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Master Thesis

The Effects of the Digital Divide in the Society and Analysis of Digital Divide in Turkey

Author: Selin Ayaeş, MA

Supervisor: Katrin Merike Nyman-Metcalf, PhD

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Author's declaration

I confirm that I have constructed this Bachelor's/Master's thesis individually and that the current paper has not been presented by anyone before. All resources, viewpoints, citations, and other materials from other authors that have been used in this thesis have been referred to.

Date

Signature

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Annotatsioon

Käesolev magistritöö on kirjutatud et uurida olemasoleva probleemi dimensioone, põhjuseid ja mõju. Mainitud probleemi, digitaalset lõhe, on uuritud alates selle ilmnemisest. Leidub informatsiooni selle probleemi kohta uues maailmas.

Magistritöö koosneb kolmest peatükist. Magistritöö üldine ülesehtius on kirjeldatud esimeses osas. Magistritöö esimene peatükk koosneb järgnevatest osadest: sissejuhatus, peateema, probleemikäsitlus ja hüpotees, teema olulisuse käsitlus, märksõnad ja uurimuse metodoloogia.

Magistritöö teine osa keskendub põhjustele, tulemustele ja statistilistele andmetele. Magistritöö teine peatükk koosneb järgnevatest osadest: interneti sotsiaalne mõju, digitaalse lõhe definitsioon ja mõõdud, digitaalne lõhe OECD riikides ja Türgis, digitaalse lõhe vähendamise tähtsus, digitaalse lõhe rahvusvaheline programm ja digitaalse lõhe vältimise programm Türgis. Lisaks on teisel peatükil mõned alavaldkonnad. Need on definitsioonid, kommentaarid ja arvamused erinevatelt autoritelt selles peatükis.

Kolmandas peatükis sisalduvad probleemi resultaadid ja soovitused probleemi ennetamiseks. See peatükk koosneb kolmest osast: digitaalse lõhe tulemus on sotsiaalne tõrjutus, soovitused edaspidiseks ja kokkuvõte mille eesmärk on vähendada digitaalset lõhet ning bibliograafia.

Magistritöö autor on kasutanud töös mitmeid allikaid. Allikad on välja toodud kahes eraldi osas. Esimeses osas on bibliograafia 58 erineva allikaga (raamatud, artiklid, raportid jne). Kõik magistritöös kasutatud allikad on selles osas välja toodud. Teises osas välja tootud 40 lisa, mida autor on kasutanud toetava informatsiooni saamiseks.

Abstract

The changes of economic, political, sociological and others have affected the society in some way . These effects have been formed with positive and negative results throughout the history. The internet is a consequence of technological developments. Internet has endless benefits for people also It has brought its negative consequences. The changes occur positive and negative results due to the current conditions in society. The issues discussed in the thesis are related to exactly this situation.

The internet took place in the center of our life as a result of technological improvements andit has caused to different conclusions in different social structures. The information technologies require several infrastructures to be useful. These infrastructures are established as a result of specific competences of technical, academic and economic by the management mechanisms of countries. People are able to use the ICT and they take advantage of ICT in their own regions with completed infrastructure. The use of information technology changed the processing of information and applying of information. Whoever can access easly to information technologies, they can accommodate to new world order. The speed and information are forefront in the new world order. Whoever can control to speed and information, they can keep up in the new world order.

The information technologies can not use adequately in countries having inadequate infrastructure and socio-economic problems. This status deepend to these differences with adding to the existing inequalities. People, regions, countries deprived of their information technology are living in behind of age. They are strangers to own age by this situation. Access to ICT has become important issue with developing technologies. The digital divide occurs in the regions have lack of access to information technology. This is beginning to convert as digital gap with the globalization. This problems caused to different consequences in the society as mentioned thesis's chapters.

Existing differences in the world varies over time. Class distinction in society may seem to have been no but actually when detailed views it is still there. The class distinctions has changed just own names and sizes. The digital divide used to describe class distinctions created by the information society.

There are what is the digital divide, what is the dimensions of digital divide, how measure to digital divide, what is the result of digital divide and recommendations for the prevention to digital divide such as information in thesis.

My aim when I was writing to this thesis is make visible to some unseen problems. We don't encounter to some situation in our daily life or our environment in sometimes. But this situation mean is not the mentioned problems not exist in the world. I have tried just made visible to this problems. Also we know, the existing inequality can reduce by awareness of people.

Abbreviations

ARBIS - Researchers Information System

BSI - Black Sea Interconnection

BPS – Bit Per Second

BTYKA – Prevalence and Usage of Information Technology

BTK- Turkey Information Technologies and Communications Institution

CID – Center for Informational Development

DOC- The United States Department of Commerce

DNS – Domain Name Service

EU – Europan Union

EUSO – Europan Union Statistics Office

G8 - Group of Eight

GBD – World Bank Digital Divide Biridges Task Force

ICCP – Information Computer and Communications Policy

IDC – International Data Corporation

ISC- Internet Software Consortium

ISP – Internet Service Provider

IS- Internet Service

IP – Internet Protocol Address

ITU – International Telecommunication Union

KIEM – Establishment of Public Internet Access Centers

OECD - Organization for Economic Co-operation and Development

PC- Computer

PPI – Progressive Policy Institute

SRE - Classification of Statistical Region Units

TCP - Transmission Control Protocol

TARABIS – National Research Infrastructure Information System

TİUK - Turkish Statistical Institute

TUBİTAK – Turkey Scientific and Technological Research Institute

TUANA – Turkey's National Information Infrastructure Master Plan

UN - United Nations

UNDP – United Nations Development Program

USADC - US Department of Commerce

UNDP – Undevelopment Program

WEF – Global Digital Divide Task Force

WTDC – World Telecommunication Development Conference

WWW – World Wide Web

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A. CHAPTER 1

1. Introduction

The word long ago became a cliche. Consider it here in the sense of profound changes involving new means of communication that permanently affect entire societies, changes that have shaken political structures and influenced economic development, communal activity, and personal behavior. Unlike so many of our wars and switching of rulers, information revolutions create changes, intended or not, that stick. The new media of information become part of the changing society.

To some extent the information revolution could be compared to a piece of music that starts quietly and builds up slowly, beat after beat, until it explodes in a blast. Likewise, the information revolution started around 3000 BC with the Sumerian pictographs. From that moment on the information revolution has accompanied the history of mankind. Among the milestones of the information revolution are Gutenberg's invention of the printing press in 1455; the work of Augusta, Lady Byron, Countess of Lovelace and Babbage on the Analytic Engine in the early 1830s; the invention of the first telephone during 1870s; Turing's work during World War II; the development of ARPANET by the U.S. Department of Defense in the 1960s; the first versions of the UNIX Operative System in late 1960s; the progressive dissemination of personal computers, laptops and smartphones begun in late 1970s and continuing until today. (Fang, 1997)

More than an information revolution it seems that humankind is experiencing a long-lasting turn concerning the development of technologies able to create, transmit and store information. At first glance there seems to be nothing revolutionary about it, but more attentive analysis and the consideration of two aspects allows us to understand the revolutionary nature of the informational trend. The two aspects are:

- The extensive dissemination of ICTs, so-called "ubiquitous computing";
- The profound changes that such dissemination creates in our societies. Let us consider them in more detail.

We witness the dissemination of ICTs everyday. You may think of personal usage of computers for working or entertainment purposes as an example of such dissemination, but this only the tip of the iceberg. ICTs provide the ground for the economic and industrial growth of our societies;

they constitute one of the fundamental tools for the progress of experimental science and provide the means for storing and managing historical, economic, and legal information. Slowly and ineluctably ICTs have grown to the point of becoming necessary for societies and individuals to live and prosper. They provide new modes for creating and managing information, which lead to new means of interaction with other individuals and the environment. Consider for example the way in which we perceive distances and time nowadays, when we can talk and see someone on the other side of the world or when we can exchange documents in a matter of seconds, rather than in days or months as it used to be only a few decades ago. Not only do such changes affect our personal experience, they contribute to redesign the structure and rules of our societies as well.

A noteworthy analysis in this respect has been provided by Castells. (Castell, 2001) The proposed analysis highlights a networking logic as the distinctive characteristic of information societies. According to this analysis, ICTs facilitate the organisation of social interactions in the shape of (complex) networks, and such networks constitute the backbone of current social and economic processes. The networking logic leads to a set of social changes, e.g. decentralization within firms, remote-working and interactions, development of the virtual community, and globalization.

Social networks, as Castells describes them, can expand without limits by integrating new nodes and are much more flexible and plastic, as they are not organised in any institutional shape. Societies organised according to the networking logic are radically different from the previous ones and for this reason they experience a policy vacuum concerning the management of social, political and economic phenomena that are governed by the networking logic**.**

We can see the fast changes occurring in information and communication technologies from a historical point called a third revolution (after the revolution in agriculture and industry). Those technological developments has gone beyond so far technological developments. (Larrian,1995) People begin to talk about the internet, this conversation was different. Because the internet has a big effect as globalization. Area of the internet is an area for cultural, political and economic identity.

Capitalism and globalization have gained momentum owing to internet and computer technologies. Especially, internet being a new cultural space, free space and trade area that caused to change rapidly to global values, identities, habits and cultural forms.

Globalization correlates with the production method of industrial society and have changed to these methods. Economical base of globalization is based on post-Fordist or flexible production, also the cultural base of globalization is based on information and the globalization of information. This transition is related to restructuring of the economic, cultural and political fields owing to the development of communication Technologies. (Timisi,2003,110)

The approach of the information society is basically based on changes in economy, politic and culture. Medusa told us three significant social impacts of information society. These are:

1. The technology has undertaken manpower.
2. The technology has made the works that people couldn't do.
3. By this way, existing social and economic structures were transformed.

The principal axis of the information society, turned communication technologies to global.(Timisi,2003,110) These developments in the field of communication are described as new communication systems. (Timisi,2003,95)

Therefore, communication has passed over to only an activity and existing quality occurs to certain limits. New media layout have become to a global layout. (Morley,1995; Robins,1995,p.111)

Beside of the changes in the social sector, has experienced changes in the political field. Especially, the use of technology in this area has brought a different situation. The transition to an e - government system has been moved to different size communication between citizen and government. Also, a new sector occurred.

2. Main Subject

The inequality concept of international and national had been discussed in the field of communication and information technologies since 1970. "Information poor / information rich", "communication owners / poor communication" concepts have been used for this reason. However, information society's importance increased after 1991, because this event caused radical changes in the socioeconomic area. For this reason, digital divide or access gap is one of

the most important problems from the U.S. to Europe. Digital divide involves to the danger of creating a society of two-piece in the information societies. (Tubitak,2002)

Charlene Li and Josh Bernoff told something about new technological world in their book Groundswell: *First, people. People have always depended on each other and drawn strength from each other. And people have always rebelled against institutional power, in social movements like labor unions and political revolutions. But the rough balance between the scale economies of institutions and the rebellion of their constituents has shifted because of the advent and spread of social technologies. Technology, the second force driving the groundswell, has changed everything as far as people's social interactions are concerned. For one thing, nearly everyone's online—in 2006, that meant 73 percent of Americans19 and 64 percent of Europeans,20 for example. People's connections are fast and ubiquitous—more than half the Americans online have broadband connectivity, along with every office worker, and connections on mobile phones and TV set-top devices are common. Why does this matter? Because software that connects people can now assume that masses of people are there to connect. These ubiquitous connections have led to a fundamentally different kind of software. It's far more interactive because the software can depend on having a powerful machine with a fast connection at the other end. And it's people-aware—with people connecting all the time, applications like Facebook or MSN Messenger can connect people directly with each other.* (Li, C.; Bernoff, J. 2011)

Nowadays, the development of communication and information technology has gained quite up to speed. Previously, unbalanced development of communication and information technology (basis of national and international) have not attracted attention from people. Afterwards, people have understood that, this situation may create some problems.

Area of digital divide includes to different factors. These factors are following (BTK,2002)

1. Different commercial enterprises
2. Possibility of individuals access to information and communication technologies
3. Intended usage of the internet

The digital divide is a multidimensional problem. The first dimension of the digital divide is a matter of technique focused on ICT infrastructure, presence of hardware and software. In the second dimension of the digital divide is could not find qualities to manage of technical resources.

Generally, digital division is thought in this respect from people: between rich and powerful individuals and poor and weak individuals. Nevertheless, Keniston have thought to three-dimensional about the digital divide, we will see more details in advancing chapters. These dimensions are: (Keniston,2005)

The first dimension is distinction on all countries industrialized or developing.(educated and strong ones with low educated and the weak countries) There are significant differences in the United States from aspects; computer ownership and Internet access, between high income and educated people and the uneducated and low incomed people.

The second dimension is in the areas of language and culture, less conspicuous. Many countries have divided between those who can speak English and who cannot speak (or other western European languages). People of different cultures, immigrants or people who do not speak the language of the country they live in. They can not be successful in education and in the workplace. They can not integrate with the society based on langauge bariers.

The third dimension is the expanding gap between rich and poor countries. This dimension is inevitably experienced based on from the first two dimensions in 1999. The United Nations of Human Development Report shows us the difference between rich countries from the north and poor countries from the south. The extreme examples are: USA, Switzerland, Germany, Finland, Iceland, Northern European countries as an exampe. Cellphone ownership of households is over 90% in these countries. At the opposite, most of the households in Africa, most of South America, South Asia, China, Indonesia in the other extreme. Shortly, they are 80% of the world.

These countries' having advantage of using telephone services rates are below 3%. Rate of computer ownership in a home is 1-2%. Rate of internet accessibility in a home is half of this rate. Difference of digital divide of between countries has increased but this is not a surprise. If, comprehensive access to information and communication technologies gain advantage from some countries, countries without a powerful access would have a disadvantage.

3. Research Questions

The topic of the thesis contains to various problems and it's aim is trying to define the problems. This thesis has been prepared based on the relevant answers to the questions listed below. For this reason, the questions, the scope of the problems and it's reasons will be visible when the thesis is read.

- What is the Information Society and The Global World?
- What is the Digital Divide?
- May the digital divide creates to the problem?
- What are the dimensions of the Digital Divide?
- How could measure to the Digital Divide?
- What is the situation of the digital divide for now? And what may be situation of the digital divide for the future?
- What is the situation of digital divide in Turkey?
- How can avoid to the digital divide?
- Are there international programs for avoid to the digital divide in worldwide?

4. Principal Object

The principal object of the thesis is explained with every aspect of the digital divide and evaluate to the effect of the digital divide in the social area. The basic sentence of the principal object:

What is the influence of the digital divide in the society?

Hypothesis:

The digital divide have an impact a different social class in the world.

5. The Importance of The Subject

The digital divide has caused quite different problems for the society. The problem may effect every segments in the society: economic, education, communication, social mobility such as basic fields. As explained in the thesis, the digital divide has been perceived the problem by various international organizations and scholars.One example of the international programs

shows us the subject's importance degree. The importance of the problem will be examine illustarted in the advancing parts of the thesis.

The OECD member countries are trying to resolve the numerical inequality with a variety of ways, according to a research conducted by the OECD. These policies are the following: (OECD, 2001: 5)

1. General policies.
2. Delivery of the technology to individuals and household.
3. Dissemination of technology in workplaces.
4. Start development and implementation of government projects.
5. Start initiatives of education and training.
6. Create to international cooperation.

General policy contains some funds. This funds are to provide services for some segments. Programs of technology dissemination for individuals and families are; lower cost of computers, internet and telecommunications. For example, providing internet Access to schools, libraries, public institution. In addition, studies may be performed to increase the awareness. Internet and telecommunication services are provided for the workplace that affordable. The state may provide to own services on the internet. Education and training policies should aim increasing of computer and internet literacy.

6. Keywords

The key words are constantly mentioned in the studies and it gives the main theme of the issue phrases. All academic studies have the key words and it gives a clue about the study at first glance. This paper has some keywords. These are following with: digital divide, digital break, digital gap, internet, information technologies, inequality, social classes, information poor, information rich, communication owners, poor communication.

7. Limit of The Work

This study took up seriously to theoretical study model as stated below. This study have made to examine an often encounter issue in our daily life. This issue was examined in the problem dimension.

This study has certain limitations as in all academic study. The study has to determine some limitations for better understanding of the subject and the problem, access to relevant data on the subject. For this reason, this study have limited to certain areas by the author.

The focus of the thesis is about Turkey. Also, it has examples and definitions from around the world. There are some comparisons between Turkey and other countries. The research's universe is world countries, but the main sample is Turkey. This study is limited to Turkey but also there are some examples of the World, about the digital divide.

8. Method of The Work

Located within basic research category the theoretical - academic research model to be used in the thesis as research methods. The author asserts, that is the problem which is coming from the result of own observations and experiences as hypothesis in this research model. Research begins this way. The author chooses to way of description and define. After that, the author finds some data that supporting the hypothesis as a result of an extensive review of the literature and use to them.

Any group- variant is not taken in center. The author tries to define the problem inside the limitations of the study with literature research. Any survey and interview methods does not apply. Only the author's observations and experiences, existing sources in the literature can be taken into consider in this method.

This research method have a relation of sample universe of determined in the research's limitations. The existing problem have examined to the effects and consequences on worldwide and also the effects and consequences on Turkey by author.

As a result, theoretical method has been adopted in this thesis and the purpose is created for an academic study. Theoretical method can be used in this study.

A. CHAPTER 2

1. The Social Impact Of The Internet

1. 1. The Information Society

The socio-economic structure has been brought out variously by the industrial revolution and that situation based on the mechanical paradigm. The information technologies (IT) has initiated to today's information age, thus the information civilization has emerged as new social structure. This social models and structures have been realized during the transition of the information community, and these models/ structures have occurred based on communication and computing paradigms. When we observed many processes of the post industrial society, obviously its own practices have restructured during the today's radical transformation. To give example of the processes; organization, functioning, social relations, production, market, marketing, political processes and consumption relations. The drastic change has been caused due to remodeling of social organization and social structure and that change is based on technological growth. We can see the transformations on the works of Karl Marx and Frederick Engels. They had defended to the superstructure more autonomous than the base (substructure). The superstructure have it is own development laws in the first times. At the same time they said; there is an interaction between the superstructure and the infrastructure. Relation between to the base and the superstructure is as follows; These relations determine to other relationships and ideas in society, which are described as its superstructure. The superstructure of society includes its own culture, institutions, political power structures, roles, rituals, and state. The base determines (conditions) the superstructure, yet their relation is not strictly causal, because the superstructure often influences the base; the influence of the base, however, predominates.(Marx,1903)

The information age is a period of diversity and speed at the forefront. Rapid development of the technology has facilitated increase of access to information as cumulatively and in this case opens new channels for access to information. These conditions occur in the society and it has effected to social institution and social life directly.

Field of the information and communication has radically changed to our habits in daily life of the information age and that field covers a large area. Changed habits by the information society

are education, employment, public order in the social life, socialization, information, communication.

There are three different fields on the basis fundamental changes of the communications area. These three different fields have which separated from each other developed and united. These areas are following:

1. Computer systems

2. Telecommunications infrastructure

3. Communication devices.

Thus, when we look to completely to each other features of the new technologies, we can see to the concept of the communication is not simply re-defined. We can say to the occurred changes have pushed the whole society into a transformation. Especially, according to social scientists of the developed countries; the world has exceeded a threshold. Namely, the world is going to an information society from industrial society.

The information and communication technologies are a symbol of the 21st century and these are known as the main indicator of national development. If countries reach to information, then transfer this information to the community, they must prepare the necessary resources for produce new information. Sustainable development will take place by countries which advancing towards becoming an information society based on the human.

Let's see what is the information and communication technologies in the information age.

- Satellite broadcasting networks
- Television,
- Video
- Digital radio,
- Internet
- Wireless communication devices (mobile phone, video, digital video discs, CD-ROMs and digital / voice mail, etc.) are included.

All of these technologies provide the fast flow of information on the global scene, when connected to the digital information network.

Countries want to reformat its own social and economic structure within the framework of this technology and applications for keeping up with the times. Because the aim of the information society is capture of time. One of the main objectives is establishment of communication infrastructure on the national scale. Namely, all segments of society can reach to fair and broad access, information resources and services and also, networks should be created. The internet generates to the basis of the mentioned infrastructure today.

The wealth of the country is primarily measured by the wealth of knowledge and well-trained human resources in the information age. Improvements in information and communication technologies of the last quarter century lead to radical changes in economic and social life of countries. This transition leads to gradually increase the share of the national production of information and communication technology. This factor is also a significant indicator. The information age and what came with it; innovations and developments have given rise to new problems. One of these problems are people, countries, regions other than those in the digitization process.

The main features of the information technologies are access, share and transfer of information anywhere at anytime easily. We came to the main point of the study here. When difficulties occur to access to information, it is becoming a problem. Namely, the transformation does not occur to a expected result on overtime. The individuals are able to distance work, and they can access to the information, they can do trade; but on the other hand, we expose ourselves with the reality of access to the information freely for everyone who wants. This condition refers as the digital divide by authors. (Seferoğlu,Avcı,Kalaycı; 2008)

Definition of the digital divide; inequality of access to the information technologies by socio-economically diverse individuals in different geographical areas. (Oruç, Aslan; 2002) The digital divide may occur to between different social groups in similar society and between different countries in the international area.

One of the most influential factors of the 21th century is the information and telecommunications technologies. These technologies had influenced to people's lifestyle, learning and working. Also, the developments have influenced to interaction between civil society and state. This effect may be observed in both positive and negative forms. One of the biggest negative impacts is the digital divide.

Improvement of the information technologies have been affected to our daily life. Prof. Manuel Castells has been explained to these effects from a different perspective in his book ‘’The

Internet Galaxy''. Also the author has described to culture which occurring by the internet. He has examined to internet usage in two different areas. (Castell, 2001)

1. The producer/users: those whose practice of the Internet feeds directly back into the technological system.
2. Consumer/users: are recipients of applications and systems who do not interact directly with the development of the Internet, although their uses certainly have an aggregate effect on the evolution of the system.

The internet culture have 4 different structures according to Prof. Manuel Castell. (Castell, 2001) If we are mention briefly;

1. The techno-meritocratic culture: This is a culture of belief in the inherent good of scientific and technological development as a key component in the progress of humankind. They laid the foundation of the Internet. The key goal of this culture is to pursue discovery, its value is judged by their peers in the community. Individuals of this community legitimize their membership by demonstrating the relevance of their contributions to science and technology.

2. The hacker culture: They play a pivotal role in the construction of the Internet for two reasons: it is arguably the nurturing milieu of breakthrough technological innovations through cooperation and free communication and it bridges the knowledge originated in the techno-meritocratic culture with the entrepreneurial spin-offs that diffuse the Internet in society at large. Castells also argues that the hackers are not the typical anti-social saboteurs portrayed by the mass media. These are champions of freedom and open software, and their early role in the development of the Internet was to ensure that the Internet continue to embody the spirit of freedom. These hackers are also motivated by creativity and innovation, which is allowed to flourish in the open environment and their independence from institutions.

3. The virtual communication culture: Represent the users who use the Internet for community-building and social interaction. Castells suggests that the counterculture movement of the 1960s helped foster this community, which gradually expanded in the 1980s and 1990s with the expansion of the Internet. Individuals in this culture use the Internet for a variety of reasons, such as seeking entertainment, relationships, hobbies, and engaging in political discussions.

4. The entrepreneurial culture: They helped transform business practices. These individuals try to attract venture capitalists to invest in their innovation or idea, and then try to disseminate it across the world. The entrepreneurs successfully raised massive amounts of capital to bring the Internet to the masses. In the process, they brought commercialization to the Internet, but without (entirely) changing its character. Through the entrepeneurial process, they changed business practices by drawing on existing hacker and communitarian practices. Unlike their predecessors (the academics, hackers, and counter-culturists), the entrepreneurs are money-driven to the extreme, many leading solitary lives, motivated by a strict work ethic.

The impact of the internet in our daily life has attracted attention by other authors. Mark Bauerlein has mentioned that about the impact of growing information technologies in our daily life in his book The Digital Divide: (Bauerlein, 2011)

And it has happened so quickly. Cell phones, e-mail, the Web, Youtube and the rest have speeded up communications, shoping, photographing, studying and they have also quickened the conversion of each new and desirable invention into a regular part of life. At a clip that would stun a pre-1980 person, novelties promptly become customs. One or another of them many mark a fabulous breakthrough, but they don't stand out for long as striking advances in the march of technology. Soon enough, they settle into one more utility, one more tool or practice in the mundane course of job and leisure.how many decades passed between the invention of the telephone and its Daily use by 90 percent of popülation. Today, the path from privite creation to pandemic consumption is measured in months.

We can consider to the information technologies as the sum of the processes; generation, dissemination and demonstration of information in the electronic environment. The digital divide is defined as that; different socio-economic status of individuals, companies or countries have inequality in the usage of information technology. (OECD, 2001: 5)

Changed models of production and consumption by the information technologies is a consequence like the result of the industrial revolution. These developments are called the ''Digital Revolution'' by many authors. However, the digital revolution has got losers and winners of community as every socio-economic change. Previously, problems of the information technologies in the social and economic area have been discussed on an international dimension, these problems took place on United Nations, World Bank, OECD as agenda items.

1. 2. Globalized World And The Digital Divide

We are witnessing to a change as dramatically of almost in every area, in this age and we have to live in this complex environment. Nowadays, more and more people connecting between each other than compared to the past and millions of people can connect to global networks unwittingly.

The globalization includes two different processes according to many researchers; its origins have emerged in the 1960s and it brought consequences of economic processes about the political area. The globalization movement has emerged and gained speed in the last 30 years. It is evident that; the information technologies have an important role in the speed globalization process. Especially, the crisis of mass production and mass consumption in the 70s year has caused transformation of production structure also development of the information technologies. Thus, the white collar workers have become important, the blue collar workers have lost value.

Come forefront of the information sectors has caused by reduce demand of the industrial society's blue-collar workers and the companies have decreased except for certain sectors. Thus, this process has caused the increase demand for white-collar workers and millions of blue-collar workers. They have remained outside the employment process. The processes in which we live have increased the unemployment problem for both of developed countries and developing countries. Skilled, educated and knowledge workers were a profitable group in that transformation.

The most obvious benefits of globalization are sustainable economic development, rising living standards, technological development, rapid dissemination of information. On the other hand, there is a mistake considered of globalization as just the effects of economic field. Some of the major driving forces of globalization are free movement of capital, products and human, rapid development of information and communication technologies, increasingly widespread use of the internet. Also, the transparency is put forward of concept by the globalization. Some of the developmental factors of directly proportional to the globalization. It has ensured development to equality of income distribution, increasing political freedom, respect for human rights.

Generally, the countries on the path of globalization are developed countries. These factors focus point of opponents of globalization. Namely, principal of the anti-globalization criticism is this system of relation with the community; the rich became more rich, the poor became more poor. Other criticisms about globalization are caused to marginalization and inequality, unequal disperses to opportunities between countries and regions.

The result of the globalization is the digital divide have turned to "digital gap" according to some authors. Especially, the developed countries are investing huge rate to the information technologies and these technologies are using in every area. The countries have influenced to economic relations. Some of the developments have gained to new dynamism to developed economies; low cost production of advanced computer, spread of computer networks between firms, the personal computers able to connect internet with developed software (TCP/IP/WWW such as). The dynamism has called as "new economy" by authors. (Oztürk, 2002)

People who living in the developed countries can take advantage from the technological benefits easily; but people in other countries can not take advantage to opportunities and benefits of technology easily. The difficulty of reaching to technology has caused to further enhance to existing inequality in the world. Increasing of the ditto inequalities has caused to the emergence of some concepts as information poverty. Causes of information poor countries are high cost of internet, low speed, lack of knowledge and foreign languages. Because of these countries does not use for active the internet in education, work and trade. (UNDP, 1999)

The digital divide has defined as the biggest problem of our age in G8 convention in 2000. (United States, Japan, Germany, France, Britain, Italy) The digital divide has been under the scope of G8 like AIDS, diamond smuggling and genetically modified foods. (Ayan, 2000)

As mentioned above, The 1999 United Nations Human Development Report has attracted attention to the gap between northerners rich countries and southerners poor countries. Examples of extreme; USA, Switzerland, Germany, Finland, Iceland such as the Nordic countries. Telephone owner of households is more than 90% in these countries. Average of the computer owner and internet access at home are at 50%. The other endpoint is the majority of Africa, most of South America, South Asia, China, Indonesia; there are 80% of the world in short.

The rate for these countries to take advantage of the phone service is under 3%. The rate of the computer owner in a home is 1-2%, the rate of internet connection at home is about half of that rate. (Aytun, 2006)

There are some tables about the development and the usage internet in order to provide examples, follow:

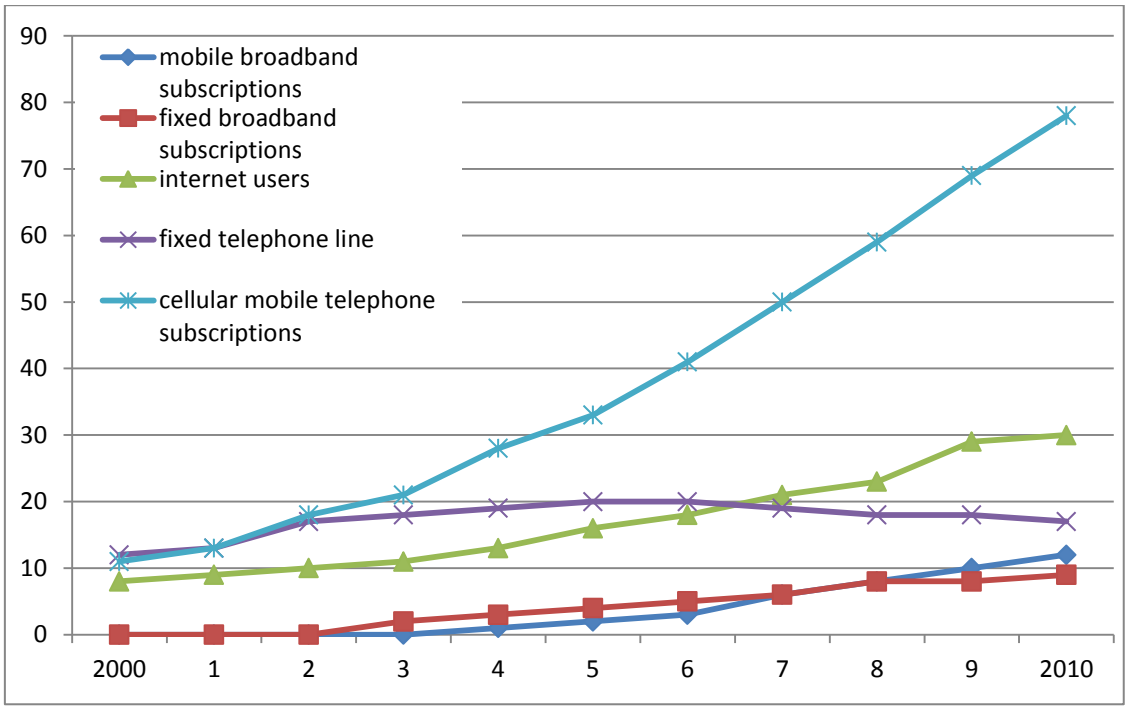


Table 1, The Access to The IT, Global Scala (100 per person) / 2000-2010 Source: ITU, 2010

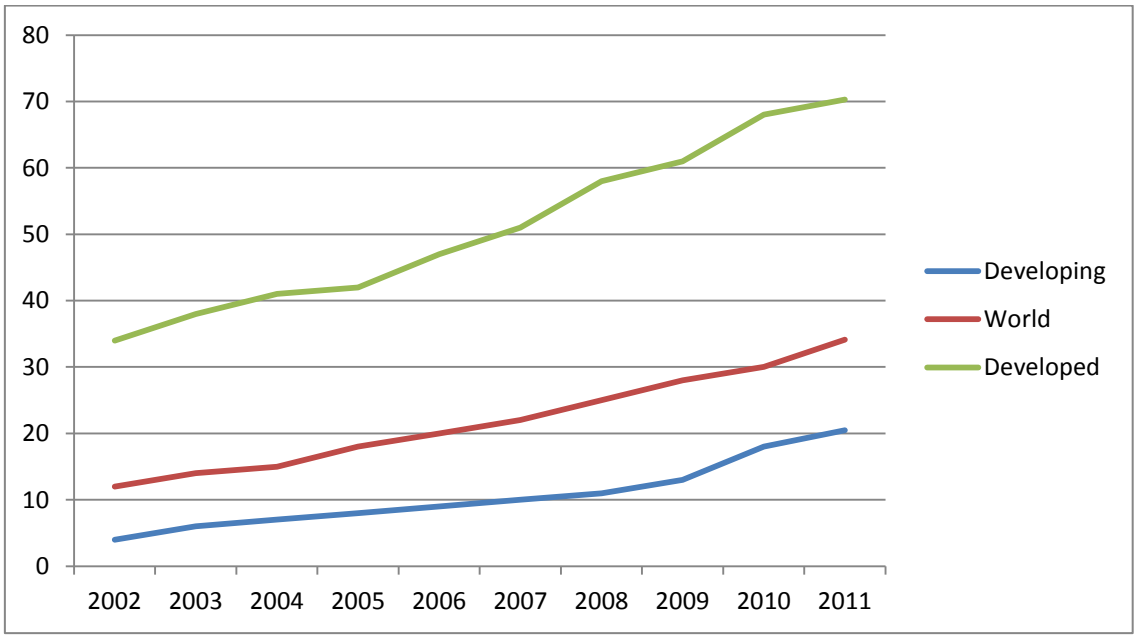


Table 2, The Internet Access According to the Country's Development Level (%) 2002-2011 Source: ITU, 2011

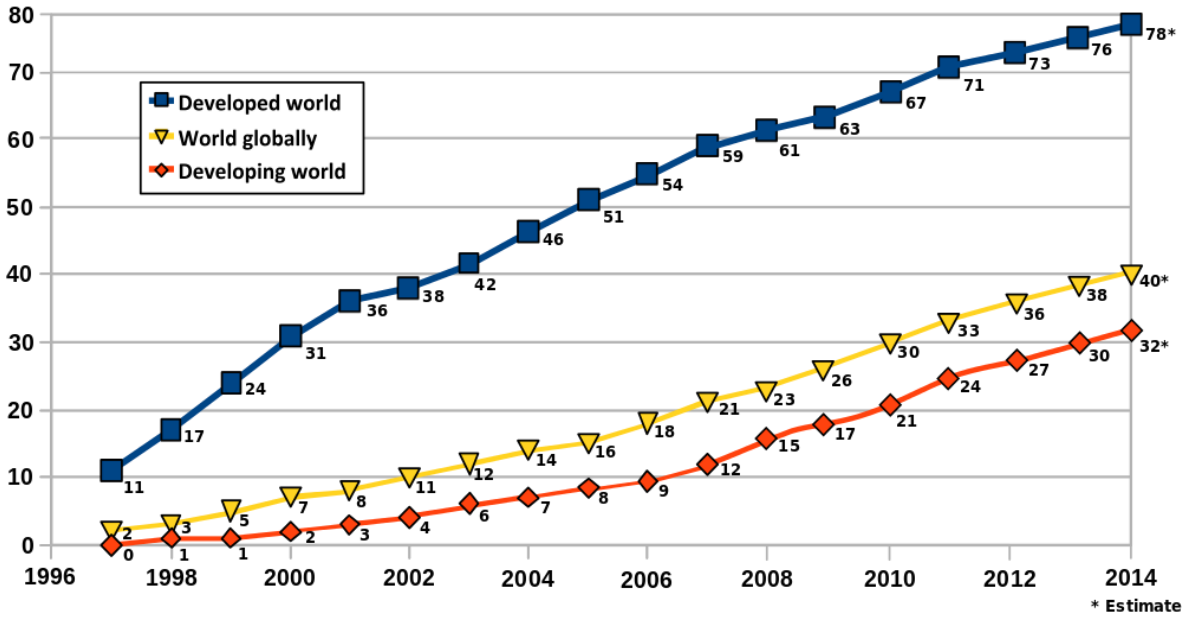


Table 3, Internet users per 100 inhabitants Source: International Telecommunications Union 2015

The developing countries can leap to the intermediate circuit via using of the information technologies according to social scientists. Thus, the countries must reduce to the cost of economic development. This situation related to the progressive nature of the information technologies. Thus the developing countries can catch to the developed countries in the area of the information technology. However, that opinion is very optimistic a opinion according to Wolff and MacKinnon (2002). People in the developing countries have to live with a day 2 dollars a by. The current situation seems obvious when considered for an annual salary of workers in countries like Bangladesh. Likewise, if even there are exist all the necessary hardware in the society, the economic inefficiency may arise.For example; there are workers of monthly salary 200 dollars in Cameroon and they can not to access easily to the internet. Likewise, people can not take freely to the education of the information technology in similar countries. These situations have created for different discussion topics. We have told to controversial contribution of the information technologies for the developing countries. In this case, must be considered situation of third world countries. For example; child mortality be based on poor health. How much can does these countries invest to the information technologies? (Wolff, MacKinnon, 2002)

Because of this, some authors have said to unnecessarily exaggerated to the digital divide. The developing countries have more huge problems; epidemics, environmental issues, political stability such as. (Menou, 2001)

The developing, the developed and the third world countries have common problems about distribution, establishment and usage of the information technology. (Sahay, 2002) Because, the technologies does not provide for effective integration between private, public and international sectors. When determined to the international policies, there are discussion about the technologies for the countries at present (good or bad, necessary and unnecessary). Common usage of local social technologies is observing, monitoring by international organizations in mobility of global capitalism. Thus, the international organizations keep under control to the process of adaptation to new technologies in the country. The other problem is not satisfactory improvement of the technologies as industrial. The common opinion is the unequality. Because; the purchasing power of the new technology services does not disperse homogeneously in all segments of the society; faster and equipped software systems does not be affordable for all segments of society in the world.

The usage level of the information technology is proportional to the economic level of the countries. For example; there is a strong correlation between per capita income of countries and the level usage of the information technology.(Rodriguez, Wilson, 2000)

In this context, the flexibility of income in usage of the information technology has been estimated to bigger than 1.0 in generally.(without land phone)(Quibria, 2003) In other words, users and owners of the information technologies are class of luxury goods for many countries. Despite the increasing use of the information technologies also increases to the global digital divide in worldwide. (ITU, 2002)

When these ratios are taken into consideration, the table 4 will be seen more clearly:

- Approximately 90% of Internet users in the developed countries,
- 85% of internet hosts in the developed countries, (Conhaim, 2001)
- Approximately 95% of the secure servers in US and OECD countries. (OECD, 2001)
- More than half of households have own computers in the USA; this ratio is 1% in the African Continent,
- About 77 million computers is dependent on the internet in the USA; this number is only 10 in Chad, Bangladesh, Angola and Syria. (Wolff, MacKinnon, 2002)

- Half the world's population have not to make any phone calls yet.
- 40% of the world population does not have electric. (Shea, 2002)

The Countries by Income Groups	Population (million)	Share %	GSMH (billion dollars 2000)	Share %	The Number of Fixed Telephone Subscribers	Share %	The Number of GSM Subscribers (thousand)	Share %	The Personal Computer (thousand)	Share %	Internet Users (thousand)	Share %	Internet Host (thousand)	Share %
The Low-income Countries (59)	2,440	40	996	3,2	93,792	4,7	23,092	2,5	13,700	3	15,151	3	238,046	0,2
Bangladesh	131	2,2	36	0,1	514	0	520	0,1	250	0,1	150	0	3	0
India	1,027	17	454	1,5	34,732	1,7	5,725	0,6	6,000	1,3	7,000	1,4	82,979	0,1
Indonesia	215	3,5	153	0,5	7,949	0,4	5,303	0,6	2,300	0,5	4,000	0,8	45,660	0
Nigeria	116	1,9	39	0,1	500	0	330	0	800	0,2	200	0	723	0
Pakistan	145	2,4	60	0,2	3,400	0,2	800	0,1	600	0,1	500	0,1	11,319	0
The Other Countries	806	13	254	1	46.697	2	10.414	1	3.750	1	3.301	1	97.362	0
The Middle Income Countries (86)	2.730	45	5.625	18	799.935	40	369.627	39	102.932	23	120.167	24	6.071.686	4,3
lower-middle (52)	*2,072*	*34*	*2,470*	*7,9*	*483,567*	*24*	*202,416*	*22*	*49,528*	*11*	*54,900*	*11*	*893,721*	*0,6*
China	1,296	21	1,080	3,5	179,034	9	144,812	15	25,000	5,5	33,700	6,8	89,357	0,1
Iran	64	1,1	330	1,1	10,005	0,5	1,484	0,2	4,500	1	402	0,1	2,466	0
Romania	22	0,4	36	0,1	4,094	0,2	3,860	0,4	800	0,2	1,000	0,2	46,283	0
Russia	146	2,4	251	0,8	35,700	1,8	5,560	0,6	7,300	1,6	4,300	0,9	354,359	0,3
The Other Countries	544	9	773	2	254.734	13	46.700	5	11.928	3	15.498	3	401.256	0
Upper-Intermediate (34)	*658*	*11*	*3,155*	*10*	*316,368*	*16*	*167,211*	*18*	*53,404*	*12*	*65,267*	*13*	*5,177,965*	*3,7*
Argentina	38	0,6	285	0,9	8,108	0,4	6,974	0,7	2,000	0,4	3,000	0,6	465,359	0,3
Brazil	172	2,8	595	1,9	37,430	1,9	28,745	3,1	10,800	2,4	8,000	1,6	1,644,175	1,2
South Africa	43	0,7	125	0,4	4,469	0,2	9,197	1	3,000	0,7	3,068	0,6	238,462	0,2
Mexico	100	1,6	574	1,8	13,533	0,7	20,136	2,1	6,900	1,5	3,500	0,7	918,288	0,6
Malaysia	24	0,4	89	0,3	4,738	0,2	7,128	0,8	3,000	0,7	5,700	1,1	74,007	0,1
Turkey	*66*	*1,1*	*203*	*0,7*	*18,900*	*1*	*20,000*	*2,1*	*2,700*	*0,6*	*2,500*	*0,5*	*106,506*	*0,1*
The Other Countries	215	3,5	1284	4,1	229190	12	75031	8	25004	5,5	39499	7,9	1731168	1,2
The High-Income Countries (48)	910	15	24,508	79	1,091,308	55	548,128	58	338,734	74	363,347	73	135,072,266	96
USA	286	4,7	9,963	32	190,000	9,6	127,000	13	178,000	39	142,823	29	106,193,339	75
Germany	82	1,3	1,866	6	52,280	2,6	56,245	6	27,640	6,1	30,000	6	2,426,202	1,7
France	59	1	1,280	4,1	34,032	1,7	35,922	3,8	20,000	4,4	15,653	3,1	788,792	0,6
UK	60	1	1,416	4,5	34,710	1,7	47,026	5	22,000	4,8	24,000	4,8	2,230,976	1,6
Japan	127	2,1	4,349	14	76,000	3,8	72,796	7,7	44,000	9,7	57,900	12	7,118,333	5
Canada	31	0,5	708	2,3	20,319	1	9,934	1,1	12,000	2,6	13,500	2,7	2,890,873	2
The Other Countries	265	4,4	4926	16	683967	34	199205	21	35094	7,7	79471	16	13423751	9,5
World Total	6,080	100	31,138	100	1,985,027	100	940,849	100	455,366	100	498,666	100	141,382,198	100

Table 4, The distribution of ICT in the world, Source; ITU, 2002

As seen from the figures above ; there is an income gap in table 1,2,3 and 4. The developed countries constitute have 85% of the world income, although 15% of the world population.

The Land Phone:

- 55% of fixed phone subscribers in high-income countries
- Middle-income countries have about 40% of subscribers
- The ratio is 5% in low-income countries

The infrastructure of the information technologies is fixed phone; therefore, the inequality reflects to the internet access and other areas. The situation is similar in terms of mobile and GSM subscribers. Lower-income countries have gaps, although this is not a large gap in upper and middle-income countries.

The Personal Computer:

- USA has 39% of personal computers in the world
- Japan has 9,7% of the personal computer in the World

These two countries have almost 50% of the personal computer and this situation is not a coincidence. The concepts of information society, digital and economic are used for these countries in the literatüre. Also, among developed countries have the digital divide in terms of personal computer, but this rate is very low.

Internet Users and Internet Hosts: There is a similar disparity in the internet use.

- The US has 29% of Internet users
- Japan has 12%
- High-income countries generates 73% of internet users
- Gap is even greater for the host; US provide 75% of such internet service.

We can say that in this case; US establish, operate and manage to the internet. Low- and middle-income countries have 4.5% of internet hosts.

2. Definitions And Dimensions Of The Digital Divide

The internet is a computer network project and this project has developed for the aim of education, research and defense by USA in 1050. The internet has merged to all activities in thoose surrounding area such as research, education, social networking, entertainment, trade, policy after 1960. At the same time, it has allowed the exchange of information in all fields than the transition has realized to the information age. Computers and other technological developments have accelerated to increase ways of access to information. However, access to information and processing of information have gained speed. The hardware cost of the technological development has reduced with time and transmission and storage of digital information have became easier. The information age has become a reality for millions of people in countries through to network of satellites circle the earth and ubiquitous fiber optic cables.

The rapid development of the information age and telecommunication technologies have been created to the provide communications revolution on worldwide; personal computers have increased rapidly around the world, commercial satellites have launched, the mobile technologies have improved, computers and the internet have become connected to each other. (Alkan,

Canbay, 2004) Information and telecommunication technologies are one of the most powerful forces have shaped the 20th century.

Nowadays, information and communication technology (ICT) continues to continuous improvement. With these developments, it has become easier access to information and the costs are decreased.

Reducement in the cost of information technologies has caused to easy access to information, increasing use of computers and sharing too much information on the internet. This intensive usage of technology has affected to societies and the situation have changed to lifestyles and communication of individuals. These technological developments have brought together the main subject of the thesis problem. The one of the most important problems in the information age is each member of the society have lack of access to information technology. They do not have same rate. Because, the information and speed of ICT are basis of the information age. People who live in the developed countries are utilized to technologies more easily than people who live in the underdeveloped countries. (Kılıç, 2011) These differences not only between individuals, there are the differences between groups, regions, countries and continents. Many countries have made to works for reducing to these differences. Before performing such studies, it is necessary to know the difference in using ICT of individuals. The digital divide comes into the picture at that point. The digital divide can be analyzed in two ways: national and international. The global digital divide is analyzed to differences between countries and continents. The national digital divide is analyzed to differences between regions and groups.

The information age has changed to civil life, relation between government and individuals, education, economy and many fields. The revolution has caused to radically transformations and it has consequences in economic area, social area, cultural area and political area. These situations have caused to unequal access to the information technologies and services, thus it was called as the digital divide. (Alkan, Canbay, 2004)

One of the most effective powers in the 20th century is the information technologies and it has discussions about inequality since 1970 by international institutions. For this reason using to information poor / information rich, communication owners / lack of communication such as concept. After advanced definitions of the information society have increased to the importance of the issue in 1991. Because the new definition includes to radical changes in the socio-economic activities.

The digital divide is one of the most important problems in the way of the information society from USA to Europe. The access gap had engendered the danger of creating two-part community in the community identified as the information society. (TUBİTAK, 2002)

Previously, the digital divide is defined as these; having a computer and internet access / not having a computer and internet access, be knowledgeable in these matters/ not be knowledgeable in these matters, use these facilities / not use these facilities. The concept of digital divide has gained to new meanings and dimensions by and by. Many authors was redefined to the concept according to itself.

Rice and Katz have described to the digital divide as; "the difference between access to the information technologies and who can not get" (Rice, Katz, 2003) The most commonly used definition is done by the Organization for Economic Cooperation and Development: the digital divide is inequality of access and usage to information technologies experienced by individuals from different socioeconomic levels, households, firms and countries. (OECD, 2001)

The concept of the digital gap / digital divide covers to access and use of possibility to information technologies in people who live in different geographical locations. The digital divide has begun to use for describe to inequality of access to the information technologies in 1980 from USA. On the other hand, there are different concepts for that issue: Digital Divide, Digital Gap, Digital Watershed, Digital Break. (Ozcivelek, 2000)

In the beginning, the digital divide has used for inequality of between individuals subsequently, some subtitle have been added according to; global gap, social gap, democratic gap. (Norris, 2001) The global gap terminology is used for inequality of between the developed countries and the developing countries. The social gap terminology uses for difference of between the information poor and information rich in the same country. The democratic gap uses for effect of participation in the political life in terms of the information technology usage.

As mentioned before, the economic acceleration of the information technology has called to as new economy according to research in the USA and Japan. The contribution of the information technology in the national economy is directly proportional to the prevalence of these technologies on national level according to researchers. The contribution of the information technology in the national economy can be increased to dissemination of this technology. (Take place in the daily life of economy and society) These opinion required to evenly spread of the information technology in countrywide.

There are different rate of usage and access of the information technology as in many fields. Many countries have ongoing investigations about avoid to the digital divide. The investigations contain some questions; the reasons of the emergence of the digital divide, the problems that caused by the digital divide, how to measure the digital divide, what is the measurement parameter, short and long-term proposals for the solution of the problem such as. (Oztürk, Başar, 2002) Briefly, the problem has contained to intense political debate and scientific studies.

As can be understood, the digital divide has so many definitions and dimensions by the authors, researchers. Even some authors have said similar information, we evaluate all of them.

The scope of digital divide is very complex and it reflects to difference of between countries or groups. Reason of the divide has different characters: the divide is expression to inequality of the socio-economic in the first level. The digital divide is not digital but it is a socio-economic divide deepened by the technologies in the first level. There is not a single division, although the general concept of the digital divide. Reasons of these, there are difference of the technology and socio-economic areas.(Puga, 2010)

As mentioned before, the multidimensional digital divide has three different areas:

- One of the areas is the global divide; it is about deviations between industrialized and developing countries.
- The other area is social divide; it is about difference of between information rich and information poor.
- The last area is democratic divide; it is about difference of using to online source for participation to public space. (Norris, 2001)

According to another opinion, the digital divide can occur in countries, in the region and in the family. Also, according to this opinion the digital divide can analysis on three different scopes. (Dewan, Riggins, 2005)

1. The Individual Level: difference between of who can use information technology in their daily lives and who can not use.
2. The Institutional Level: some institution can use to the information technologies, but some institutions can not. This status occurred to inequality and disadvantage.
3. The Global Level: some countries able to using the technologies in every area by doing to invest the information technology. Other countries can not have the possibility because

these countries can not do invest to the technologies and they lagged behind to the technology.

The global digital divide is a result of socio-economic imbalances between the developed countries and the developing countries. If countries have high level usage of information technology, also the countries have higher level of education and income. This status is exact opposite for countries of the low-income and low educated. (Cuervo, Menendez, 2006) Everyone can not reach to the information technologies same extent because of every country have different obstacles of geographical, cultural, social and economic.

The digital divide has occurred intensity in some regions and also these regions have high economic gap. The chaining poverty continues in these regions. Because people who live in these regions, they can not easily use and access of the information technologies. The existing inequality grows gradually, besides the economic factor, rate of education, sex and age are certain factors for the digital divide. (Seferoğlu, 2008)

However, knowledge and skill of the information technology have an effect on the digital divide. Because, be owner of the technology is not enough alone. Besides having technology, person has to be owner some features for the use of technology. As can be seen, other of the most important factor is ability to use technology.

The existing researches are indicate different data. The young people are advantageous than older people. Likewise, there is same correlation between other variables: educated - uneducated, men-women, people who live in urban and people who live in rural. Educated people are advantageous than uneducated people, people who live in urban have more fortunate than people who live in rural for this issue, men have advantageous than women.

The education is an important point in causes of the digital divide and it can ensure prevention to the digital divide. In the beginning, the competitive environment and accessibility have to ensure for support of the technology by the state. Then, the countries must give to training about technology usage. They are ensure to access the technology, that can seem the most important problem in the short-term. The situation should be change in the long term. The most important problems is diversity in the rate of the information literacy and difference in usage of the technology between people. (Saatçioğlu, 2006)

There are different assessments in the doctrine as terms of methodology and classifications. For example; Keniston's "The Four Digital Divide" book. Keniston has expressed to following: if the

digital divide examined as analytical, it can find to four dimensions in difference between of the rich-powerful individuals and poor-powerless individuals.(Keniston, 2005)

Keniston's has mentioned about The Four Digital Divide like that: (Keniston, 2005)

The "digital divide" is widely regarded as a unitary phenomenon. And as a first approximation, it is indeed useful to distinguish, in a general way, between the rich and powerful who are part of the Information Age and the poor and powerless who are not. But viewed analytically, there is not one, there are three digital divides -- and emerging in many nations a fourth.

- The First Dimension:

The first divide is that which exists within every nation, industrialized or developing, between those who are rich, educated, and powerful, and those who are not. For example, income and education in the United States distinguish dramatically between those who own computers and those who do not, as between those who can access the Internet and those who cannot. In the United States, where household telephone penetration is about 95%, in 1999 households with incomes over $75,000 (roughly, the top 10%) were twenty times more likely to have Internet access than those in the lowest income brackets: 80% of the rich and 5% of the poor had access to the Internet. If we analyze home ownership of computers, rich households were nine times more likely to own one. If we compare Americans with four years or more of university with those who have six years or less education, computer ownership figures are 69% versus 8% and the Internet access percentages are 49% versus 3%. Similar results were found in a survey in Australia.

- The Second Dimension:

A second digital divide, less often noted, is linguistic and cultural. In many nations this divide separates those who speak English or another West European language from those who do not. But even in the United States, where well over 95% of all inhabitants speak fluent English, there are large differences in access to ICTs among different ethnic and cultural groups. For example, in 1998, Asian American households (largely of South Asian or South Pacific Asian extraction) had 55% computer ownership, white Americans had 52%, while Americans of Hispanic origin had 25% and blacks 23% respectively. An even larger gap separated Asian Americans and whites from blacks and Hispanics with regard to Internet access.

This area is about language and culture. Many countries have difference rate of knowledge of the foreign language. Everyone have not the knowledge of the widespread foreign

language.Different culture's people, migrants and people who do not live in that country's language does not succeed in education and work life.

- The Third Dimension:

The third digital divide follows inevitably from the first two -- it is the growing digital gap between the rich and the poor nations. The 1999 United Nations Report on Human Development devotes much of a chapter to the widening gap between the information-rich nations of the North and the information-poor nations of the South.

Examples ends of the extreme: United States and Switzerland, Germany, Finland, Iceland such as the northern European countries. Other endpoint is Africa, most of South America, South Asia, China, Indonesia, in short 80% of the world.

- The Fourth Dimension:

This dimension is related the emergence of a new elite groups. The elite groups already have some social privileges and this situation related to economical situation. The critical question about the fourth digital divide, however, is whether the prosperity of this new digital elite spreads to the rest of society, especially to urban poor and to rural villagers, or whether it creates an increasingly separate, cosmopolitan, knowledge-based enclave.

The point is that "the digital divide" is really at least four divides, all closely related. The first is internal, between the digitally empowered rich and the poor. This gap exists in both the North as well as the South, although the baselines differ. The second linguistic-cultural gap is largely between English and other languages, or more generally, between "Anglo-Saxon culture" and other world cultures. The third is the gap exacerbated by disparities in access to information technology between rich and poor nations.

The digital divide is a multidimensional area and it has mobility in country inside and country outside. The other viewpoint examinees to as a technical issue of the digital divide as approach of hardware, infrastructure and software.

The easy access to the information technologies is an advantage for who used it. The rapid development of information and technology is a disadvantage for who can not easily use to the technologies. For this reason, this rapid development causes to growing gap. The divide has increased gradually between north and south. (Keniston, 2003)

When analyzed to the concept of the digital divide in national level, it emphasizes to socio-economic difference of the individuals and inequality between regions. The geographical barriers may attract more attention than income inequality in this level. When deep thought, two factors are dependent on the same reasons. In national level indicates to some geographic barriers between regions or countries but also it show to socio-economic inequality between individual. The broadband network systems may not reach to by every area in a region; district, urban, rural, street such as.

Another research was made by Prof. Dr. Jan A.G.M.Van Dijk "Individual Causality" in doctrine of digital divide concerning. The gap between individuals, namely the obstacle of individuals' access to information has four reasons. (Hanoğlu, 2009)

1. The Intellectual Obstacles: the inexperience of access to the digital media, the apathy towards to the new technologies.
2. The Physical Obstacle: lack of access to the internet or computer.
3. The Skill Obstacle: the difficulty of usage to digital media.
4. The Usage Obstacle: the limited access areas, servers of specialized areas.

The character of the digital divide is further deepening of existing inequality. The feature is differentiated to the digital divide to other inequalities. Different concepts have emerged related to this inequality by time. One of these is information poor as previously mentioned. There are two different reasons in this context: (UNDP, 1999)

- Reach the new information with high speed and low cost for education, economy, politics.
- Access to the new technologies with low speed and high cost, or people dependent on outdated and uncertainty information.

The causes of the digital divide are becoming increasingly important:

- The digital divide is an important component between developed countries and developing countries.
- When the countries utilize to the digital divide, it gains to productivity in the economic and financial area, the undeveloped countries have deprived to this product.
- Development of the gap causes some damages: it may negative effects to global development, international peace and security.
- The digital divide is increasing continuously.

2.1. Importance Of The Digital Divide In The Socio-Economic Area

The digital divide is a rather important problem when we are considering the dynamics of the information technology. Namely, problem of known as the digital divide constitutes to visible part of a huge iceberg.

Generally, the correlation between of the information technology and inequality is as following:

- The distribution of the information technology is asymmetric.
- The limited resources and opportunities of the information technology.

Skills and expertise in usage of the information technology are important. This situation supports to unemployment and job loss, as in current state. In this respect, a small minority has access possibility to the information technology in the developing countries. Because, human capital investment is very low in these countries. A small minority in many countries as Turkey, they can benefit to the information revolution as disproportionately. There are majority and this majority does not have basic education even. This rate has been created from majority of the society. (Rodriguez, Wilson, 2000)

When examined to the digital divide in terms of fees, there are two aspects about increase of inequality between individuals. (Rodrigez and Wilson, 2000: 33) Generally, highly educated people are good user of the information technology. Likewise, the spread of information technology in economic life raises to salary of knowledgeable people. Reducing demand for unskilled labor caused to decrease of the fees for uneducated people. The second effect is the information technology ensure to machines and software at firms, instead labor.

The preference changes in humans and machines have occurred to new jobless masses. In this context, the information technology is reason of wage inequality. (Arias, 2000)

2.2. Variants And Methods Of Measuring The Digital Divide

The information technology indicatörs use in the measuring of the digital divide according to distribution of demographic datas. The information technologies and its distribution in the country is not possible to obtain . For this reason, some sampling models and forecasting models use for achieve to data rates. The used indicators in measurements are number of personal computers, accessibility to the internet, telephone and television services such as information

technology variables. (OECD, 2001) In addition to these variables could use to various features: rate of access to internet of households, time spent on the internet of household, properties of the personal computer, e-literacy individuals such as. (ITU, 2001) The demographic variables are income, education, age, family type, ethnicity, gender. (DOC, 1999)

There are more comprehensive and more variable in the international studies of the digital divide. Some researchers have approached to the phenomenon of digitization in the framework of the information society and digital economy so, they have used to more variable. (IDC, 2002) In other hand, some researchers have pointed to the information technologies in the topic and they used to basic variables; personal computer, telephone and internet such as. (CID, 2002)

In comprehensive studies as in the preparation for the network world (e-readiness) uses to various components based sociological indexed; political and economic aspects of the country in addition to the information technology index such as. Although the researchers used to variety variables, generally there are nine different variables in the international digital divide. (CID, 2002) These are as follows:

- Phone intensity - teledensity
- Number of personal computers
- Number of websites
- Number of internet users
- Number of internet hosts
- Capacity of communication path or bandwidth
- Languages of users
- Language of website
- Size of the information and communication Technologies

1. Phone Intensity / Teledensity: It is 100 or 1,000 people per country fixed, mobile and GSM number of telephone subscribers. Also, it may be calculated as area, according to aim of the research.

2. Number of Personal Computer / PC: It is sales, number of personal computers, estimates and sampling. It may be classified as owner computer or capacity of households, according to the purpose of the research.

3. Website Number: It is number of domain name service (DNS) of registered in behalf of country. It uses for measure amount of local content and evolution of local the information technology in the country. These kind of the information gets to Internic (http://www.internic.com), Internet Software Consortium (http://www.isc.org) ve Netsizer (http://www.netsizer.com) such as firm.

4. Number of Internet Host: It is computer number of connected to the internet with a static IP. It is use for measure to access to the information technology and existing users. But, some firms such as FireWall may not take account.

5. Number of Internet Users: It is use for measure to users of the information technology as the active. Generally, it estimated with by data of statistical methods from sampling, the questionnaire for the country, internet service (ISP) or internet service providers (internethost) and computer courses.

6. Capacity of Communication Path or Bandwith: Generally, it is information quantity of transferred from place to place in one minute of as byte, megabyte and gigabyte. Namely, it is maximum throughput of a network cable. It is measuring with the "bit per second" (bps) in generally. It uses for measure quality of access and speed of the information technology.

7. Language of User: It uses for estimated number of users in per country. Also it is use for calculate distribution of the number of languages in the country. Especially it uses for countries with different ethnic origins such as the USA.

8. Language of the Websites: It estimates with sampling or direct counting method. Also, it uses to estimates for benefits of the information technology, quality of content and user language as proxy.

9. Size of The Information and Communication Technologies: It is contains to some economic indicators. As follows: employed labor in the information technologies, share in total export of the information technology.

The researchers try combine to two different objectives of the academic studies about the digital divide. These two aim the following are:

1. The Quantitative Dimensions: problems in the spread of the digital phenomenon.
2. The Qualitative Dimensions: impact of the digital phenomenon in the socio-economic area. (Corrocher, Ordanini, 2002)

There are some discussions about diversity of usage indicators as well as problems of measuring to the digital phenomenon in quantitative studies. When there are the ongoing discussions about measuring of the knowledge economy and measuring of the digital divide becomes more difficult, especially it when considered in terms of countries. Thus, every researchers have to create own methodology. (Barbet and Coutinet, 2001) There are not a consensus about applied methodologies in right now nevertheless, many national and international organizations works out about measuring of the digital divide. The research of Progressive Policy Institute (PPI) has made on the states in USA and they have found 17 different indicatörs about difference between states and new economic areas.

They have examined measure to the indicators with separated by 5 main categories: Employment in the information sector, globalization, economic dynamism and competitiveness, the digital transformation of the economy and capacity of technological invention. (PPI, 2002)

International Data Corporation (IDC) had created to an index related to the digital divide for measuring to the information society. The index has had 23 different variant computer, information, internet and social infrastructure such as in the basic category. (IDC, 2002) The research of International Data Corporation is very important with aspect for containing the several components of information technology. Nevertheless the research has prevented an accurate assessment between developing countries and developed countries. Because, the research limited with 55 countries. Besides, McConnell International has created to an index for make comparisons between countries. The index has indicators about the difference of the between digital areas and many variables. These indexes have created to preparation guide to the internet (readiness). The conducted research is related to the information technology capacities of the country instead of having inequality in accessibility of the information technology. The research of OECD(2001) related to directly digital divide and it can show to us dimensions of the digital divide. (OECD, 2001)

There are many research for describing and developing of the digital divide, as well as studies of the institutional research. For this reason, the researchers have created to artificial indexes and

comparisons. For example, Rodriguez and Wilson (2002) have created a technology development index with considering to personal computer, mobile phone, TV, fax and internet host for 108 countries in between the years 1992-1997. (Rodriguez, Wilson, 2000) Similarly, Ricci has created to "accordance scale" based on socialization of the basic indicators for the digital technologies. He has tried to describe the development process of the European countries. The students of Ricci have no details about the methodological problems, but it is a start point for in terms of establishing a theoretical framework. (Corrocher, Ordanini, 2002)

Measuring of the international digital divide is rather difficult. Because, the problem have not some points: general theoretical framework of the problem, appropriate data for analysis, common admission for selected indicators. For this reason, we take considering just main indicators for the understanding of issues and difference between the developing countries and the developed countries in this study.

3. The Digital Divide In OECD Countries And Turkey

The countries want to make modernize structure of the social and economic with use to the information technology in the information society way. When every segment of society Access to the internet as equals, the countries will be moving on to way of the information society. (Atılgan, 2003)

The new economy based on the information and it has come up in the information society. The wealthy are basic condition to reach to the information in the new system. The wealth ratio of organizations, countries and individuals are directly proportional to the accessing ratio of the information technology. The basic criteria of the assessments are amount of mobile phone, computer, TV per person, rate of access to the internet in school, house, workplace.

3.1. The Digital Divide in OECD Countries

Size, status, characterized of the digital divide is important a topic for aspect of efficiency and equality in the reports of OECD. These reports indicate to directly proportional between rate of usage and productivity of the information technology. Namely, quantity of the internet user are directly proportional to having yield from the information technology of the country.There are

imbalanced utilization of the information technology for the different economic status, family structure, education rate and age. These imbalances are important indicators to create to policy in areas of the social, education and technology. (Kucükcınar,)

OECD countries have basic policies for reduce to the digital divide. In generally, there are following:

- Strengthening to the infrastructure
- Disseminating to access by expanding
- Development to abilities of the employees and persons

Especially, accessibility of the internet has made possible from libraries, post offices and similar institutions. In this way, people can reach to the internet easily, cheaper or free and they can develop their own ability on the new technologies. Many policies have created by OECD countries. The aims of these policies are to train skilled workforce in the future, increasing to prevalence and providing to subsidized access in the schools. Besides, the policies have to take necessary precautions for ensuring equality, rise of economic productivity in different social groups. For example: groups which don't have basic social rights, the disabled, elders, living in the rural area and groups of low-income. Generally, almost all OECD countries have support programs for who or which can not adapt to new technologies of the small businesses. (Oruç, Aslan, 2002) The most basic and the most important indicators is the access line per 100 people for measuring of the digital divide in dimension of international.

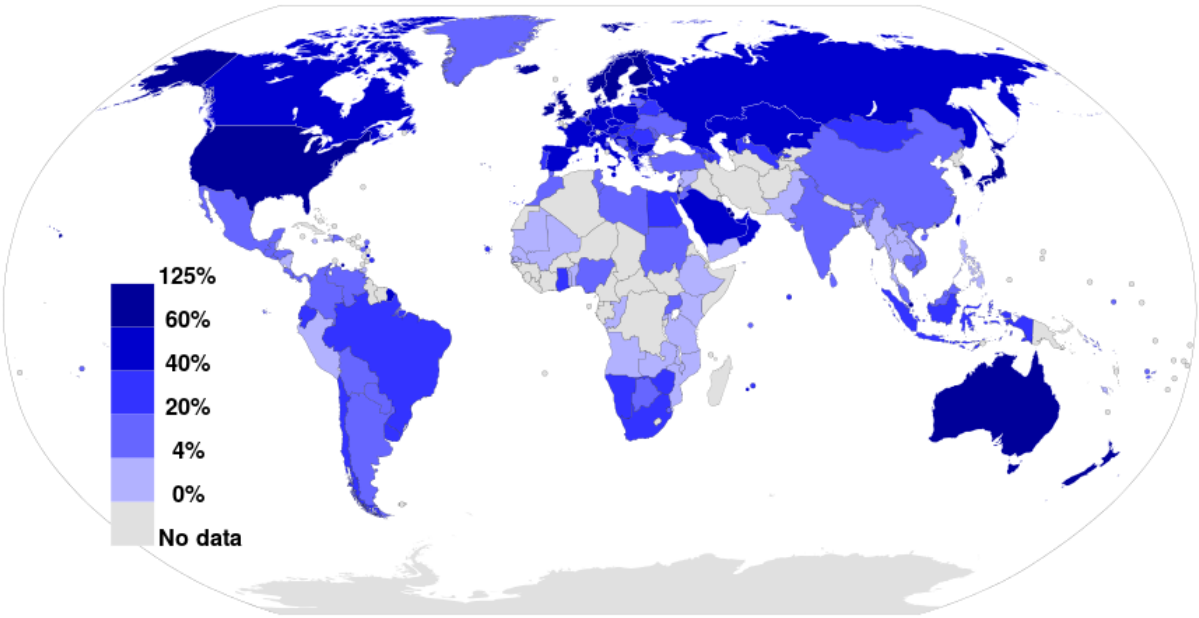


Figure 1 Mobile broadband Internet subscriptions in 2012 as a percentage of a country's population Source ITU 2013

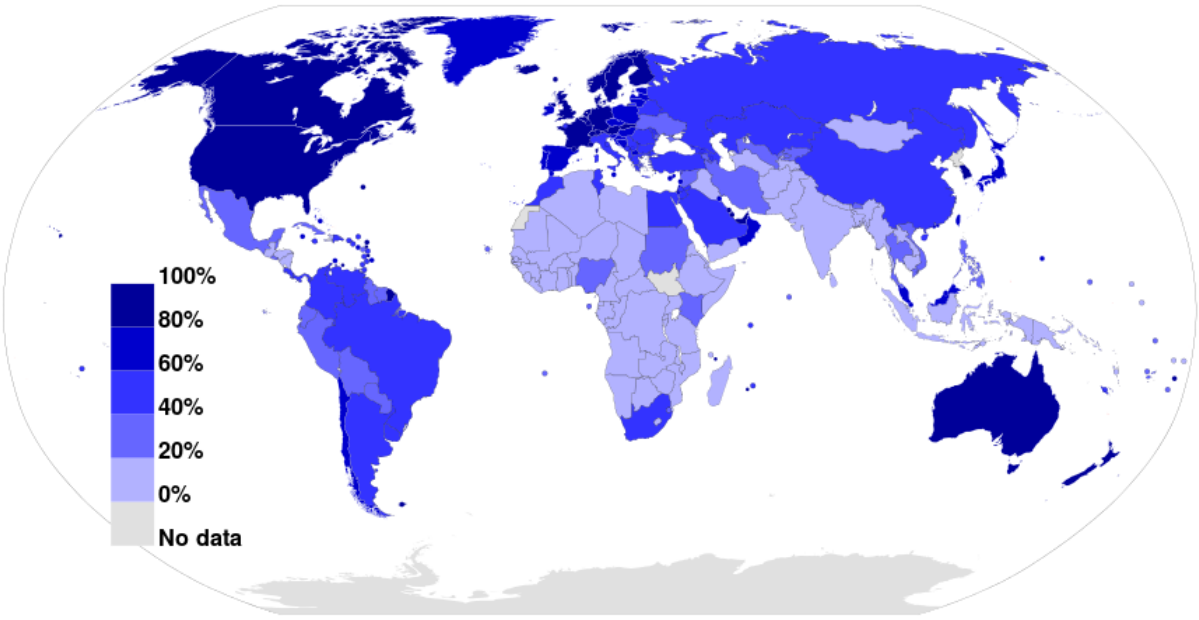


Figure 2, İnternet user in 2012 as a percentage of a country's population, source ITU 2013

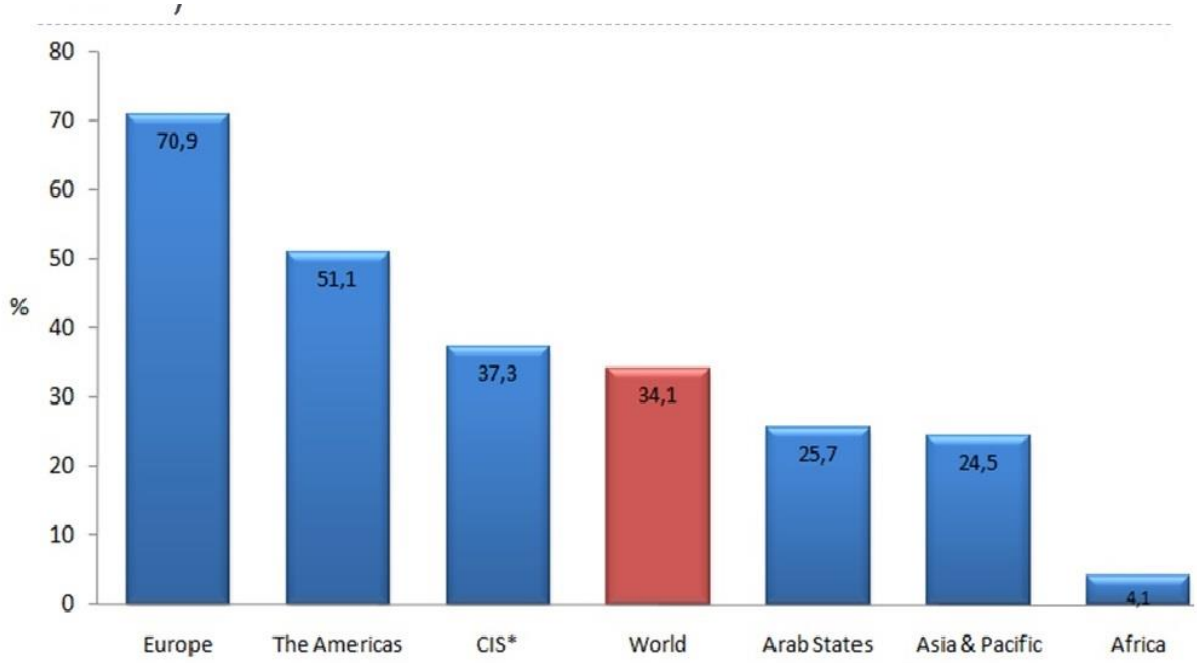


Table 5, The distribution of internet Access, Source ITU 2011

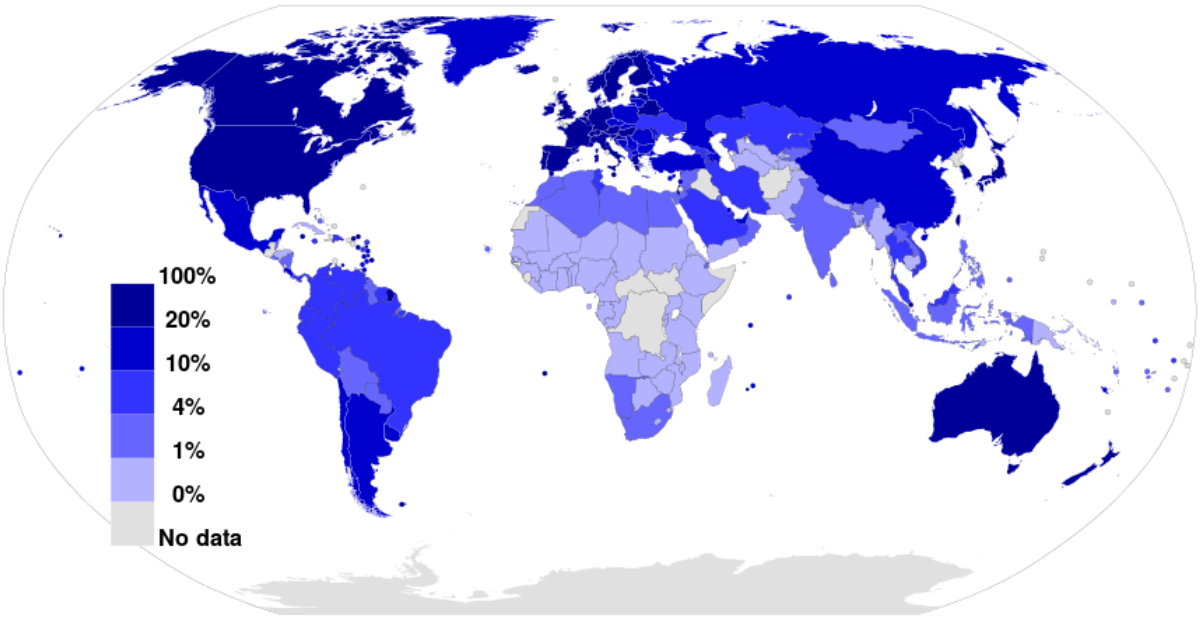


Figure 3, Fixed broadband Internet subscriptions in 2012 as a percentage of a country's population Source ITU 2013

As it can be seen from the fugures 5,6,7 and 8, the digital divide has become a major problem according to worldwide. Especially, there is large difference between the undeveloped countries and the developed countries. For example; Europe and the Americas Continent have a rate above the world average in the figure 7. As known, the developed countries located in the Europe and the Americas Continent in generally. This situation explains us existing situation of the problem.

3.2. The Digital Divide in Turkey

The researches based on the digital divide in Turkey have gained speed in recent years. The following are some examples of the research:

- Öztürk have compared to the result of field research on Turkey and situation of other countries and he has specified to the importance of the digital divide. Also he made recommendations for avoid to the digital divide (Oztürk, 2005)
- Seferoğlu, Avcı and Kalaycı have researched on situation of the digital divide in Turkey and they have some recommendations. (Seferoğlu, Kalaycı, Avcı, 2008)
- Şen and Akdeniz put forth to a comparison about usage to the information technology performance of Turkey with rate of OECD countries. (Sen, Akdeniz, 2012)
- The research of Çapar and Vural is described to importance of the digital divide and they explain the impact of the digital divide in transition process of e-government. (Capar, Vural, 2013)
- Acılar, Markin and Nazarbaeva have explained to the digital divide with data of Internet and computer usage for Turkey and Russia. They put forth to similar and different aspects of two countries. (Acılar, Markin, Nazarbaeva, 2012)
- Balaban, Çilan and Kaba have compared to development index of information and communication technologies in Turkey and European Countries. They researched to level develop of countries on the way of the information society. (Balaban, Cilan, Kaba, 2010)
- Uğuz and Çilan take attention to inequality in the digital divide. (Based on age, education, income, area) (Uguz, 2011)
- Acılar have evaluated to the digital divide with usage of computer and internet for Turkey. Also, he made to comparison between Turkey and the developed countries.

International Telecommunication Union (ITU) is an international authority and it measures the global digital divide regularly in every year. International telecommunication union publishes to information technology development index according to the criteria of the internationally accepted. Information technology development index is a standard tool and it uses for measure to the digital divide by the researchers, countries and institutions. Also it may use for comparison to performance of the information technology between countries. The domestic digital divide has occurred in the developing countries in general. Turkey is one of these countries and Turkey have divided 12 different areas by Classification of Statistical Region Units (SRE). These regions are as follows: Istanbul, West Marmara, Aegean, East Marmara, West Anatolia, Mediterranean, Central Anatolia, West Black Sea, East Black Sea, Northeast Anatolia, East Anatolia and Southeast Anatolia.

The datas of in the following table prepared from survey results of Eurostat (European Union Statistics Office) and it has made complies with EU norms. The aims of the survey are detecting of access to the technology, usage status of technology and detect of problems related to the subject. The reference period is between 2004 and 2014 years. The survey age group is range of 16-74.

SR Level-1		Computer			Internet		
		Total	Male	Female	Total	Male	Female
TR	Total	54,8	64,0	45,6	55,9	65,8	46,1
TR1	Istanbul	65,5	72,7	58,1	67,1	74,9	59,1
TR2	West Marmara	58,6	65,6	51,3	59,4	67,1	51,4
TR3	Aegean	55,6	64,2	47,1	56,9	65,9	48,1
TR4	East Marmara	59,1	67,1	51,1	59,2	67,5	51,0
TR5	West Anatolia	61,7	69,4	54,3	61,9	70,3	54,1
TR6	Mediterranean	52,3	61,2	43,5	52,6	62,1	43,1
TR7	Central Anatolia	50,8	60,1	41,1	51,5	61,7	40,7
TR8	West Black Sea	48,0	58,4	38,0	50,0	60,9	39,4
TR9	East Black Sea	49,8	59,1	39,7	52,1	62,3	41,1
TRA	North East Anatolia	37,9	44,8	31,1	40,2	50,2	30,4
TRB	Central East Anatolia	37,3	51,8	22,6	40,2	55,7	24,6
TRC	South East Anatolia	41,6	57,3	27,3	43,1	59,6	28,1

TurkStat, Information and Communication Technology (ICT) Usage Survey in Households and Individuals, 2015
*16-74 age group

Table 6, Information and Communication Technology (ICT) Usage Survey in Households and Individuals According to Regions, 2015, Source Turkish Statistical Institute 2015

As shown in Table 6, usage of computer and internet have huge difference, according to sex and regions. Also, table 7 shows to availability of ICT's devices in the household.

Availability of devices in households, 2015

%

	Total
Desktop computer	25,2
Portable computer (Laptop, netbook, tablet)	43,2
Mobile phone (incl. smart phone)	96,8
Game console	5,3
Fixed line telephone	29,6
Digital camera/photography	23,4
DVD / VCD / DivX player	25,0
Smart TV	20,9
None of above	1,5

TurkStat, Information and Communication Technology (ICT) Usage Survey in Households and Individuals, 2015

Respondents may choose more than one option, therefore total don't give 100

Table 7, TurkStat, Information and Communication Technology (ICT) Usage Survey in Households and Individuals Accoring to Devices, 2015 Source, Turkish Statistical Institute 2015

According to the research by the Turkish Statistical Institute, the usage situation of the information technology in households is following:

- The ratio of usage computer for 16-74 aged people: 17.65%
- The ratio of usage computer for 16-74 aged people in city: 23.16%
- The ratio of usage computer for 16-74 aged people in rural: 8.28%
- The ratio of usage internet for 16-74 aged people: 13.93%
- The ratio of usage internet for 16-74 aged people in city: 18.57%
- The ratio of usage internet for 16-74 aged people in rural: 6.05%

There are different aspect tables for to see the situation of ICT in Turkey. Table 8 shows to households not having internet access and reasons.

Households not having Internet access at home and reasons, 2015

%

	Total
Households not having access to the Internet at home	29,6
Reasons foe not having access to the Internet at home	
Have access the Internet elsewhere	14,7
Don't need Internet (because not useful, not interesting etc.)	59,5
Equipment costs too high	36,5
Access costs too high (telephone, DSL subscription etc.)	38,5
Lack of skills	44,7
Privacy or security concerns	6,4
Broadband Internet is not available	3,5
Have no idea about the Internet	1,9
None of above but other	0,8

TurkStat, Information and Communication Technology (ICT) Usage Survey in Households and Individuals, 2015

Respondents may choose more than one option, therefore total don't give 100

Table 8, TurkStat, Information and Communication Technology (ICT) Usage Survey in Households and Individuals According to Accessibility, 2015 Source, Turkish Statistical Institute 2015

Individuals** using the computer in the last 3 months* by age group, education level and employment situation, 2015

%

	Total	Male	Female
Age group			
16 - 24	70,0	78,5	61,4
25 - 34	62,7	70,8	54,5
35 - 44	50,0	60,7	39,1
45 - 54	32,0	41,2	22,8
55 - 64	15,8	21,7	9,9
65 - 74	5,3	8,2	2,8
Education level			
Literate without a diploma	4,0	7,4	3,1
Elementary school	21,0	24,4	17,6
Secondary and vocational secondary school	59,0	65,2	50,9
High and vocational high school	74,1	75,4	72,1
Higher education	91,7	92,0	91,2
Employment situation			
In labour force	61,1	60,5	62,9
Regular or casual employee	67,6	65,3	74,0
Employer	82,8	82,2	88,1
Self-employed	41,8	41,4	44,6
Unpaid family worker	30,3	61,3	12,9
Unemployed	57,1	53,3	68,1
Not in labour force	33,0	41,6	29,7
Student	88,1	90,1	86,1
Houseworks	23,3	22,7	23,3
Retired	23,6	21,0	31,7
Disabled	10,5	11,7	8,3
Private and family reasons	46,1	47,1	45,1

TurkStat, Information and Communication Technology (ICT) Usage Survey in Households and Individuals, 2015
* Ocak-Mart 2015 - January-March 2015
**16-74 age group

Table 9, TurkStat, Information and Communication Technology (ICT) Usage Survey in Households and Individuals, 2015, Source, Turkish Statistical Institute 2015

In addition to the new research, also we should examine to previous researches. Thus, we can see to problems how changes over time.

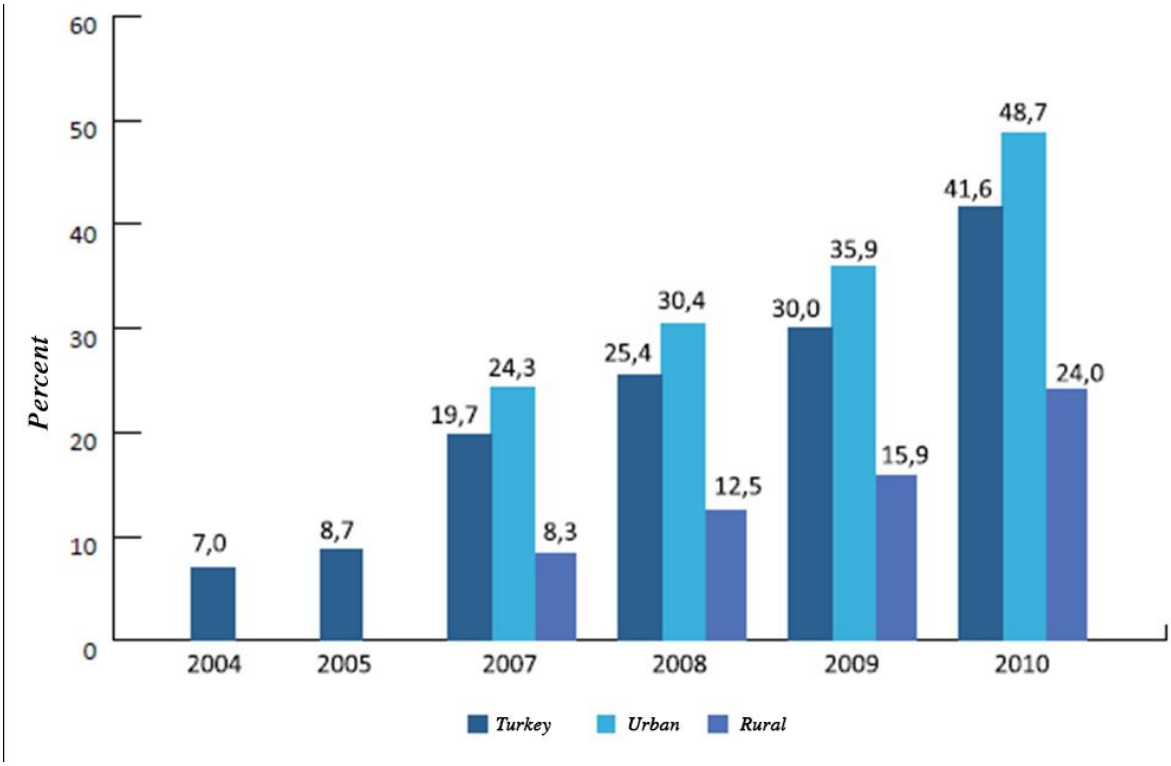
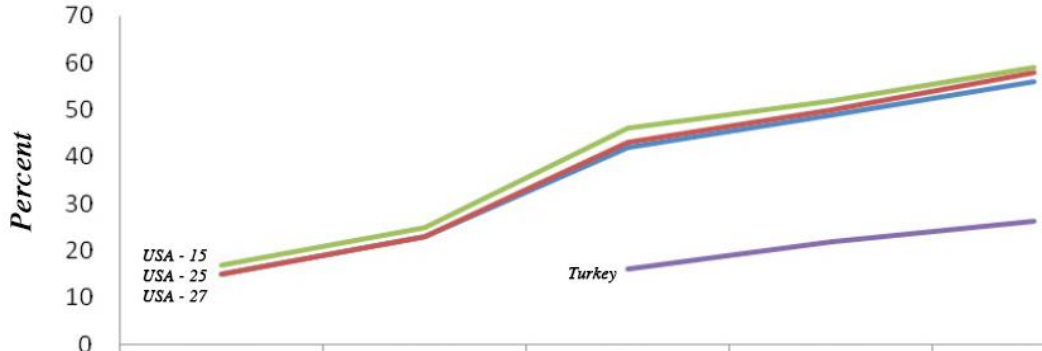


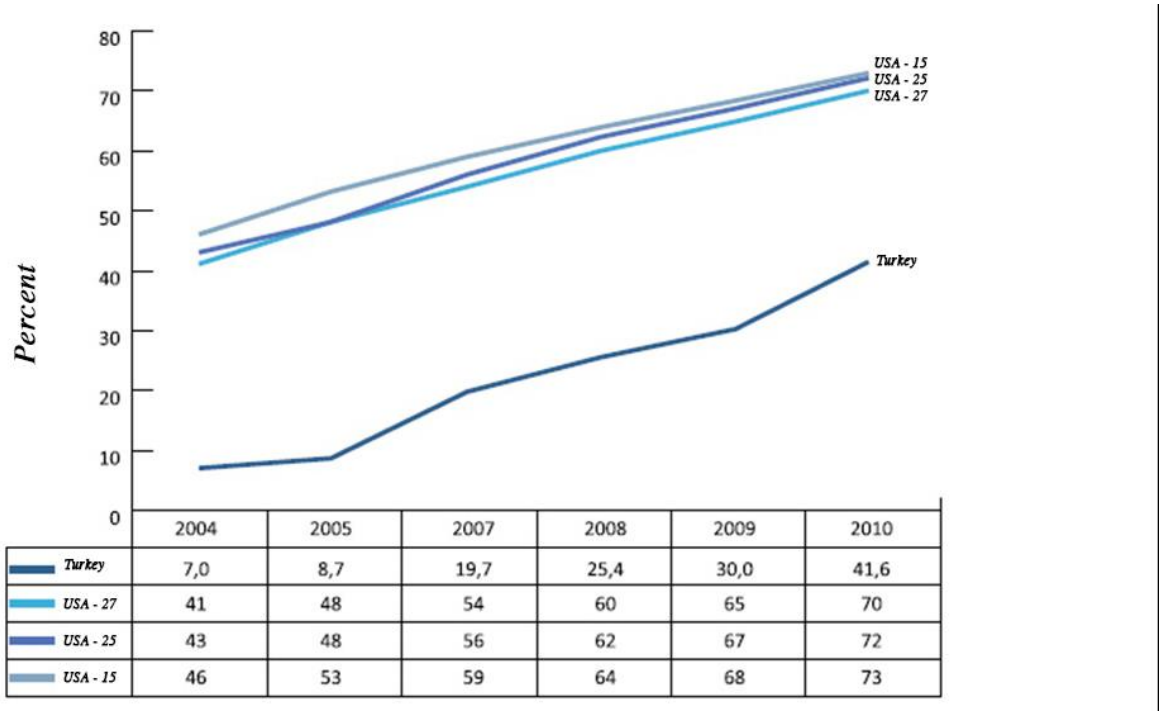
Table 10, internet connection status and ICT equipment in households , source DPT 2011

There is a research made by the State Planning Organization. This research shows to alteration the status of information technology between USA and Turkey over time. The rate of broadband internet ownership, and rate of internet ownership are rather different between the USA and Turkey in 2004-2010.



	2004	2005	2007	2008	2009
Turkey			16,1	21,9	26,2
USA - 27	15	23	42	49	56
USA - 25	15	23	43	50	58
USA - 15	17	25	46	52	59

Table 11, Owner of the broadband Internet in households for ABD and Turkey, Source DPT 2011



	2004	2005	2007	2008	2009	2010
Turkey	7,0	8,7	19,7	25,4	30,0	41,6
USA - 27	41	48	54	60	65	70
USA - 25	43	48	56	62	67	72
USA - 15	46	53	59	64	68	73

Table 12, The internet Access in houshold for USA and Turkey, source DPT 2011

The first research in Turkey is about measure to usage and ownership of the information technology. This study has made by "Detection of Capabilities and Usage by Turkey Scientific and Technological Research Institution (TUBİTAK) in 1997. The general name of the project is Turkey's National Information Infrastructure Master Plan (TUENA). The research is represented urban settlements and it is the first in its field.

The research has realized on 7 geographic regions with 4000 samples. TUBİTAK has published to new research in 2000. It name is "Prevalence and Usage of Information Technology". (BTYKA2000)

The research of BTYKA2000 is a typical sociological study appropriate to generalize. The research has realized based on the 68 provinces, 168 districts and 6000 houses in Turkey.

The income rate is an important indicator for the digital divide in high, middle and low income countries. For example, Turkey is a middle income country and when it compares with a high income country we can see to differentiate. (Computer ownership, Internet access, etc.)

Turkey have located between the developed countries and the developing countries, while putting in order terms of the information society and economic. For example, Turkey is located in 62 orders after the Hungary, Greece, Poland, Saudi Arabia, Argentina, Chile and Bulgaria followed by countries such as according to the information technology index for 108 countries calculated by Rodriguez and Wilson. While the index value of the USA is 100.00, the index value of Turkey have been 9,57. (Rodriguez, Wilson, 2000)

Similarly, the Center for International Development (CID) with, connected to the Harvard University have some researches about preparation to the network world of country (e-readiness). Turkey is located in 41. order after the Chile, Poland, Brazil and Republic of South Africa such as countries between 75 countries. (CID, 2002-2001) Information society index of International Data Corporation (IDC) has taken into consideration the information, computer, internet and social structure such as factors. Turkey is 41. order after Hungary, Poland, Argentina, Bulgaria, Romania and South Africa between 55 countries in these information society indexes. (IDC, 2002) This index, published by World Times/IDC, is an example of a composite index developed by a commercial research company.10 It is advertised as the world's first measure of 55 nations' abilities to participate in the information revolution and the digital society. In its fifth instalment in 2001, the ISI is made up of 23 variables (six computer, eight information, four Internet and five social infrastructure variables). Countries are divided into four categories, in descending order of ability to take advantage of the information and digital revolution (skaters, striders, sprinters, strollers). As is common with commercially produced indices, the methodology underlying the ISI Information Society Index) is not freely available and has changed over time. It is, therefore, difficult to assess the reliability of the index.

The detailed reports accompanying the ISI are sold at hefty prices to governments and global companies. Fortunately, researchers affiliated with international organisations or universities are increasingly producing similar indices.

More often than not they are available free of charge or at low cost, with well-documented methodologies. Two such recently developed composite indices are introduced next. International Data Corporation (IDC) divided into 4 groups according to the value of the index in the research:

1. Skaters (3,500 and up)
2. Striders (between 2,000-3,500)
3. Sprinters (between 1,000 - 2,000)
4. Strollers (1,000 and less)

Turkey located as the Sprinter. It mean is; country can not evaluate the own potential for reason of economic and social problems.

When the end of this section we can give to last research about internet usage in Turkey

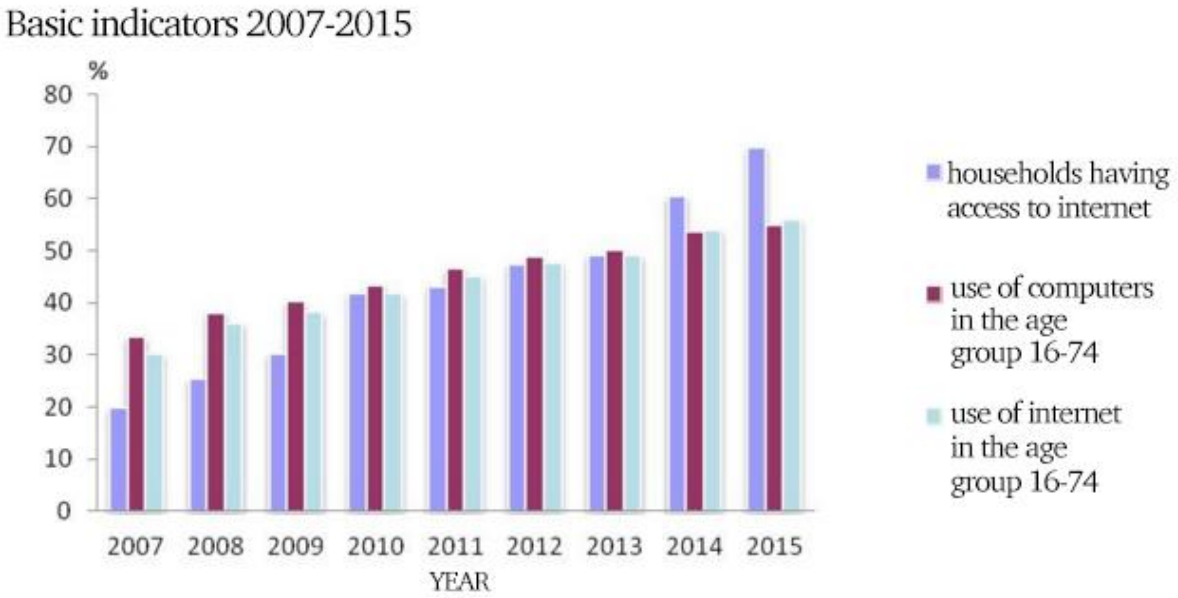


Table 13, household use of information technology, Source Turkish Statistical Institute 2015

These rates are valid for 2015 and 16-74 age groups.

- The rate of internet usage 55,9%
- This rate for male: 65,8%

- For female: 46,1%
- The rate of computer usage: 54,8%
- This rate for male: 64%
- For female: 45,6%
- Seven out of ten households have internet access.
- The rate of households having internet access in Turkey 69,5%
- In 96.8% of households have mobile phones
- Social media took the first place among the purpose of use to internet
- 80.9% of Internet users use the Internet for social media

As can be seen from Table 13, Turkey is a good level according to developing and undeveloped countries. At the same time, Turkey is backward according to developed countries. This research did not take proposals to improve position in the global knowledge economy of Turkey.

Nevertheless, it has showed important to infrastructure and legal regulations for rising to usage of the information technology. Also, converted to lifestyle by the rationalization is important for the digitization. Because, for the penetrate to social and economic life of the information technology is required hard and soft infrastructure. The hard infrastructure contains to personal computer and internet networks. The soft infrastructure contains to democratization and individual freedoms. (Rodrriguez, Wilson, 2000)

The equal distribution of all segments in the society who use the information technology as is very important for the aim of the transformation to the information society. The access and usage the information technology of individuals are depend on different caused by socio-economic status and geographical location of individuals. For this reason, the digital divide examinees to on a national basis and international basis.

4. The Importance Of Reducing To The Digital Divide

The member countries of OECD have many policy for prevent to the digital divide. Some of the policies following:

- General Policies: This policy contain to funding mechanisms for establishing universal service fund and dissemination of services.

- Dissemination of Technology to Individuals and Households: The policy contain to programs for reduce to costs of computer, internet and telecommunication. For example: Providing to internet access in public areas.
- The Dissemination of Technology in The Workplace: Providing to internet and telecommunications services with low cost in specially small businesses.
- The State Projects of Development and Implementation: This project contain to special programs for more widespread the access by the state. For example: The state may give to its service over the internet.
- Initiation to The Education Initiatives: The aim of the policy is increas to the internet literacy.
- The International Cooperation: The other programme of the state for prevent to the digital divide in international area.

There are many thesis for prevent to the digital divide in the literature. The basic points in the thesis are following: (ICFA-SCIC)

- Economic equality
- Social mobility
- Democracy
- Economic growth

4.1. Economic Equality

The internet access is a part of civilian life for the developed countries and their aim is ensure to the internet for all social segment. The telephone is used for more safety. (medical, criminal and other emergencies) Usage information technologies is important for career and civil life such as. Also the usage to social services is possible on the internet.

4.2. Social Mobility

The computer and computer networks are important to in people's education and working life according to the general opinions. For this reason, the internet uses in education and business. If that situation will not come true, the inequality may occur in social life specially groups of low socio-economic status. The state should support to the groups for equality of opportunity.

4.3. Democracy

The democracy and internet are directly proportional according to most opinion. For example, the internet may increase to public participation in selection and decision-making processes.

4.4. Economic Growth

The development of information infrastructure and its usage as maximum would accelerate the economic growth. The information technologies mentioned together well increases the productivity in general. The success of the new technologies may provide a competitive advantage to the country's industry. The development of the country industry is beneficial for the country. The major national labor can work in the information industry.

5. International Program Of The Digital Divide

As mentioned above, the digital divide may occur between different areas; countries, individuals, households, companies. The differences between the developed countries and the developing countries or north-south countries as globally have been moved into a new dimension with the information technology. When the companies used to the information technology, began to emerge new economy definitions. Also the information technology is a large industry. On the other hand, the existing differences between of individuals have become even more striking with owning and usage of the information technology. (poor-rich, educated-uneducated, male and female, young and old, married-single such as)

The digital divide being discussed in recently made national summits and the countries have determined national policies for the problem. For example, the measures to be taken against the digital divide have been discussed in 2000 Millennium Summit of the United Nations in New York. Likewise, the digital divide has discussed in Okinawa G8 summit. (BTK, 2002)

International organizations such as the OECD have developed various initiatives for preventing the global digital divide. (G8 Digital Opportunities Task Force, UN ICT Task Force, World Bank Digital Bridges Task Force (GBDe) and Global Digital Divide Task Force (WEF) such as.) The main objective of this initiative is the services to adapt for the international arena. The important international initiatives are following:

Ottawa and Okinawa Summit / Digital Opportunities Task Force Initiative of G8: The aim of the Digital Opportunities Task Force has reduced to the digital divide between countries and the organization consists from 43 member countries. The organization has tried to reduce poverty with increase the use of this technology. The prepared action plans in different areas are following: (Lanvin, 2001)

- Access (legislation, infrastructure and cost related financing and competition)
- Basic qualifications (vocational education and training, including entrepreneurship)
- Content (services, applications, e-commerce, e-government and culture)
- Request (reforms, the attention of the authorities and the strengthening of new sources of dynamism)
- Participation (consumers, nongovernmental organizations and sustainability)

Millennium Summit of The United Nations / ICT Task Force: measures the digital divide and a variety of topics have been discussed in Millennium 2000 Summit of the United Nations. The ICT Task Force has been created with aim of create a universal communication. (Campbell, 2001) The works of the ICT Task Force supported by UNDP (UN Development Programme), The World Bank and The ITU (International Telecommunication Union) such as institutions.

The Organization for Economic Cooperation and Development / OECD: The works of the Organization for Economic Cooperation and Development giving priority to some topic about the digital divide: definition, measurement and prevention of the digital divide. OECD's the committee of information, computer and communications policy (ICCP) has conducted work about access inequality of the ICT, unbalanced growth of the technology, distribution and use of the technology. The committee (ICCP) have searched answers to the following questions:

- What is the dimension of the digital divide in the different socio-economic structures?
- How will the effect of the digital divide for economic area?
- What rate increasing of the digital divide ?
- Which direction moving of the digital divide?
- How does new technologies influence to the digital divide?
- What are the responses and actions of government?

World Telecommunication Development Conference and The 2002 Istanbul Action Plan: World Telecommunication Development Conference (WTDC) has made in Istanbul March 2002 after Buenos Aires (1994) and Valletta (1998). The competition in telecommunications services is

very important as mentioned in the published declaration. The development relation between of the private sector and public sector is the key of the universal service in the declaration. The aim of the conference is converting the digital opportunities to digital divide. (ITU, 2002)

There are individual and institutional organizations for prevent to the global digital divide without international organizations. The some voluntary organizations have various applications as lowering the price of computers and computer donation in the undeveloped countries. (James, 2001: 26) Microsoft and Hewlett Packard such as companies apply to some programmes to create to the IT infrastructure in these countries. (Gruenwald, 2001: 74)

For all that, the problem of the digital divide is rather comprehensive and it can not be solved by voluntary organizations. (Quibria, 2003)

Any country have not a magic wand for developed countries to take the information society in a short time. Because, most of the mentioned countries have not yet completed to industrialization phase. Nevertheless, the current organisations providing to support for this problem.

6. Program To Avoiding The Digital Divide In Turkey

The science and technology are one of the most important elements of economic and social development. The policies of the science and technology are a tool of influencing to that development.

All of the developed countries based on economic and social areas in the world (US, Japan, EU member many countries) have developed to science and technology vision in line with long-term social, economic and political objectives. They use to technology foresight studies as effective tool when they are updating to the vision.

The studies and policies of the science and technology have begun with "the planned period" in the 1960s in Turkey. Specially, the Turkish Science Policy (1989-2003) the Turkish Science and Technology Policy (1993-2003) have an important place in this studies and this policy. These policies have mainstream datas and legal obligations.

Despite everything, it can not fully implemented according to its objectives. The reason for this can be said; the policies does not to make a claim by everyone. (political authorities, public, private sector and universities)

The head committee of the science and technology has decided to prepare of Turkey's Science and Technology Strategy Document for between the years 2003-2023 in December 2000. The objective is effectively taking advantage of the science and technology in reaching the welfare society.The name of the project is "Vision 2023: Science and Technology Strategy" in 2001.

The main theme of the vision 2023 project are as follows:

- be dominated to the science and technology by the society
- conscious use of the technology by the society
- produce new technologies
- transform the social and economic benefits of technological developments
- create a welfare society

The project contains the following studies:

- Determining the current position in Turkey's science and technology
- Identification of the World's long-term developments in science and technology area
- Determining to Turkey's science and technology demands according to 2023 targets
- Identification of the strategic technology for achieve the goals
- development / acquisition of these Technologies

The Vision 2023 Project consists of 4 sub-projects:

- Technology Foresight Project
- National Technology Inventory Project
- Researchers Information System (ARBIS)
- TÜBİTAK National Research Infrastructure Information System (TARABIS)

The digital divide is not a problem for just undeveloped countries. Also the digital divide is a problem for the developed countries, developing countries also worldwide. As mentioned above, Turkey have some policies about prevent to the digital divide since 1990. These policies given below with the overall shape: (TUBİTAK, 2004)

- National science and technology policies: 2003- 2023 strategy document (2004).
- Black Sea Interconnection (BSI) project (TUBITAK ULAKBIM-2008)
- E-Turkey Studies and Vision 2023 Technology Foresight Studies (2002)
- Preventing the Digital Divide: Strategic Plan (Telecommunications Authority October 2002)
- Informatics Council of Turkey (2002-2004),
- Research on Information Technology Usage and Penetration (BİLTEN January 2001)
- VIII. Five-Year Development Plan, Information Technology Policy and Special Commission (April 2000)
- The Establishment Of Public Internet Access Centres (KIEM)
- Turkey's National Information Infrastructure Master Plan Project (TUANA) (1997-1999)
- 9.Transportation Council Communications Commission Research (June 1998)
- Information Policy and Information Infrastructure Master Plan in Turkey, TUBITAK (February 1996)
- Under the Structural Change Project, Science and Technology Breakthrough Project (1995)
- Science-Technology-Industry Discussion Platform dependent Science-Technology-Industry Policy Working Group (1992-1995)

A. CHAPTER 3

1. As A Result Of The Digital Divide: Social Exclusion

The dimension of the social inclusion is having the chance of the individual and collective life as equally. If, there is no equal access to the sources, the problem of social exclusion occurs. The problem causes different distinctions. For example: political participation, age, gender, sexual orientation and status of adolescenc. Also, the social inclusion caused by class status could be one of this facotrs. The identity, language, social participation, socialization are important for the information age.

Another reason of the social exclusion is related to different aspects of information technology. Especially the social media is directly related to social exclusion. Social media came into our daily life in a short time. The role of information technology in our lives have increased by intensive usage of social media. Social media is ensuring the relationship of social network, also it is providing information exchange quickly. In he places where there is no access to the internet, social media is not used by people. Social media is one of the most important phenomenons in the digital age. For that reason, social media is causing social exclusion in somehow. Various books about social media has been written with the development of information technology thus we can see dimensions of social network. One of them is the book Groundswell written by Li Charlene and Josh Bernoff. Charlene Li and Josh Bernoff tells in their book Groundswell:

Winning in a World Transformed by Social Technologies, describes social networking as a "*social trend in which people use technologies to get the things they need from each other, rather than from traditional institutions like corporations."* (Li, C.; Bernoff, J. 2011)

Some examples related usage rates of social media can show to us dimensions of social media in our daily life. Also, the consumer barometer of Google shows dimensions and rates of social media usage and internet usage. This web address has a lot of graphics and tables relevant to the subject. https://www.consumerbarometer.com Some examples:

- 2 billion YouTube videos are viewed per day
- 79% of the top 100 Fortune 500 use Twitter, Facebook, YouTube or corporate blogs
- 93% of social media users believe a company should have a presence in social media.

- 85% of social media users believe that a company should go further than just having a presence on social sites and should also interact with its customers
- Americans spend nearly 1/4 of their online time on social networks
- Visiting social sites is now the most popular online activity – ahead of personal e-mail

The most well known EU information society targets are increasing broadband access, providing access to all public websites until 2010, reducing the gap in internet usage in the groups having exclusion risk.

As we saw in the previous section, the rate of internet usage and internet penetration in the European continent is lower than in North America. It may be mentioned to the digital divide from east to west and north to south in Europe. The ratio of penetration of the Internet is at the level of 35-40% in Sweden, Norway, Denmark and Finland.

The e-European project is launched for Europe member countries to fully benefit from the ICT developments in the social and economic benefits. There are many developed countries and the developing countries that do not have an intensive use of the ICT like US. These countries launched to generate the long-term and a large area covering policy. The objective of the EU's "e-Europe" strategy is created to the necessary sub-structure and quickly switch to the new economy for the delayed countries to catch to the development of ICT. (Ozgüler, 2006)

2. Recommendations And Conclusions Aimed At Reducing The Digital Divide

The adventure of human being with the information technologies began in 1950s with the development of the computer and it continues to the present day. 10 years later, The US Department of Defense sent a message through to the ARPANET, the first network of the usage of the internet protocol (IP). When we look after 65 years, we can see this view; "nowadays, people sends more than 175 billion e-mail in a day from the internet" in worldwide. This view puts forth clearly experienced of change and development.

Now, we are in an incredible speed "the information age." Jeff Jarvis is owner of the book "what would google do", at the same time, he is a good IT specialists. As Jeff Jarvis have said in his own book: (Jarvis, 2009)

''We no longer need companies, institutions, or government to organize us. We now have the tools to organize ourselves. We can find each other and coalesce around political causes or bad companies or talent or business or ideas. We can share and sort our knowledge and behavior. We can communicate and come together in an instant. We also have new ethics and attitudes that spring from this new organization and change society in ways we cannot yet see, with openness, generosity, collaboration, efficiency. We are using the internet's connective tissue to leap over borders— whether they surround countries or companies or demographics. We are reorganizing society.''

''I believe that, the internet is beginning at the itself development although to it have 25 years history. We beginning to the vertiginous information age.''

Eric Schmidt has said about digital life in his book New Digital Age: (Schmidt, Cohen, 2012)

''Many of us living in the developed world have come to rely very heavily on digital technology (including the internet and our mobile/smart devices)—indeed, for many of us, our relationship with our various screens is nothing short of addiction. And we are not the only ones who are plugging in. We are also increasingly hooking up our various man-made systems (such as our infrastructural systems and financial systems) to the internet as well. Given how radically digital technology has transformed our lives, it is incredible to think how recently all of this change has occurred; for, indeed, all of this technology has come upon us entirely in the past 15 to 20 years. This is significant because it reminds us that the age of connectivity is but in its infancy, and that most of the changes are yet to come.''

''This is true for us here in the developed world, but is even more so the case for those living in the developing world, where almost 5 billion people are expected to go from no connectivity to full connectivity within the next 20 years. While it may well be the case that the overall impact of the connectivity revolution will be enormously beneficial, we would be fool to think that the impact will be none but positive. With forces such as criminals, rebel groups, terrorists and rogue states prepared to take advantage of the new technology, the connectivity revolution poses some very serious challenges as well. Google executive Eric Schmidt and U.S. policy and media expert Jared Cohen are particularly well-placed to assess how all of the upcoming changes will play out, and in their new book The New Digital Age: Reshaping the Future of People, Nations, and Business the two let us in on their ruminations and prognostications.''

The age of we are living is renews itself and continuously advancing age. The information age inevitably adds to the information society. The information society has occurred to the digital human and no longer, the digital human is living in the cyberspace with virtual reality.

The information society has brought along to risk. The risk is two-piece structure of society. As previously mentioned, these pieces are the information of poor and the information of rich (info rich and info poor) Because, no longer, many process in economical and social area are performed via electronic networks.(education, production, consumption, etc.) The group of called rich can do almost every kind of job on the internet, own phone - computer - tablet. Whereas, large masses living in poverty can not take advantage from these digital opportunities or they are unaware of the digital world. Consequently, the group of called poor will intensely experience to social exclusion or they have experienced at present.

Combating with the digital divide is important because of existing situation. Combating with the digital divide emphasizes the importance of including in the network of people not involved in the information age. Described herein point is not perfection of included network. The important point is there are poor people and they do not live in the information age like us.

The developed countries efforts reducing the digital divide in the undeveloped countries may be due to economic concerns. On the other hand, the efforts of the developed countries will work and the undeveloped countries may develop in the information society and economical areas. The undeveloped countries may progress rapidly via the developed countries supports. If a person living in a commune village be aware of social class struggle in the Philippines. The person may change self ideas or self thoughts about the world. Also, we can mention of economic reasons. For example; Indonesian coffee manufacturer in the village can sell their own coffee to American international companies. These examples can show us this result: The network has complated own function in a positive way.

The digital divide accepted with fears by all countries in worldwide. Whereat, almost all countries are continuing to studies about the digital divide. Determining current status of the digital divide is necessary for the right campaign.

The first step of campaigns about the digital divide and also most important that adequate and effective provide to the technological infrastructure in the countries. The other steps are increasing public awareness and education about the ICT, raise the level of ICT ownership. People should be able to use easily ICT in public areas. For example; the information technology classes in the school should be available except that course hours by students.

Support of the necessary equipment and human force must be provided to continue the work effectively. Low cost of access and hardware must be provided by effective policies and strategies and these should offer to public.

The digital gap between different regions and different groups prevent by the state. Especially, the technology investments in education area must be implemented after effective work and planning. Otherwise, the ICT labs in the non-electric school or non-internet school will be unnecessary. The teachers are important in correct usage of technology in education system and maximize the benefits of technology. For this reason, the teachers have to get some training about usage and practice of ICT. And also, it's necessary to provide financial support to teachers.

The digital gap is one of the most important problem in from Europe up to the US. A segment of society can reach to the ICT and they can participate in the world information network. On other hand, people of outside of this group stay out in the world information network. Also, the digital divide are in the information society. The only difference is the rate of the digital divide. The rate is low in the developed countries while the rate is high in the undeveloped countries. Large masses living in poverty are far from such developments in the sense of exclusion.

If the problem evaluate according to Turkey, the situation does not change. The rate of the information technology usage have diversities according to education rate and income rate. If large companies increase to usage of the ICT will cause to the continuing disparities in income rate. As already mentioned earlier, labor needs of companies are educated employees in this age. In this context, ICT will deepen to existing inequalities in countries that the skewed income distribution. Thus, every policy of the support to access to ICT will support to equitable income distribution in the society.

As a result, the elimination of the mentioned disparities on the way to the information society is quite important. Because, the information society requires that people of low income and education, will include the national and international network. In other case, the countries could create an "information group" created by the elite class not an " information society". Also this case will be valid for Turkey. Implement the necessary regulations is quite important for the development. These regulations must include following principles:

- Making telecommunication configurations.
- The implementation of projects aimed for reducing the digital divide.
- The adoption of the public interest principle in these projects.

When considering the problem of the digital divide, basic point of the international policies in the ICT domain should develop projects that provide to access opportunities for more people. Because, the positive effects of ICT could be revealed with spread of these technologies in all sectors of society in macro-economic level. In this context, if we talk for Turkey, TUBİTAK-BİLTEN researchers should be considered by state. Some policies of TUBİTAK-BİLTEN are following:

- Socio-economic policies that will improve the income situation should be developed and implemented.
- The groups outside the high-income group define as "large needs groups" is not sufficient. The universal service principles should implement to these groups.
- Improved concept of "universal access" by United Nations and OECD countries should be consider for all regulations related to communication by state.
- Public communication centers should be increased.
- Applications to be made on infrastructure should be easy to use. Thus, ICT prevalence will be affected positively.
- Usage capacity to the technology of people is not sufficient. Thus, the state should support the people with some trainings.

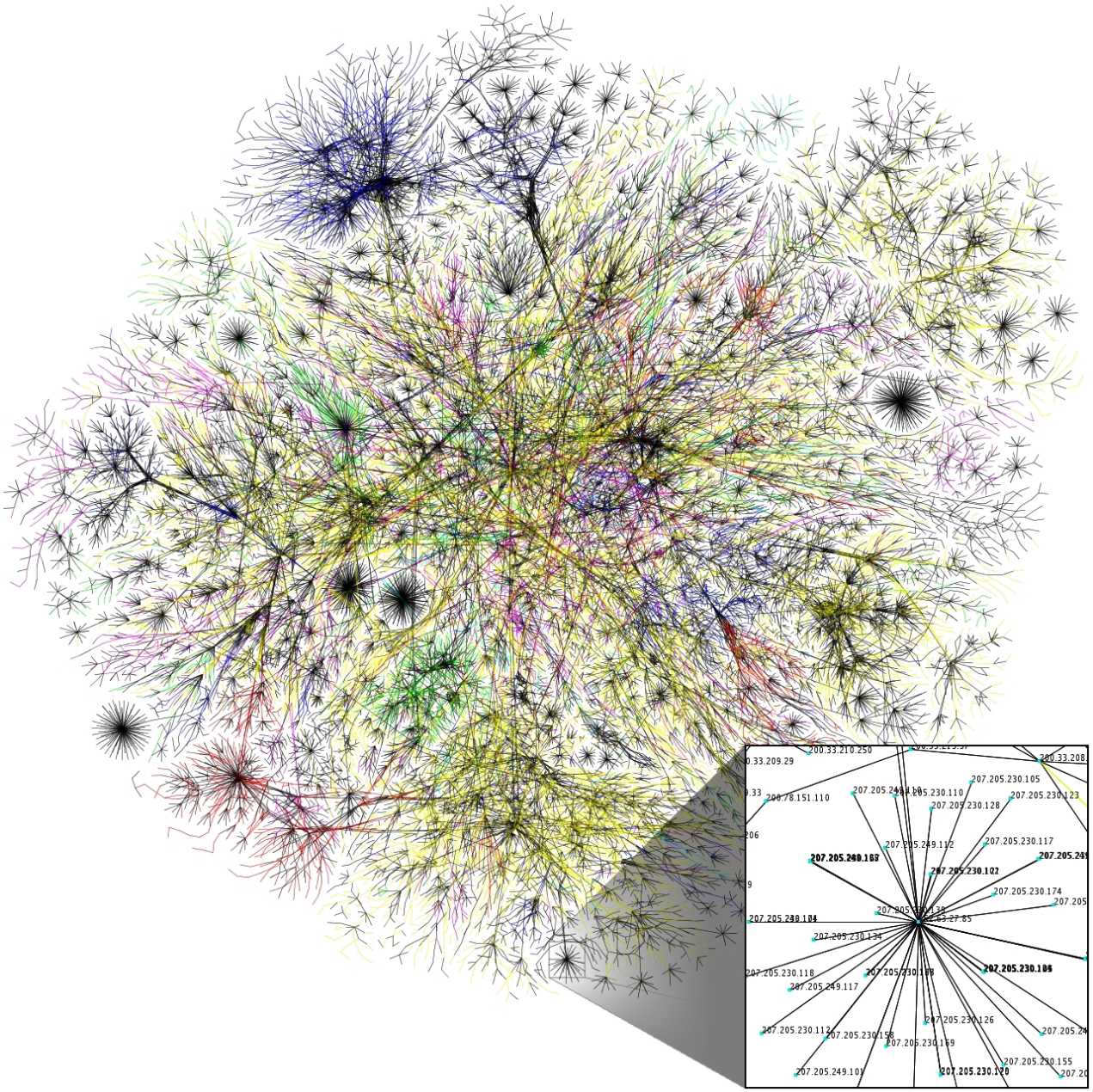


Figure 4, Visualization of Internet routing paths, Source; Wikipedia/ digital divide

Partial map of the Internet based on the January 15, 2005 data found on opte.org. Each line is drawn between two nodes, representing two IP addresses. The length of the lines are indicative of the delay between those two nodes. This graph represents less than 30% of the Class C networks reachable by the data collection program in early 2005. Lines are color-coded according to their corresponding RFC 1918 allocation as follows: the yellow net, ca, us the purple: com, org the bottle green: mil, gov, edu the blue: jp, cn, tw, au, de the green: uk, it, pl, fr the dark blue: br, kr, nl the black: unknown**.**

The size of the Universe is somewhat difficult to define. According to a restrictive definition, the Universe is everything within our connected spacetime that could have a chance to interact with us and vice versa. While continuing to unstoppable progress of science, the universe is somehow getting smaller in course of time. The information and communication technologies have big and important role in this statüs. As can see above, this map generated by internet network is showing to us what size of the universe and it shows to how perfection of the universe of course. There may happen between people some unequal, unjust and wrong things in great and perfect universe. We should not look to future as pessimist. Also social revolutions can be progressive like scientific revolution. There are many people who believe this in the world.

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