a quality management system when an organization needs to demonstrate its ability to consistently provide products and services that meet customer and applicable statutory and regulatory requirements, and aims to enhance customer satisfaction through the effective application of the system,

including processes for improvement of the system and the assurance of conformity to customer and applicable statutory and regulatory requirements. All the requirements of ISO 9001:2015 are generic and are intended to be applicable to any organization, regardless of its type or size, or the products and services it provides. The data are reported per billion PPP$ GDP.

Source: International Organization for Standardization (ISO), The ISO Survey of Management System Standard Certifications, 1993–2015; International Monetary Fund, World Economic Outlook database, October 2016 (PPP$ GDP) (2015). (http://www.iso.org;https://www.imf.org/external/pubs/ft/weo/2016/02/weodata/index.aspx)

1.2.5. High-tech and medium-high-tech output

High-tech and medium-high-tech output (% of total manufactures output)[a] | 2014

High-tech and medium-high-tech output as a percentage of total manufactures output, on the basis of the Organisation for Economic Co-operation and Development (OECD) classification of Technology Intensity Definition, itself based on International Standard Industrial Classification ISIC Revision 3. The time periods of data for Iceland, Madagascar, and Pakistan include 2006 for heightened coverage based on these economies' GII 2016 data availability.

Source: United Nations Industrial Development Organization (UNIDO), Industrial Statistics Database, 3- and 4-digit level of International Standard Industrial Classification ISIC Revision 3 (INDSTAT4 2016); OECD, Directorate for Science, Technology and Industry, Economic Analysis and Statistics Division, 'ISIC REV. 3 Technology Intensity Definition: Classification of Manufacturing Industries into Categories Based on R&D Intensities', 7 July 2011 (2006–14). (http://www.unido.org/statistics. html; http://unstats.un.org/unsd/cr/registry/ regcst. asp?cl=27; http://www.oecd.org/sti/ ind/48350231.pdf)

1.3. Knowledge Diffusion

1.3.1. Intellectual property receipts

Charges for use of intellectual property n.i.e., receipts (%, total trade)[a] | 2015

Charges for the use of intellectual property not included elsewhere receipts (% of total trade) according to the Extended Balance of Payments Services Classification EBOPS 2010—that is, code SH Charges for the use of intellectual property not included elsewhere as a percentage of total trade. 'Total trade' is defined as the sum of total imports code G goods and code SOX commercial services (excluding government goods and services not included elsewhere) plus total exports of code G goods and code SOX commercial services (excluding government goods and services not included elsewhere), divided by 2. According to the sixth edition of the International Monetary Fund's Balance of Payments Manual, the item 'Goods' covers general merchandise, net exports of goods under merchanting and nonmonetary gold. The 'commercial services' category is defined as being equal to 'services' minus 'government goods and services not included elsewhere'. Receipts are between residents and nonresidents for the use of proprietary rights (such as patents, trade-marks, copyrights, industrial processes, and designs including trade secrets, franchises), and for licenses to reproduce or distribute (or both) intellectual property embodied in produced originals or prototypes (such as copyrights on books and manuscripts, computer software, cinematographic works, and sound recordings) and related rights (such as for live performances and television, cable, or satellite broadcast).

Source: World Trade Organization, Trade in Commercial Services database, based on the sixth (2009) edition of the International Monetary Fund's Balance of Payments Manual and Balance of Payments database (2007–15). (http://stat.wto.org/StatisticalProgram/WSDBStatProgramSeries.aspx;http://www.oecd.org/std/its/EBOPS-2010.pdf)

1.3.2. High-tech exports

High-tech net exports (% of total trade)[a] | 2015

High-technology exports minus re-exports (% of total trade).

Source: United Nations, COMTRADE database; Eurostat, Annex 5: High-tech aggregation by SITC Rev. 4, April 2009 (2010–15). (http:// comtrade.un.org/; http://ec.europa.eu/ eurostat/cache/metadata/Annexes/htec_ esms_an5.pdf)

1.3.3. ICT services exports

Telecommunications, computers, and information services exports (% of total trade)[a] | 2015

Telecommunications, computer and information services (% of total trade) according to the Extended Balance of Payments Services Classification EBOPS 2010, coded SI: Telecommunications, computer and information services.

Source: World Trade Organization, Trade in Commercial Services database, based on the sixth (2009) edition of the International Monetary Fund's Balance of Payments Manual and Balance of Payments database (2009–15). (http://stat.wto.org/StatisticalProgram/WSDBStatProgramSeries.aspx;http://www.oecd.org/std/its/EBOPS-2010.pdf)

1.3.4. Foreign direct investment net outflows

Foreign direct investment (FDI), net outflows (% of GDP, three-year average)[a] | 2015

Foreign direct investment refers to the average of the most recent three years of direct investment equity flows in an economy. It is the sum of equity capital, reinvestment of earnings, and other capital. Direct investment is a category of cross-border investment associated with a resident in one economy having control or a significant degree of influence on the management of an enterprise that is resident in another economy. Ownership of 10 percent or more of the ordinary shares of voting stock is the criterion for deter-mining the existence of a direct investment relationship. This series shows net outflows of investment from the reporting economy to the rest of the world, and is divided by GDP.

Source: International Monetary Fund, Balance of Payments database, supplemented by data from the United Nations Conference on Trade and Development

and official national sources; extracted from the World Bank's World Development Indicators database (2013–15). (http://data.worldbank.org/)

2. CREATIVE OUTPUTS

2.1. Intangible Assets

2.1.1. Trademark application class count by origin

Number of trademark applications issued to residents at a given national or regional office (per billion PPP$ GDP) | 2015

The count of trademark applications is based on the total number of goods and services classes specified in resident trademark applications filed at a given national or regional office in 2015. Data refer to trademark application class counts—the number of classes specified in resident trademark applications—and include those filed at both the national office and the regional office, where applicable. Data are scaled by PPP$ GDP (billions). A 'trademark' is a sign used by the owner of certain products or provider of certain services to distinguish them from the products or services of other companies. A trademark can consist of words and/or combinations of words, such as slogans, names, logos, figures and images, letters, numbers, sounds and moving images, or a combination thereof. The procedures for registering trademarks are governed by the legislation and procedures of national and regional IP offices. Trademark rights are limited to the jurisdiction of the IP office that registers the trademark. Trademarks can be registered by filing an application at the relevant national or regional office(s) or by filing an international application through the Madrid System. A resident trademark application is one that is filed with an IP office or an office acting on behalf of the state or jurisdiction in which the applicant has residence. For example, an application filed with the Japan Patent Office (JPO) by a resident of Japan is considered a resident application for Japan. Similarly, an application filed with the Office for Harmonization in the Internal Market (OHIM) by an applicant who resides in any of the EU member states, such as France, is considered a resident application for that member state (France).

Source: World Intellectual Property Organization, Intellectual Property Statistics; International Monetary Fund, World Economic Outlook Database, October 2016(PPP$GDP)(2010–15).(http://www.wipo.int//ipstats/; https://www.imf.org/external/ pubs/ft/ weo/2016/02/weodata/index.aspx)

2.1.2. Industrial designs by origin

Number of designs contained in industrial design applications filed at a given national or regional office (per billion PPP$ GDP)[a] | 2015

This indicator refers to the number of designs contained in industrial design applications filed at a given national or regional office in 2015. Data refer to industrial design application design counts— the number of designs contained in applications— and include designs contained in resident industrial design applications filed at both the national office and at the regional office, where applicable. 'Resident design counts' refers to the number of designs contained in applications filed with the IP office of or at an office acting on behalf of the state or jurisdiction in which the applicant has residence. For example, an application filed with the Japan Patent Office (JPO) by a resident of Japan is considered a resident application for Japan. Similarly, an application filed with the Office for Harmonization in the Internal Market (OHIM) by an applicant who resides in any of the OHIM member states, such as Italy, is considered as a resident application for that member state (Italy).

Source: World Intellectual Property Organization, Intellectual Property Statistics; International Monetary Fund, World Economic Outlook Database, October 2016(PPP$GDP)(2013–15).(http://www.wipo.int//ipstats/; https://www.imf.org/external/ pubs/ft/ weo/2016/02/weodata/index.aspx)

2.1.3. ICTs and business model creation

Average answer to the question: In your country, to what extent do ICTs enable new business models? [1 = not at all; 7 = to a great extent]† | 2016

Source: World Economic Forum, Executive Opinion Survey 2016–2017. (https:// www.weforum.org/reports/the-global- competitiveness-report-2016-2017-1)

2.1.4. ICTs and organizational model creation

Average answer to the question: In your country, to what extent do ICTs enable new organizational models (e.g., virtual teams, remote working, and telecommuting) within companies? [1 = not at all; 7 = to a great extent]† | 2016

Source: World Economic Forum, Executive Opinion Survey 2016–2017. (https:// www.weforum.org/reports/the-global- competitiveness-report-2016-2017-1)

2.2. Creative Goods and Services

2.2.1. Cultural and creative services exports

Cultural and creative services exports (% of total trade)[a] | 2015

Creative services exports (% of total exports) according to the Extended Balance of Payments Services Classification EBOPS 2010—that is, EBOPS code SI3 Information services; code SJ22 Advertising, market research, and public opinion polling services; code SK1 Audiovisual and related services; and code SK24 Other personal cultural and recreational services as a percentage of total trade. On the score for the United States of America (USA), this includes SI3 Information services; the category Movies & TV programming from Table 2.1 (U.S. Trade in Services, BEA) in the absence of available data for code SK1 Audiovisual and related services (the category Movies & TV programming is specific to the USA in BPM6 statistics and does not have a code); Sports and performing arts (U.S. Trade in Services, BEA) is used instead of code SK24; Advertising (U.S. Trade in Services, BEA) is used instead of code SJ22.

Source: World Trade Organization, Trade in Commercial Services database, based on the sixth (2009) edition of the International Monetary Fund's Balance of Payments Manual and Balance of Payments database; Bureau of Economic Analysis (BEA) released October 2016 (2007–15). (http://stat.wto.org/ StatisticalProgram/WSDB StatProgramSeries.aspx;http://www.oecd.org/std/its/EBOPS-2010.pdf; https://www.bea.gov/iTable/iTable.cfm)

2.2.2. National feature films produced

Number of national feature films produced (per million population 15–69 years old)[a] | 2015

A film with a running time of 60 minutes or longer. It includes works of fiction, animation, and documentaries. It is intended for commercial exhibition in cinemas. Feature films produced exclusively for television broadcasting, as well as news-reels and advertising films, are excluded. Data are reported per million population 15–69 years old. For Cambodia, Cameroon, Madagascar, and Nigeria, this indicator covers only feature films in video format.

Source: UNESCO Institute for Statistics, UIS online database; United Nations, Department of Economic and Social Affairs, Population Division, World Population Prospects: The 2015 Revision (population) (2008–15). (http://data.uis.unesco.org; http://esa.un.org/unpd/wpp/)

2.2.3. Global entertainment and media market

Global entertainment and media market (per thousand population 15–69 years old)*[a] | 2015

The Global Entertainment and Media Outlook (the Outlook) provides a single comparable source of five-year forecast and five-year historic consumer and advertiser spending data and commentary for 13 entertainment and media segments, across 61 countries. The data and intuitive online functionality allow one to easily browse, compare and contrast spending, and create charts and graphs. The segments covered by the Outlook are book publishing, business-to-business, filmed entertainment, Internet access, Internet advertising, magazine publishing, music, newspaper publishing, out-of-home advertising, radio, TV advertising, TV subscriptions and license fees, and video games. The score and rankings for the Global Media Expenditures for the 60 countries considered in the Outlook report are based on advertising and consumer digital and non-digital data in US$ millions at average 2015 exchange rates for the year 2015. These results are reported normalized per thousand population, 15–69 years old, for the year 2015. The figures for Algeria, Bahrain, the Islamic Republic of Iran, Jordan, Kuwait, Lebanon, Malta, Morocco, Oman, Qatar, Tunisia, and the Republic of Yemen were estimated from a total corresponding to Middle East and North Africa (MENA) countries using a breakdown of total GDP (current US$) for the above-mentioned countries to define referential percentages.

Source: The source of the data for the base of these calculations was derived from PwC's Global Entertainment and Media Outlook, 2016–2020; United Nations, Department of Economic and Social Affairs, Population Division, World Population Prospects: The 2015 Revision (population); World Economic Outlook Database, October 2016 (current US$ GDP); Middle East & North Africa in World Bank's DataBank. www.pwc.com/outlook;http://esa.un.org/unpd/wpp/;https://www.imf.org/external/pubs/ft/weo/2016/02/weodata/index.aspx;http://data.worldbank.org/region/middle-east-and-north-africa)

2.2.4. Printing and publishing output

Printing and publishing manufactures output (% of manufactures total output) | 2014

Publishing, printing, and reproduction of recorded media output (ISIC Rev. 3 code 22) as a percentage of total manufacturing output (ISIC rev.3 code D). The time periods of data for Iceland, Madagascar, and Pakistan include 2006 for heightened coverage based on these economies' GII 2016 data availability.

Source: United Nations Industrial Development Organization, Industrial Statistics Database; 2-digit level of International Standard Industrial Classification ISIC Revision 3 (INDSTAT2-2015) (2006-14).(http://www.unido.org/statistics.html; http://unstats.un.org/unsd/cr/registry/regcst.asp?cl=2)

2.2.5. Creative goods exports

Creative goods exports (% of total trade) | 2015

Total value of creative goods exports, net of re-exports (current US$) over total trade. 'Total trade' is defined as the sum of total imports code G goods and code SOX commercial services (excluding government goods and services not included elsewhere) plus total exports of code G goods and code SOX commercial services (excluding government goods and services not included elsewhere), divided by 2. According to the sixth edition of the International Monetary Fund's Balance of Payments Manual, the item 'Goods' covers general merchandise, net exports of goods under merchanting and

non-monetary gold. The ‘commercial services’ category is defined as being equal to ‘services’ minus ‘government goods and services not included elsewhere’.

Source: United Nations, COMTRADE database; 2009 UNESCO Framework for Cultural Statistics, Table 3, International trade of cultural goods and services based on the 2007 Harmonised System (HS 2007); World Trade Organization, Trade in Commercial Services database, itself based on the sixth (2009) edition of the International Monetary Fund’s Balance of Payments Manual and Balance of Payments database (2010–15).(http://comtrade.un.org/;http://www.uis.unesco.org/culture/DocumeNts/framework-cultural-statistics-culture-2009-en.pdf; http://stat.wto.org/StatisticalProgrAm/WSDBStatProgramSeries.aspx; http://www. oecd.org/std/its/EBOPS-2010.pdf)

2.3. Online Creativity

2.3.1. Generic top-level domains (gTLDs)

Generic top-level domains (gTLDs) (per thousand population 15–69 years old) | 2016

A generic top-level domain (gTLD) is one of the categories of top-level domains (TLDs) maintained by the Internet Assigned Numbers Authority (IANA) for use in the Internet. Generic TLDs can be unrestricted (.com, .info, .net, and .org) or restricted—that is, used on the basis of fulfilling eligibility criteria (.biz, .name, and .pro). Of these, the statistic covers the five generic domains .biz, .info, .org, .net, and .com. Generic domains .name and .pro, and sponsored domains (.arpa, .aero, .asia, .cat, .coop, .edu, .gov, .int, .jobs, .mil, .museum, .tel, .travel, and .xxx) are not included. Neither are country-code top- level domains (refer to indicator 7.3.2). The statistic represents the total number of registered domains (i.e., net totals by December 2016, existing domains + new registrations – expired domains). Data are collected on the basis of a 4% random sample of the total population of domains drawn from the root zone files (a complete listing of active domains) for each TLD. The geographic location of a domain is determined by the registration address for the domain name registrant that is returned from a whois query. These registration data are parsed by country and postal code and then aggregated to any number of geographic levels such as county, city, or country/economy. The original hard data were scaled by thousand population 15–69

years old. For confidentiality reasons, only normalized values are reported; while relative positions are preserved, magnitudes are not.

Source: ZookNIC Inc; United Nations, Department of Economic and Social Affairs, Population Division, World Population Prospects: The 2015 Revision (population). (http://www.zooknic.com; http://esa.un.org/ unpd/wpp/Excel-Data/population.htm)

2.3.2. Country-code top-level domains (ccTLDs)

Country-code top-level domains (ccTLDs) (per thousand population 15–69 years old) | 2016

A country-code top-level domain (ccTLD) is one of the categories of top- level domains (TLDs) maintained by the Internet Assigned Numbers Authority (IANA) for use in the Internet. Country- code TLDs are two-letter domains especially designated for a particular economy, country, or autonomous territory (there are 324 ccTLDs, in various alphabets/characters). The statistic rep-resents the total number of registered domains (i.e., net totals by December 2016, existing domains + new registra-tions – expired domains). Data are collected from the registry responsible for each ccTLD and represent the total number of domain registrations in the ccTLD. Each ccTLD is assigned to the country with which it is associated rather than based on the registration address of the registrant. ZookNIC reports that, for the ccTLDs it covers, 85–100% of domains are registered in the same country; the only exceptions are the ccTLDs that have been licensed for commercial worldwide use. Of this year's GII sample of countries, this is the case for the ccTLDs of the following economies: Argentina ar, Armenia am, Austria at, Bangladesh bd, Belarus by, Belgium be, Brazil br, Canada ca, Chile cl, China cn, Colombia co, Denmark dk, Estonia ee, Finland fi, France fr, Germany de, Greece gr, Guatemala gt, Hong Kong (China) hk, Iceland is, India in, Indonesia id, Islamic Republic of Iran ir, Israel il, Italy it, Latvia lv, Lithuania lt, Luxembourg lu, Malaysia my, Mauritius mu, Moldova md, Mongolia mn, Montenegro me, Nicaragua ni, Norway no, Peru pe, Poland pl, Republic of Korea kr, Romania ro, Serbia rs, Slovenia si, Spain es, Sri Lanka lk, Sweden se, Switzerland ch, Thailand th, Tunisia tn, Turkey tr, and Viet Nam vn (this list is based on www.wikipedia.org). Data

are reported per thousand population 15–69 years old. For confidentiality reasons, only normalized values are reported; while relative positions are pre-served, magnitudes are not.

Source: ZookNIC Inc; United Nations, Department of Economic and Social Affairs, Population Division, World Population Prospects: The 2015 Revision (population). (http://www.zooknic.com; https://esa.un.org/ unpd/wpp/)

2.3.3. Wikipedia yearly edits

Wikipedia yearly edits by country (per million population 15–69 years old) | 2014

Data extracted from Wikimedia Foundation's internal data sources. For every country with more than 100,000 edit counts in 2016, the data from 2016 are used. For all other countries, the data from 2014 are utilized. The data excludes bot contributions to the extent that is identifiable in the data sources. Data are reported per million population 15–69 years old.

Source: Wikimedia Foundation; United Nations, Department of Economic and Social Affairs, Population Division, World Population Prospects: The 2012 Revision (population). (https://wikimediafoundation.org; https://esa. un.org/unpd/wpp/)

2.3.4. Video uploads on YouTube

Number of video uploads on YouTube (scaled by population 15–69 years old) | 2015

Total number of video uploads on YouTube, per country, scaled by population 15–69 years old. The raw data are survey based: the country of affiliation is chosen by each user on the basis of a multi-choice selection. This metric counts all video upload events by users. For confidentiality reasons, only normalized values are reported; while relative positions are preserved, magnitudes are not.

Source: Google, parent company of YouTube; United Nations, Department of Economic and Social Affairs, Population Division, World Population Prospects: The 2012 Revision (population). (http://www.youtube.com; http://esa.un.org/unpd/wpp/Excel-Data/population.htm; http://www.comscore.com/ Industries/Media)

VITAE

Hakan Köse was born in Hatay in 1992. Moved to Saudi Arabia in 1994 and completed his primary, secondary, and high school education at Jeddah International Turkish School. Returned to Turkey in 2010 and started to undergraduate program at Faculty of Economics and Administrative Sciences, the Department of Business Administration at the University of Gaziantep. Graduated in 2014 and in 2015 began to Master of Business Administration Program at the Institute of Social Sciences of Gaziantep University. He speaks English and Arabic fluently.

ÖZGEÇMİŞ

Hakan Köse 1992 yılında Hatay'da doğdu. 1994 yılında Suudi Arabistan'a taşındı ve ilkokul, ortaokul ve lise eğitimini Cidde Uluslarası Türk Okulu'nda tamamladı. 2010 yılında yüksek öğrenim görmek üzere Türkiye'ye döndü. 2014 yılında Gaziantep Üniversitesi, İktisadi ve İdari Bilimler Fakültesi, İşletme Bölümü'nden mezun oldu ve 2015 yılında Gaziantep Üniversitesi, Sosyal Bilimler Enstitüsü, İşletme Ana Bilim Dalı, İngilizce İşletme Tezli Yüksek Lisans Programı'na başladı. Kendisi iyi derecede İngilizce ve Arapça bilmektedir.