

## **COMMUNICATION SYSTEM IN TURKEY: THE EFFECT ON ECONOMIC DEVELOPMENT**

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### **ABSTRACT**

Telecommunication in many countries has been playing a significant role in developing the economy. The positive relationship between the growth of telecommunication and the economy has evidenced that one of the main factors in developing the economy is by focusing more on the communication system in a country. History has shown that during the World War I and II, effective communications has evidenced that it can lead to victory. Communication is defined as a system that senders have possibility to send message to receiver in general meaning and it has long been recognized that communications might have a central role in development. This paper attempts to discuss the role of communication system in Turkey. The discussions are limited to types of communication in Turkey including newspaper and magazines, internet, postal services and fixed-line telephone and mobile phone. The growth of telecommunication in Turkey has increased the per capita income from to USD13,737 in 2013 compared to USD13,609 and USD12,671 in 2012 and 2011 respectively. Moreover, the Turkish economy has also developing in a better shape compared to the last 10 years before communications such as Internet and mail services taking place. These evidences have proven that telecommunications technology significantly affect economic growth in a country especially in Turkey. Furthermore, huge investment on communication systems nowadays is imperative as the return on investment is worthwhile by virtue of increasing the GDP and boosting the economy.

Keywords: Telecommunications system, Internet, Magazines and Newspaper, Turkey

### **ABSTRAK**

Peranan telekomunikasi di dalam sesebuah negara telah terbukti mampu untuk membangunkan ekonomi dengan baik. Hubungan yang positif ini menunjukkan bahawa jika sesebuah negara menfokuskan lebih dalam telekomunikasi, ia mampu untuk membangunkan negara secara langsung. Sejarah di dalam Perang Dunia I dan II telah membuktikan bahawa komunikasi yang efektif mampu untuk menjadi faktor penentu kejayaan di medan perang. Komunikasi didefinisikan sebagai satu sistem yang mana pengirim mempunyai keupayaan untuk menghantar mesej kepada penerima dan ia telah terbukti mampu untuk membangunkan negara. Kajian ini bertujuan untuk membincangkan peranan sistem telekomunikasi di Turki. Perbincangan hanya menjurus kepada bentuk-bentuk telekomunikasi seperti surat khabar dan majalah, internet, perkhidmatan pos dan telefon mudah alih dan telefon talian tetap. Perkembangan sistem telekomunikasi di Turki telah mampu untuk meningkatkan pendapatan per kapita isi rumah kepada USD13,737 dalam tahun 2012 berbanding USD13,609 dan USD12,671 dalam tahun 2012 dan 2011 masing-masing. Selain itu, dengan adanya perkembangan dalam sistem telekomunikasi di Turki telah menjadikan ekonomi Turki

menjadi lebih maju dan baik berbanding 10 tahun yang lalu sebelum perkembangan Internet dan perkhidmatan pos. Data ini telah membuktikan bahawa perkembangan sistem telekomunikasi di Turki telah mampu untuk membantu dalam mempertingkatkan ekonominya dengan baik. Selain itu, pelaburan yang signifikan dalam sistem telekomunikasi di dalam sesebuah negara juga satu tindakan yang bijak dan menguntungkan kerana ia mampu untuk meningkat KNK dan seterusnya memapankan ekonomi.

Katakunci: Sistem telekomunikasi, Internet, majalah dan surat khabar, Turki.

## **INTRODUCTION**

In many countries in the world nowadays, telecommunications become more important in order to manage the countries as well as to link with other countries. History has shown that during the World War I and II, effective communications has evidenced that it can lead to victory. Communication is defined as a system that senders have possibility to send message to receiver in general meaning and it has long been recognized that communications might have a central role in development (Grace *et al.*, 2004: 1). This paper attempts to discuss the role of communication system in Turkey. The discussions are limited to types of communication in Turkey including newspaper and magazines, internet, postal services and fixed-line telephone and mobile phone. Hirschman (1967) (as cited by Grace, 2004) offers the evidence that a credit market for the coffee trade developed in Ethiopia after the installation of a long-distance telephone network. According to Grace *et. al.* (2004), the crucial role of communication technologies in stimulating development is significant by allowing countries increasing effect of economic growth by being able to modernize their production systems and increase their competitiveness. Castells advocates that communication could be used as the detention of economies which are unable to adapt the new technological system becomes cumulative (Castells, 1999: 3). Communication have crucial role in today's environment not only in working experience but also in individuals life. It is generally agreed that the percentage of communication technologies usage is an indicator of development.

The communication system in Turkey has been growing rapidly. Many researchers assert that benefits of information communication technology can be useful to a country's economic growth for example Norton (1992) examines the sources of differences in economic growth rates of nations and tries to investigate the importance of telecommunications in developing a nation. The growth telecommunication industries in Turkey has called many benefits, makes it easier and cheaper to access relevant information and, thus, increase the efficiency of decision making processes for profit oriented organisations in particular. Telecommunication throughout the world has evidenced being able and effectively bring positive impact to the economy, business operation, political enhancement as well as lowering transaction costs. Turkish economy's growth has been primarily contributed (although not solely) by the rapid growth in communications particularly in Internet and mobile phones. Further discussions on the impact of communication on Turkey's economics is discussed in section 1.3.

This paper will discuss the role of communication system in developing a country with reference of Turkey. The paper is organised as follows: the initial discussion will emphasize on the types of technological instruments used in Turkey namely newspaper and magazines, postal services, landline telephone and internet connections. In addition, discussion on the effect on the economy

will also elaborated including previous literature in relation to the focal point of discussion. The final part of this paper will conclude the role of communication systems in developing Turkey's economy.

## **COMMUNICATION TECHNOLOGY**

Based on Constitution 1923 and subsequent revisions, the Turkish government need to provide telecommunication services and domestic company will be provided with telecommunication hardware with specialized and largely non overlapping, product lines. The telecommunication system in Turkey was growing slowly until 1980. However, the Deputy Prime Minister of the new government of Turgut Ozal has made a tremendous change towards telecommunication services. The government had introduced a master plan for telecommunication including (Akbalik,1998 as cited Wolcott and Cagiltay, 2001: 135):

- The latest technologies and new services should be introduced as quickly as possible.
- The telephone network should be converted from an analog system to a digital system.
- The local telecommunications sector should be pushed towards a competitive environment to speed up the telecommunications services.
- Turkey should expand the telecommunication network in shortest possible time in order to realize rapid economic development.

Immediately after the implementation of the master plan, the development of telecommunication in Turkey has received a significant growth and impacts. In Turkey, the main stream of telecommunications tools are newspaper and magazines, voice telephony, text and email, data, video, internet, etc. In analyzing the situation in Turkey, it is helpful to distinguish between the telecommunications infrastructure alternatives and the types of services, which are delivered by that infrastructure. There are four main type of telecommunications tools that are being used in Turkey namely newspaper and magazines, postal services, landline, telephone and internet connection.

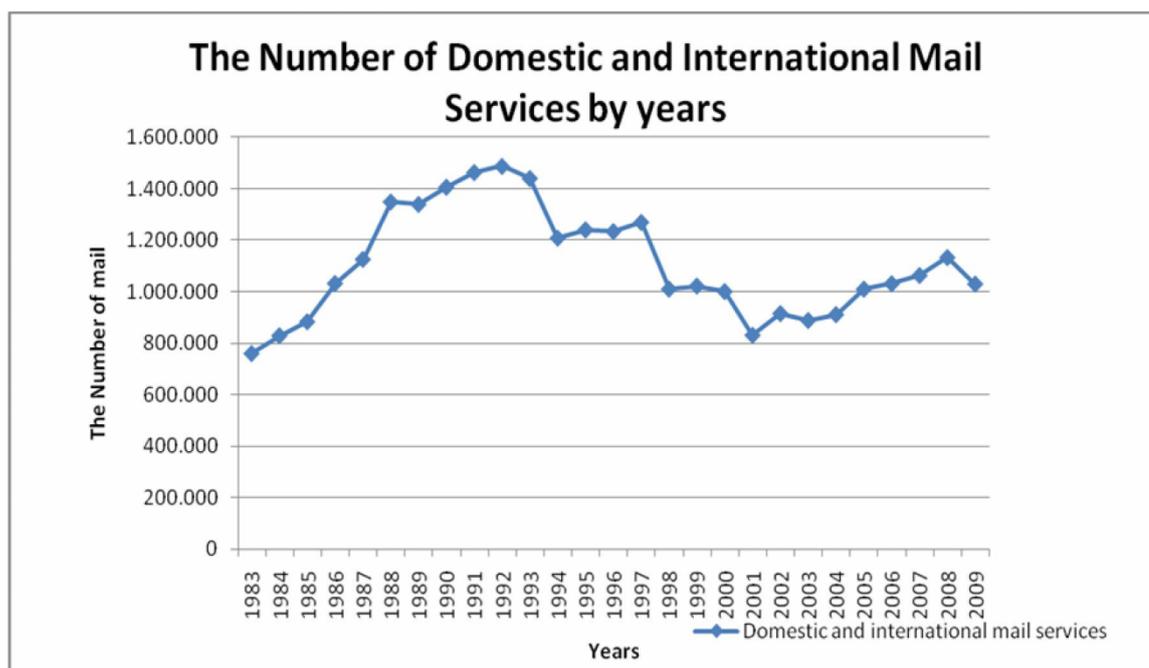
### **Newspaper and magazines**

Newspaper and magazines In Turkey, newspaper and magazines become the main tools of communications as they are publications that appear regularly and frequently, and carry news about a wide variety of current events. The oldest structure of the modern newspaper appears to have been the handwritten news sheets that circulated widely in Venice in the sixteenth century (www.nyu.edu as cited Penpece and Ozturk). Difficulties about political unrest in Turkey until 1983 sharply effected the printed media. But Turkey that seriously integrated to world in 1983 attached importance to freedom of the press increasing the total number of newspapers and magazines.

### **Postal services**

Postal services in Turkey were established in the 1620s and normally government monopolies from the outset (Falk and Abler, 1985: 21). Post office that founded in 1840 as official Post Office was privatized in 2005 in Turkey. The total number of postal services can be seen in Chart 1 (Penpece and Ozturk, 2011).

**Chart 1:** The Number of Domestic and International Mail Services by years



Source : Dilek Penpece and Ozlem Ozturk (2011:21)

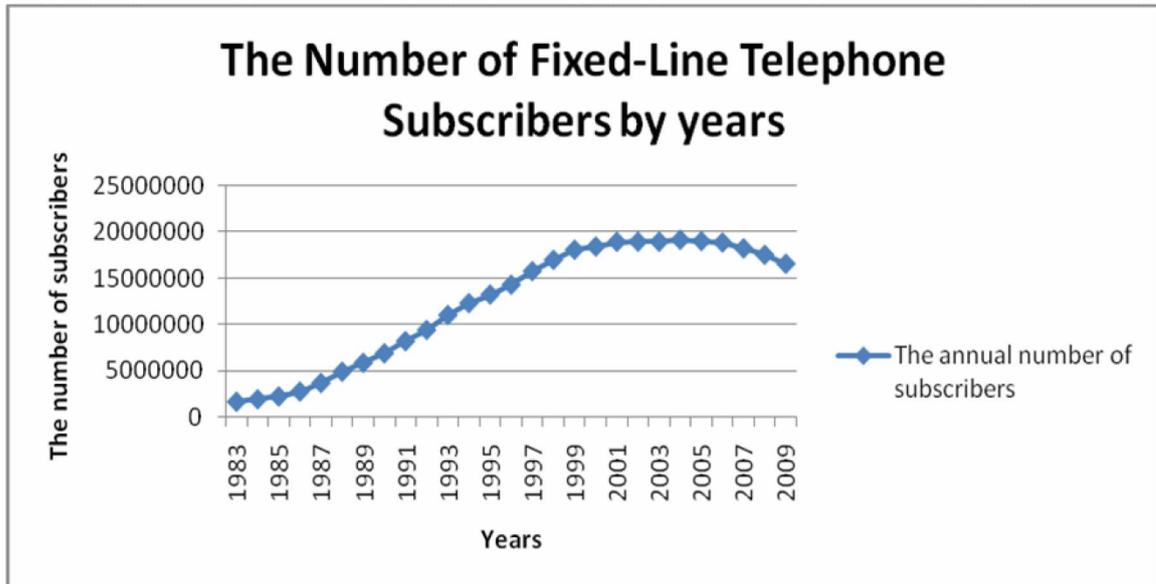
According to Chart 1, the number of international mail services in Turkey was increasing from 1983 to 1992 (highest achieved). The trend was decreasing from 1993 to 2001 before increasing uptrend occurred from 2002 to 2008. The cause of decline supposed that the new technologies introduced in Turkey for example mobile phones and internet. It is supposed that the reason of this situation (uptrend) is the presenting diversifies services by PTT (The General Directorate of Post and Telegraph Organization).

### **Mobiles phones and fixed landlines**

Mobile phones subscription in Turkey has increased overwhelming the increase in landlines. Recent econometric studies suggest that the quantity of telecommunications infrastructure may be connected to growth (Grace *et al.*, 2004: 13). The first telephone exchange in Turkey was implemented in 1909. The expansion of telecommunications infrastructure developed slowly. By 1980, the growth of telephone line approximately only 2.5 lines per 100 inhabitants. In addition, more than 72% of Turkey's 40,000 villages had no telephone services. However, as time pass by, the number of lines growing at 50,000 lines per year but after 1982, the telecommunication services in Turkey had been growing rapidly. Between 1982 and 1986 the growth rate of the number of villages having telephone services is 162%. In 1986 Turk Telekom had introduced cellular mobile radio telephone system (Nordic Mobile Telephone, NMT), fiber-optic cable, data network and radio paging (Akbalik, 1998 as cited Wolcott and Cagiltay, 2001: 135). As the mobile phones booming together with the reduction of subscription fees, the technology of mobile phones has been adopted by worldwide nation not only by the affluent, but also more quickly by the middle and lower-middle classes in Turkey (Celik, 2011: 147). Likewise, the adaptation of mobile phones were rapid among Turkish teenagers regardless the levels of their educations. Rapid growth of mobile phone subscribers began, effectively, in the late 1990s in Turkey

(Burnham, 2007: 201). GSM (Global System for Mobile Communications) based mobile communication began with Turkcell in Turkey which was the first GSM operator that founded 1994. But the available data about GSM usage in Turkey was founded starting from 1996. The change of fixed-line telephone and mobile phone subscribers can be seen in Chart 2 and 3 (Penpece and Ozturk, 2011).

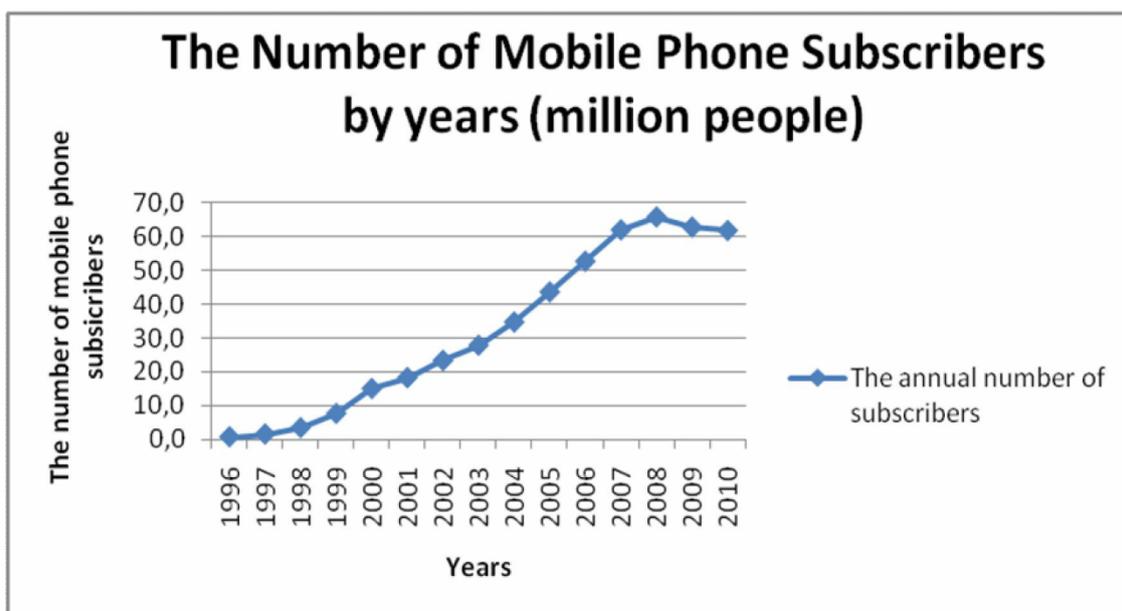
**Chart 2:** The Number of Fixed-Line Telephone Subscribers by years.



Source : Dilek Penpece and Ozlem Ozturk (2011: 22)

Chart 2 illustrates the total number of related items increased from 1983 to 2009. The upward trend occurred since 1983 until it became stagnant from 2001 to 2006. The stagnant rate of this window (2001 – 2006) was expected due to reason of the widespread usage of mobile phones. The increasing competitions in mobile phone sector and decreasing price resulted with decline in fixed-line telephone subscriber since 2006. Turk Telekom was reluctant about competition with private sector. We supposed that the decline is accelerated by alternatives that enable to use with non-fixed telephones.

**Chart 3:** The Number of Mobil Phone Subscribers by years



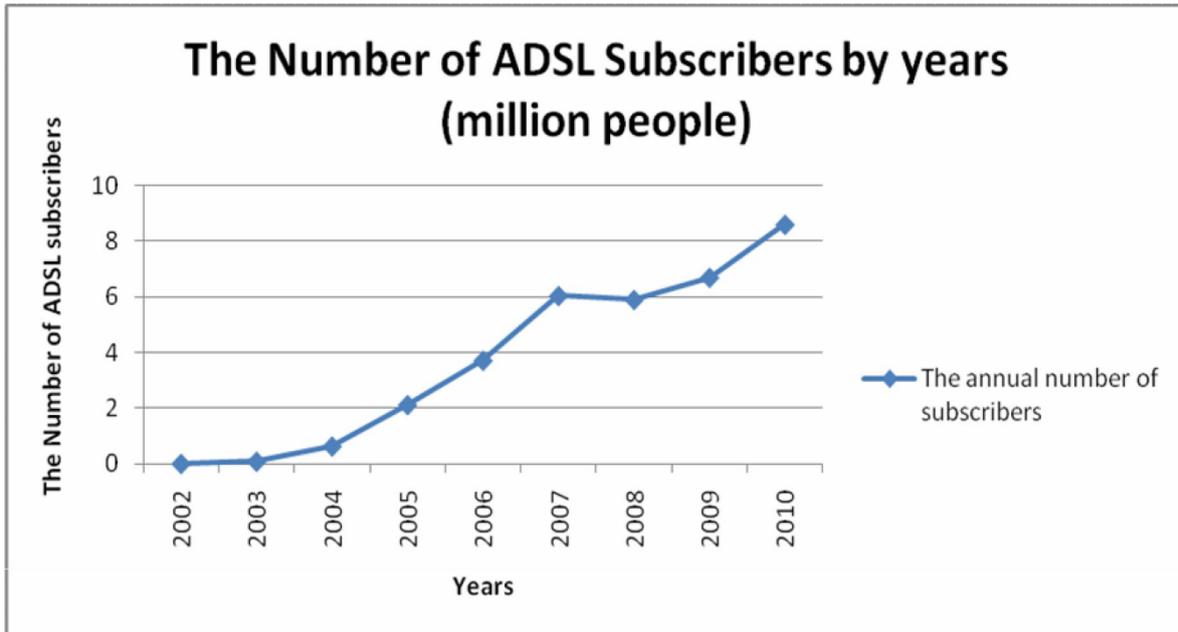
Source : Dilek Penpece and Ozlem Ozturk (2011: 22)

Unlike Chart 2, according to Chart 3 the usage of mobile phone in Turkey tend to rise continuously from 1996 until 2009 (Penpece and Ozturk, 2011). The number of GSM subscribers however began to decrease slightly in 2009. However, the somewhat decrease starting from 2009 was not a meaningful decrease as the decrement was expected due to mobile phones provider competition among companies in Turkey. It is also asserted that the reason why the decline was existed is the transition of number portability system in GSM sector. Some individuals that have many GSM cards is cancelled the subscription and started to use only one card. Another reason for subscription cancellations is the usage of affordable tariff in all directions presented by GSM operators.

## Internet

The first connection in Turkey BITNET was established between Ege University in Izmir and the European Academic and Research Network (EARN) via Pisa, Italy in 1986 (Wolcott and Cagiltay, 2001: 138). The network name was the Turkish Network of Universities and Research Institutes (TUVAKA) and was administered by a committee consisting of representatives of each participating organization. The internet is defined as a global system of interconnected computer networks that use the standard Internet protocol suite (*TCP/IP*) to serve several billion users worldwide. In 1989, they started established an Internet Protocol (IP) based network (Ozgit et al., 1995). The number of hosts had grown to nearly 3000 by early 1995 and the total number of daily users was estimated to be 10,000 to 15,000 by the end of the year. They received about 200 personal applications per month (Ozgit et al., 1995). Between 1996 and 1999, consumption and competition in the internet has shown a rapid growth, as indicated by the approximately 700% increases in the number of Internet service providers (ISP) and Internet users (Wolcott and Cagiltay, 2001:140). The world economy or the global economy is entering a “digital age” and information has become the primary resource for economic development (Grace *et al.*, 2004: 1). While Turkey had the dial-up connection until 2002 the ADSL that means asymmetric digital subscriber line began in the same year. Therefore data used in this study was initiated from 2002 to 2010. The total numbers of related item is shown Chart 4.

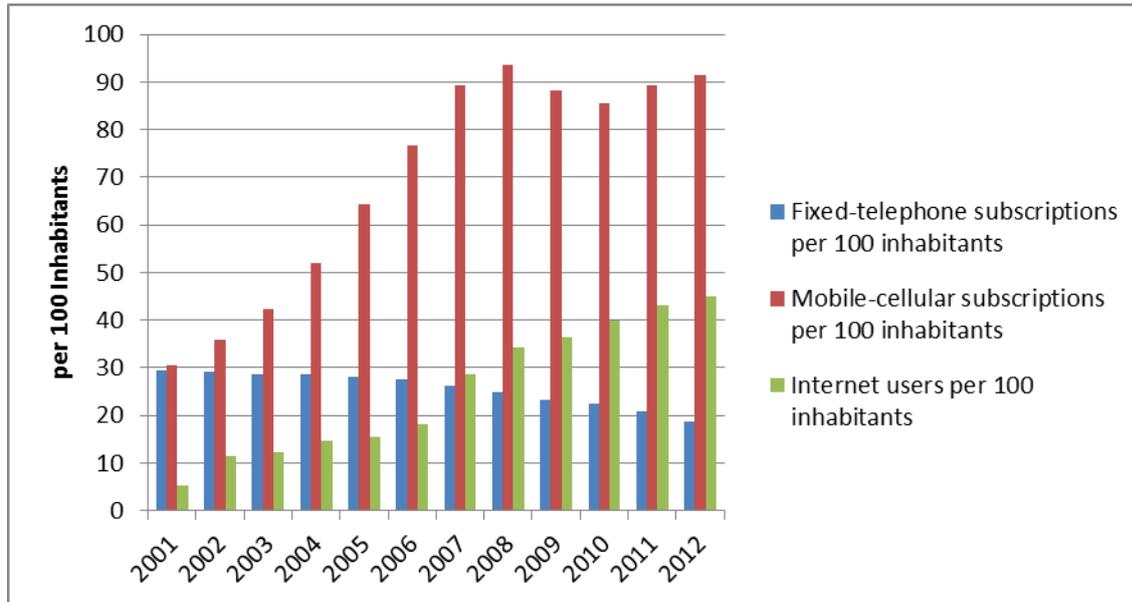
**Chart 4:** The Number of ADSL Subscribers by years



*Source : Dilek Penpece and Ozlem Ozturk (2011; 23)*

According to Chart 4, the total number of related items was continuously increased from 2002 to 2007. The marginal decrease was seen in 2008 and regain towards 2010. It is considered that the reason of this fall caused by economic crises existed in 2008. The other reason can be originate from new technologies like connection the internet via GSM operators in which lead the decrease of ADSL usage.

**Chart 5:** Turkey data in relation to the communication technology growth



	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012
Fixed-telephone subscriptions per 100 inhabitants	29.5	29.1	28.7	28.6	28.0	27.4	26.2	24.9	23.2	22.5	20.8	18.7
Mobile-cellular subscriptions per 100 inhabitants	30.5	35.9	42.3	51.9	64.4	76.7	89.2	93.5	88.1	85.6	89.4	91.5
Internet users per 100 inhabitants	5.2	11.4	12.3	14.6	15.5	18.2	28.6	34.4	36.4	39.8	43.1	45.1

Source: <http://data.un.org/Data>.

According to Chart 5, the highest growth of telecommunication in Turkey between 2001 and 2012 was the mobile phones comprising 30.5 per 100 inhabitants in 2001 and the number had increased to 300% or 91.5 per 100 inhabitants. However, starting from 2008 the mobile phone users was increased achieving 93.5 per inhabitants before slowing down to 85.6 per 100 inhabitants in 2010. The rates keep on increasing in 2011 and 2012 to 89.4 and 91.5 per inhabitants respectively. Individual who uses the Internet become the second largest group in 2012 with 45.1 per 100 inhabitants. The usage of Internet had been increasing since 2007 onwards. In contrast, fixed line telephone subscriptions keep on decreasing since 2001 to 2012 with the lowest peak recorded in 2012 with only 18.7 per 100 inhabitants. In conclusion, based on Chart 5, the usage of mobile phones and Internet could possibly become the major determinants in the growth of telecommunications system in Turkey and thus increase the economic in Turkey.

### **The effect of communication to economy**

This section discusses the effect of communication to Turkish economy. The discussion will begin with the previous literature in which advocate the positive impacts of communication to the economy in general.

### **Previous literature**

Many researchers assert that benefits of information communication technology can be useful to a country's economic growth for example Norton (1992) examines the sources of differences in economic growth rates of nations and tries to investigate the importance of telecommunications in developing a nation. Based to Norton (1992), telecommunications

makes it easier and cheaper to access relevant information and, thus, increase the efficiency of decision making processes. Norton (1992) carries out regression analyses for 47 countries and time span between 1957 and 1977 in order to validate about positive effects of telecommunications on economic growth. Norton found that telecommunications variables are positively correlated and generally significant and finally Norton (1992) concludes that telecommunications support economic growth by lowering transaction costs as one of the measures. Norton suggested that there is a link between economic growth and telecommunications by virtue of transaction costs. Decreasing transaction costs in information, product and factor markets are believed could contribute to a developed nations.

Another study conducted by Ramlan, et al. (as cited Penpece and Ozturk, 2011) attempt to determine whether there is significant impact of information communication technology on economic growth of Malaysia. Ramlan, et al. (2007) found that telecommunications could be considered affecting the economic growth in Malaysia significantly. They also indicate that approximately 10% of the growth in human capital productivity is due to information communication technology during the investigated years. The findings evidenced that information communication technology played a significant role in human capital development of Malaysia's economy. Ramlan et al's data were gathered through growth-accounting methodology and measure information communication technology contribution to growth in aggregate output in Malaysia between 1966 and 2005.

Conversely, a study by Erdil, et al (2010) investigates whether information communication technology revolution has a significant impact on economy particularly in strengthening the economic growth in the underdeveloped and developing countries. Erdil, et al. (2010) conduct an empirical research by using a panel dataset for 131 underdeveloped and developing countries for the period of 1995-2006. Erdil, et al. (2010) found a significant finding in which they found that 1% increase in information communication technology stock would increase approximately 0.1 percentage increases in GDP growth. Based on this result, they suggest that information communication technology usage has a significant positive effect on economic growth for underdeveloped and developing countries and, therefore, they should keep investing in information communication technology in order to increase the GDP respectively.

### **The effect of communication on economy of Turkey**

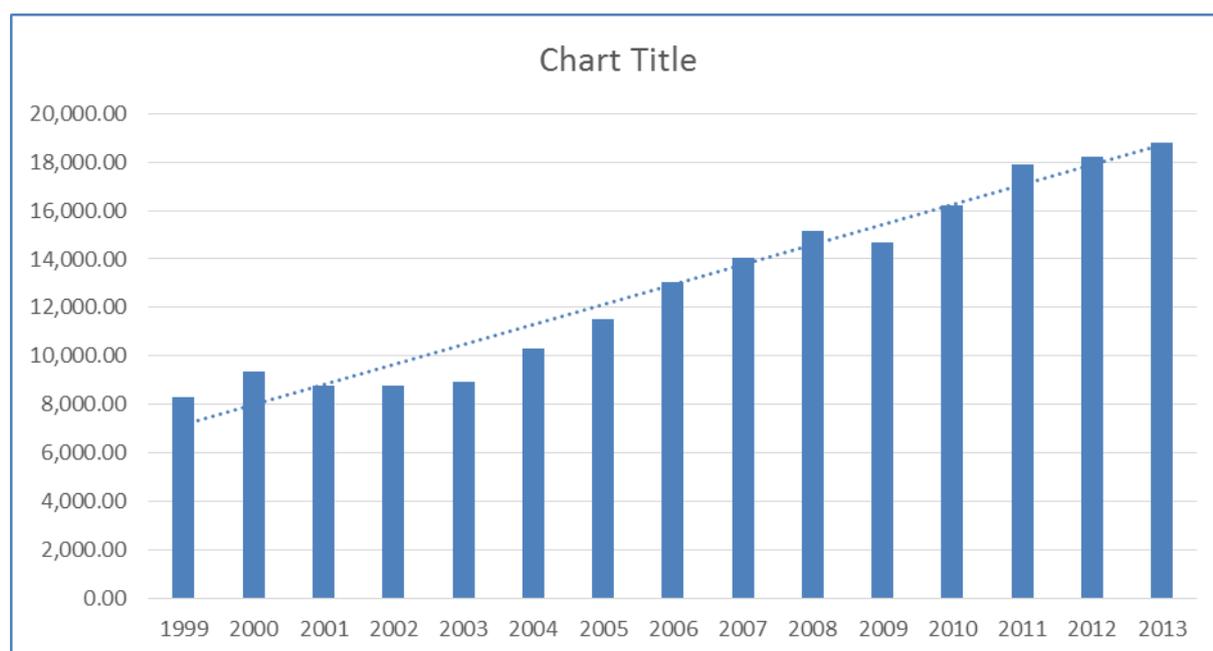
A communications system must interconnect all important centres of social, industrial, commercial, and bureaucratic activity to be effective (Falk and Abler, 1985:22). Previous studies for example Erdil, et al. (2010), Ramlan, et al. (2007) and Norton (1992) have evidenced that communications technologies have affecting economic growth significantly. The findings were validated by Falk and Abler (1985:24) in which they found that communications are the fundamental role for modern economies. Communication is an important system that allows people to sharing important symbols with mutual activities in broad sense (Birdwhistell, 1970; as cited Penpece and Ozturk, 2011). Judging from those findings, Turkey is considered to be one of the most important 'emerging markets' in the world driven by the development of telecommunications technology advancement and major steps have been applied to encourage the distribution of a modern telecommunications structure (Burnham, 2007: 197) urging modern economy Turkey should use communication systems largely. Turkey in the 1980s undertook both major structural reforms of its economy and the restoration of democracy (Oniş and Webb, 1992: 1). The reforms succeeded in making the Turkish economy more efficient and much more outward oriented (Oniş and

Webb, 1992: 1). A recent study conducted by Iscan (2012), attempted to examine the relationship between information and communication technology on economic growth for Turkey. Using the data from 1980 to 2011 of Gross Domestic Expenditure (GDP) on R&D, total public telecommunication operator investments used as proxies for development in ICT. Other variables including nominal shares of financial services, nominal shares of manufacturing, nominal shares of industrial sector, nominal shares of constructing sector, and nominal shares of trade sector. Iscan (2012) study found that there are two significant findings; first, the study suggested that there is clear evidence that the relationship between GDP sectors and ICT is positively correlated except the financial services. Second, the investments made by the public communication operator are significantly influence the economic growth compared to the Gross Domestic Expenditure on R&D.

Turkey has succeeded to achieve a competitive economic structure based on information and innovation, improve the living standards of society, providing high-quality employment opportunities through reforms realized in public administration and economic management during last decade. Based on Table 1, the GDP of Turkey was increasing from 1999 until 2013. Policies and implementations targeted for raising economic welfare of the society inevitably contribute to all pillars of sustainable development. After the serious global financial crisis in 2009, strong growth trend has maintained again with sound macroeconomic policies and structural reforms and Turkish economy has been one of the fastest growing economies in the world in 2011 and 2012 with 17,908.13 GDP and 18,211.03 GDP, respectively. In this framework, per capita income in Purchasing Power Parity (PPP), which per illustrated in Table 1.

**Table 1:** Turkish GDP – per capita PPP,(current international \$(in thousands) 1999 – 2013

Year	1999	2000	2001	2002	2003	2004	2005	2006
GDP	8,317.98	9,333.11	8,758.27	8,798.42	8,931.25	10,301.37	11,532.45	13,049.32
Year	2007	2008	2009	2010	2011	2012	2013	
GDP	14,040.02	15,177.53	14,659.95	16,193.37	17,908.13	18,211.03	18,782.85	



*Source: <http://search.worldbank.org>*

*Definition of GDP - per capita (PPP): Purchasing Power Parity GDP is gross domestic product converted to international dollars using purchasing power parity rates.*

## **CONCLUSION**

The role of telecommunication in developing a country is very important. In spite of the rapid growth in wireless telecommunication such as mobile phones applications, it is inevitably that the classical telecommunication system for example landlines are still important and relevant in daily business operations. This paper attempts to discuss the role of communication system in Turkey including newspaper and magazines, internet, postal services and fixed-line telephone and mobile phone. According to Grace et. al. (2004), the crucial role of communication technologies in stimulating development is significant by allowing countries increasing effect of economic growth by being able to modernize their production systems and increase their competitiveness. Conversely, Castells advocates that communication could be used as the detention of economies which are unable to adapt the new technological system becomes cumulative (Castells, 1999: 3).

Communication have crucial role in today's environment not only in working experience but also in individuals life. It is generally agreed that the percentage of communication technologies usage is an indicator of development. According to previous literature, it is evidenced that economy or GDP would increase in relation to the significant development of communications systems. In Turkey for example, the rapid growth on mobile phones and Internet (refer Chart 3 and 4) has shown that Turkish economy has been rapidly growing since the emergence of telecommunication technology i.e Internet and mobile phones. The emergence of GSM replacing ADSL in Turkey also plays a significant role in transmitting faster data intra-nation as well as inter-countries.

Furthermore, in many countries in the world nowadays, telecommunications become more important in order to manage the countries as well as to link with other countries. History has shown that during the World War I and II, effective communications has evidenced that it can lead to victory. Judging from the Turkey communication development, we found that the most important medium of communication in increasing the Turkish economy is Internet growth (Birdwhistell, 1970; as cited Penpece and Ozturk, 2011). Turkey is considered to be one of the most important 'emerging markets' in the world driven by the development of telecommunications technology advancement and major steps have been applied to encourage the distribution of a modern telecommunications structure (Burnham, 2007: 197) urging modern economy Turkey should use communication systems largely. Turkey's reform in which took place in the 1980s undertook both major structural reforms of its economy and the restoration of democracy (Oniş and Webb, 1992: 1). The reforms succeeded in making the Turkish economy more efficient and much more outward oriented (Oniş and Webb, 1992: 1).

After the serious global financial crisis in 2009, Turkish's strong growth trend has maintained again with sound macroeconomic policies and structural reforms and Turkish economy has been one of the fastest growing economies in the world in 2012 and 2013 with 18,221.13 GDP and 18,782085 GDP, respectively. Moreover, Turkey has succeeded to achieve a competitive economic structure based on information and innovation, improve the living

standards of society, providing high-quality employment opportunities through reforms realized in public administration and economic management during last decade, the GDP of Turkey was increasing from 1999 until 2013 (refer Table 1). Policies and implementations targeted for raising economic welfare of the society inevitably contribute to all pillars of sustainable development. From discussions in the earlier part of this paper, we can conclude that telecommunications technology significantly affect economic growth in a country. Furthermore, huge investment on communication systems nowadays is imperative as the return on investment is worthwhile by virtue of increasing the GDP and boosting the economy.

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