AN OVERVIEW OF THE INFORMATION AND COMMUNICATIONS TECHNOLOGIES (ICTs) IN TURKEY: THE CURRENT PROBLEMS AND THE PREDICTIONS IN THE FUTURE

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─Abstract ─

Globalization and technological developments have caused big changes on economical, political, education etc. areas. Communication technology develops in the paralell to the advances of technology. All firms as a player have to struggle in the network economy and the ICT. Businesses, all players, communicate and link each other easily with their customers, suppliers and other stakeholders by the Information and Communications Technologies (ICTs). All rivals and other players have been tackling to survive and to obtain a sustainable competitive advantages in sharply competitive environment that is resulted from the ICT. It is shown that there is a new dynamic order in conjunction with the network economy. Knowledge is one of the important success factors in the new order.While passing from capital based industrial society to knowledge based information society, businesses challenge each others by using information effectively and developing innovative strategies. The ICT affects on many sectors as well as economy of countries in the world. In the light of these developments it can be said that the ICT is vital factor and have strategic importance for developing of a country. Many countries have been investing in the ICTs sectors in order to growth in the network economy. In light of this information, the study aims to analyze overview of the ICTs in Turkey with a context of exist status, current problems, potantial solutions and predictions in the future.

Key Words: *The Network Economy, The New Economy, Knowledge, Information and Communications Technologies (ICTs)*

JEL Classification: 152

1. INTRODUCTION

Due to rapidly changing in economic, political and human issues and increasing environmental problems and technological developments; it is seen that players in dynamic business life have begun to use new tools to obtain strategic advantages and to survive (Ömür, Tunç, Düren, 2012:1611). All players must be online in economic integration. They have to have superior opportunies against current and potential competitors. Competitons rules in business life have been changing by advances in the Information and Communication Technology (ICT). Technological adaption is an important issue for ecenomic growth and increased productivity. (Dimelis, Papaioannou, 2009: 79). So far value chain has exchange between differentiation and low cost, but nowadays it must base on via value chain network. Firms are learning new economy and competition's success tools such as effectively using technology, knowledge creating etc. (Oystein-Haanaes, 2001: 1-2). The era is based on information. As a natural consequence, firms operate in advanced information and communication technologies and hence they meet its radical effects. The information and communications technologies (ICTs) affect on growth of countries economies and the routes and rates of development. Considering this fact the ICTs have a superior role and so they are a matter of importance for the growth. Many countries that realize it, have been investing in the ICTs sector. At the same time they have been contributing to industrialisation and economic development (Sein, Harindranath, 2004:15). The global economy has been pushed by a greater integration of world markets and an information and communication technologies (Baliamoune-Lutz, 2003:151). In that regard economies and hence countries have to look for new tools (such as ICTs) to growth.

2. THE INFORMATION AND COMMUNICATION TECHNOLOGIES (ICTs) AS A NEW COMPETITIVE TOOL IN THE NEW ECONOMY

“Information and Communications Technologies (ICTs) can be basically defined as all hardware, software and services regarding the creation, storage, access and management of information and data. Recently, this industry has become a prime

attraction for investors, policy-makers and other actors in the economies" (Yased, Deloitte, 2012:3). The information and communication technologies (ICTs) are accepted as a powerful tool for development and poverty reduction in countries (Chilimo, Ngulube, 2006:97). The ICTs influence on internationalization of technological activity in emerging economies, and they have its implications for global marketing (Rao, 2001:571).

The information and communication technologies (ICTs) have a potential to improve the welfare of developing countries by its providing opportunities in economy such as accessing of simultaneously of market information, creating of new economic opportunities, improving of economic efficiency and competitiveness, providing better health and education facilities (Chilimo, Ngulube, 2006:98). The ICTs are closely related with knowledge diffusion and hence innovation capability. If the ICT is thought as a fundamental tool in different sub-technological field, the crucial role of ICTs in country developments can be understood. Knowledge diffusion serves as an influential linkage between countries. In other words this diffusion is a facilitator factor in developing national innovation capability. The ICTs provide a knowledge network in different technological fields between countries. So it can be obtained opportunities and greater potentials for technological innovation by understanding kowledge networks and using ICTs (Chun, 2007:662). One of the benefits of ICTs is to provide the transaction cost by rapidly knowledge sharing (Rao, 2001:571). Use of ICTs entails not only investment in the sector but also subsidiary investment in skills, organization and innovation. These investments bring potential benefits and as well risks and costs (OECD, 2004:12). It is noticed that developed countries invested in the ICTs. As a result the ICTs are illustrated to have a significant macroeconomic impact on the countries (Samoilenko, Weistroffer, 2010: 279). When the development and diffusion of the ICT are fast; the major driving force of the new economy is the ICT. The ICT industry has supported all developed countries's ecenomic growth immensely (Meng-Li, 2001:1). The ICTs and sub-industry components and their infrastructures are a vital catalyst in the global knowledge economy that is based on the new economy. The goverment has a great role to enhance the ICTs by ensuring sufficient policies (Ziolkowski, 2011: 29).

The relationship between the new economy and the ICTs link the gap between developed and developing countries (Dai, 2012:141). Asian countries like Japan, South Korea, Taipei, and China have an important role for diffusion of the ICT around the world (Malekian, Omar, Abdullah, Malekian, 2011: 114). The using of Information and communication technologies has an impact on increasing productivity, obtaining the national competitive advantages and sustainable development. (Uçkan, 2006: 23).In this sense, some actors such as industry clusters and government policy may influence The ICTs (Chun, 2007:662).

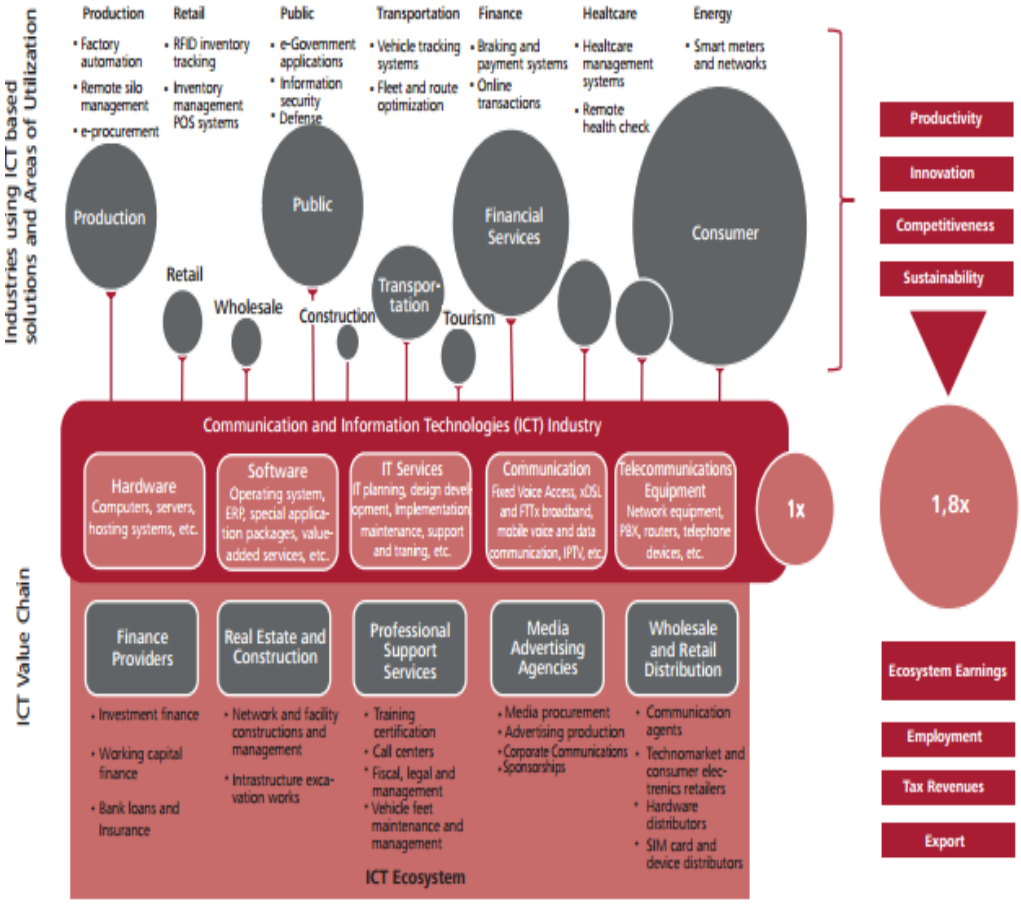
The innovation and rapid technological adaption contribute their products and services. So the adaption is getting more and more a crucial role across every industry (Oystein, Haanaes, 2001:1-2). In that regard, data transmission such as telecommunications, mobile, and Internet communications globally is a important role in the new economy (Malekian, Omar, Abdullah, Malekian, 2011: 114). The new economy can provide a new channel for economic growth and national development (Baliamoune-Lutz, 2003:151). As a result of the spread of ICT 'knowledge economy' has emerged (Thompson, 2006: 576). The new economy has a network, so all changes effect another factor in it. The new economy highlights the strategic importance of interindustrial knowledge flows (Kim, Park, 2008: 688). The ICTs (the Internet etc.) are widespread means of communication, production, and commerce within the scope of the new economy (Engelbrecht, 2004: 318). The high level diffision of ICT tend to the industrialized countries. There is a differentiation of the ICT's infrastructure between industrialized economies and emerging economies. That is this difference is striking. The developing countries have been making with many varieties of restructuring strategies for increasing rapid of ICT infrastructure (Rao, 2001:572). The ICTs are related infrastructure and ability current infrastructure to the ICT development, literacy level of people and their skills in information technology, government ICTs policy (filtering internet content, controlling transmitted data), e-government (Malekian, Omar, Abdullah, Malekian, 2011: 115). A part of impacts of the ICTs depends on bandwidth optimization, quality of each connection and less data loss and application and software optimization (Malekian, Omar, Abdullah, Malekian, 2011: 115) Broadband connectivity is a very important factor in development of the ICT. The factor is a faciliator for providing the contrubition of the ICT to economic growth, innovation and network effects etc. (OECD, 2004:5).

3. THE INFORMATION AND COMMUNICATIONS TECHNOLOGIES (ICTs) IN TURKEY

Turkey is a country that started the process of industrialization, so the basic conditions that make up the infrastructure of the information society developments prevented from benefiting enough. (Kocacık, 2003:7). However

the ICT market in Turkey has big potential by growth rate and trends, so local and foreing investors has accepted an attractive the market in Turkey that is the 17th largest economy in the world. The ICT industry has been developing since 1970s. The ICT sector has been $4.1 trillion in 2011. The industry is 0.75 % of the global ICT market. The ICTs are a horizantal sector and they affect each others. For this reason all industries are as a facilitator at the same time.The ICT can be trailblazer for developments of current and potential technologies, increasing productivity and competitiveness. When some sectors use the ICT, productivity and innovation are increased. If 1 unit increase in the ICT industry in Turkey, 1,8 unit growth in the Turkish economy (Figure-1.) (Yased, Deloitte, 2012:3).

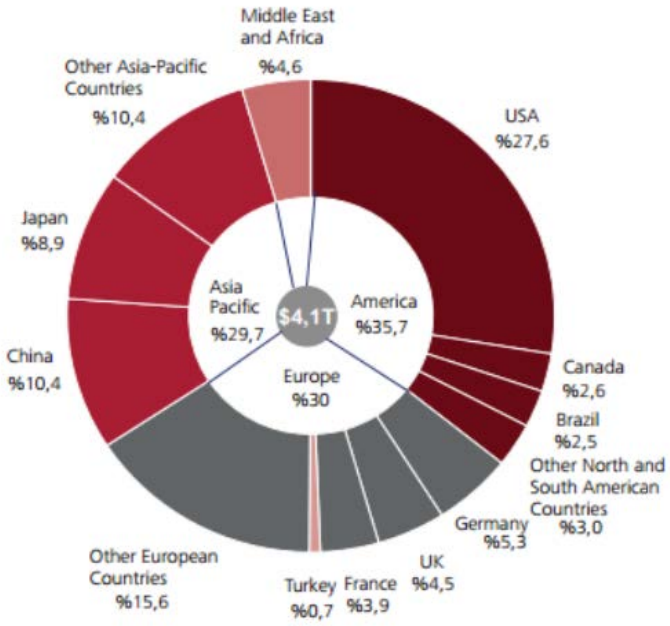
Figure-1: The Effect of The Industry on Turkey's Economic Growth



Source: Yased, Deloitte: 2012: 3.

Turkey is an importer of the ICT products and services. The industry's international trade volume for products and services is $7.6 billion. The Turkish ICT sector contributes to the current deficit is $2.5 billion. The advance in ICT industry impacts on sub-industries due to being of the horizantal sector. It is estimated that the industry will reach a size of $160 billion, an annual growth rate of 15 percent by 2023. The global market is $ 4.1 trillion and the European ICT market is $ 1.2 trillion. The Turkish ICT sector is 2% of the European ICT market and 0.75% of the global market (Figure-2) (Deloitte: 2012: 20).

Figure-2: Geographical Distribution of The Global ICT Sector in 2011



Source: Yased, Deloitte: 2012: 20

The Information Technology Sector in Turkey creates the portion of 29% of the total ICT market. The Tukish ICT sector's ratio is 3% in the software, 4% in the hardware, 22% in the IT services sub-sectors. When the global ICT sector compare with the ICT sector in Turkey, the sector is smaller than the global ICT sector. Because The Turkish ICT sector has small scale of the software and IT services in sub-sectors (Yased, Deloitte, 2012:20). It is expanded that Turkey will have been reached some targets such as: reaching 30 million broadband subscribers, supplying 50 percent of the ICT sector with domestic products and services, reaching 8 percent of GDP as the ICT sector's share, becoming one of the top 10 countries in e-transformation, providing all public services electronically by 2019 and having 80 percent of population computer literate. If the SWOT analysis is maden for Turkey , it can be say as its streghts points: demand for high-tech telecommunications services, as weel as a large Turkish population, are expected to increase total the ICT spending; huge potential for growth considering the young population compared to Western countries; companies that have R&D activities in special areas are exept from income tax for

these activities; government institutions are one of the biggest IT buyers; and share of IT in total public investment is growing; as its weaknesses points: high software piracy rate, and high taxation in the mobile sector; as its oppurtunities points: increasing budget allocation by government for public IT investments; mobile phone subscriptions are expected to grow; the ability to train highly qualified, young and dynamic computer engineers and software developers in ever-increasing numbers; as its treats point: underdeveloped collabrotion culture of R&D and innovation in the sector (Invest in Turkey). The SWOT analysis is summarized in the Table-1(Yased, Deloitte, 2012:27).

Table-1: The SWOT Analysis of ICT Sector in Turkey

Strengths	Weaknesses
• A Young Population Prone to Technology Consumption • Labor Force Young and Prone to Develop • Rapid Growth Trend in the Sector • Strong Economic Indicators and Growth Trend	• High Tax Rates • Predictability of Regulations • Price-Oriented Tender Policies • Insufficiency of Venture Capital • Violations on Intellectual Property Rights • Bureaucracy Functioning Slowly
Opportunities:	**Threats**
• Consumers Quickly Adapting to Innovations • Proximity to Developed and Developing Markets • Existence of Virgin Markets • Capacity of Training Qualified Labor Force • Gradually Increasing Innovative Products • Outlook on the Sector and the Importance Laid by the Government • Interest of International Investors in the Sector	• Decreasing Profit Margins and Declining Investment Trend Due to Price-Oriented High Competition • Lack of Sufficiently Developed Collaboration Culture in R&D and Innovation • Macroeconomic Uncertainties (Current Account Deficit, Exchange Rate, Inflation, etc.) • Lack of a Broad Vision in Product and Brandization • Lack of a Training Policy Required for Qualified Workforce and Research

Source: Yased, Deloitte:2012:27.

The information and communication technologies (ICTs) are accepted as a powerful tool for development and poverty reduction in countries. Turkey has a greater potential in developing the ICT sector. In future it is expected that the country will explode by investors overseas the ICTs markets. However the ICT sector in Turkey should be enhanced by new policies, precautions and investments.

4. CONCLUSION

Governments and other stakeholders should regulate some topics such as lack of qualified workforce, high tax rates, non- predictability of regulations, price-based bidding policy and profit margins dropping due to competition, inadequacy of venture capital, violations regarding intellectual property rights, lack of university-industry collaboration and inadequate incentives in Turkey. The industry investment has a critical role for sharing of knowledge and experience as well as improving its financial development. International investment that is from venture capital to large-scale investments should be encouraged. That way the recognition of Turkish entrepreneurs and companies can increase and it can ensure international know-how and technology transfer in overseas markets.

Turkey should get a strategically approach about the industry needs and reach current and potantial opportunities in the overseas market for becoming an "ICT central". The lack of foreing language is another problem in the ICTs. Although Turkey has a young population, many industry players complain about the lack of qualified employees and English language skills. Hence they could be encouraged with new regulation.

The welfare levels of the developed countries completed their transformation into an "Information Society" by using the ICT. Due to these countries' position in the ICT sector is better than the emerging countries. International financial regulators, national governments and development organizations should provide support and resources for the realization of this transformation which is one of the essential conditions for welfare increase and economic growth.

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