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Investment Support and Promotion Agency of Turkey

TURKISH INFORMATION AND COMMUNICATION TECHNOLOGIES INDUSTRY

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Deloitte.

CONTENTS

1. Executive Summary

The Turkish ICT sector is a fast growing sector with a CAGR of 14 percent between 2005 and 2009. Future trends, global and local developments present more opportunities each year. Since 2005, many large international players have invested in Turkish ICT companies.

The fact that the size of the Turkish ICT sector is still below the EU average gives Turkey great potential for growth. The overall size of the ICT market in Turkey is estimated as USD 29 billion in 2009. The sector can be considered to comprise four main categories: telecommunications, internet & broadband, hardware and software. The Turkish ICT market is dominated by telecommunications, constituting approximately 73 percent of the total, with the whole IT market, which constitutes the hardware and software categories, comprising the other 27 percent.[1] The IT market has experienced a double-digit growth over recent years since the financial crisis the country experienced in 2001, but the share of software and services is significantly behind Western markets and CEE countries, indicating significant growth potential.

The telecommunications sector in Turkey has grown rapidly in recent years as a result of the increase in the disposable income level and the government support for liberalization and privatization of the telecommunications sector. However, Turkey still has low fixed-line, internet and broadband penetration rates compared to its European peers.

The large population in Turkey, as well as the growing demand for IT services and infrastructure, are expected to increase total IT spending to a level of USD 10.5 billion in 2014 from USD 7.2 billion in 2009.[2]

Turkey is an attractive market for the development of telecommunications with its young population and its network infrastructure covering the whole country. Turkey's fixed line operator is Turk Telekom which was wholly state-owned until 2005. Turk Telekom was privatized and 55 percent of its shares were acquired by Oger Telecom in that year, and the state's ownership was further reduced by a public offering in 2008. Mobile communications are the most competitive sub-sector of the Turkish telecommunications market. There are 62.8 million registered mobile subscribers in Turkey as of 2009 year end. There are currently three licensed mobile operators, namely, Turkcell, Vodafone and Avea. Average mobile penetration rate for EU countries was 125 percent as of October 2009 whereas Turkey's penetration rate is 88 percent as of December 2009. Similar to EU countries, the mobile penetration rate is expected to increase further.

Multinational players constitute a large part of Turkey's hi-tech sector. Companies such as IBM, Hewlett-Packard, Dell, Siemens, Cisco and NCR have local subsidiaries in Turkey. Recently Technology Development Zones ("TDZ") have been established. Software developers benefit from significant tax and investment incentives provided by the government in these zones. The Turkish government has implemented new legal frameworks to encourage R&D and IT spending, which supports the growth of the sector. Income earned as a result of R&D activities by companies located in TDZs is exempt from tax. Additional incentives include contributions to the social security premiums of R&D staff.

Turkey has highly qualified human resources in the IT sector. Very competent, young and dynamic computer engineers and software developers have been trained and meet the increasing demand in the sector.

[1] TUBISAD (Turkish Informatics Industry Association)

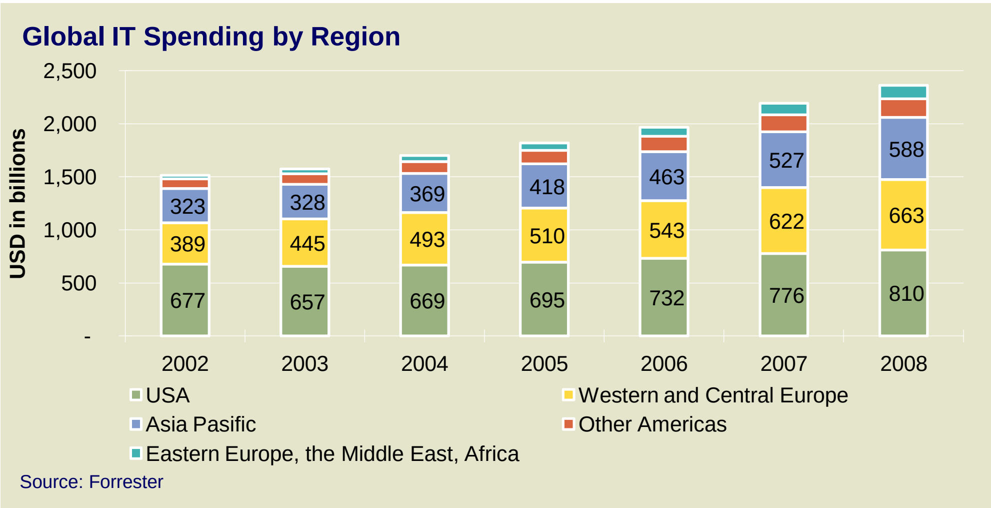
[2] Economist Intelligence Unit, Turkey: Telecoms and Technology Report, 2010

2. Sector Overview

2.1 Global Sector

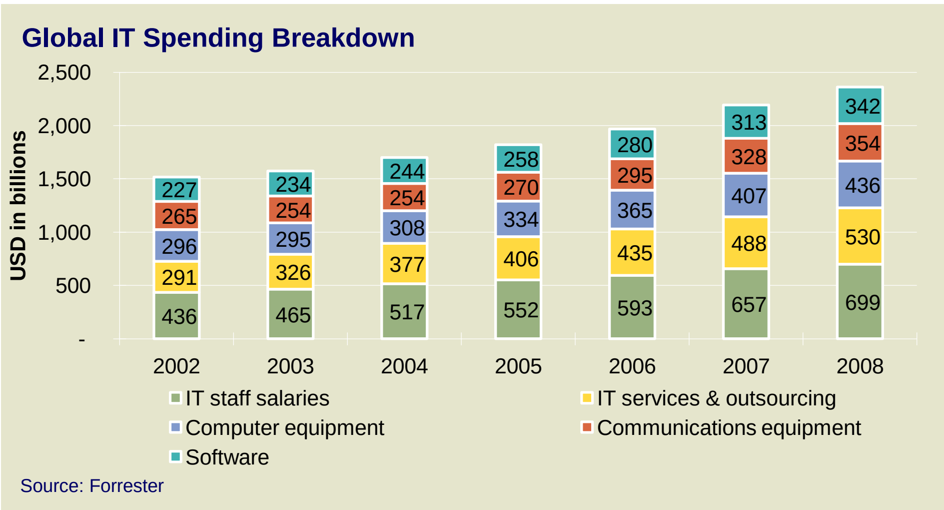
Global IT spending reached a level of USD 2.4 trillion in 2008, from USD 2.2 trillion in 2007, with a growth rate of 8 percent. The US is the largest IT spender in the world, with USD 810 billion of spending in 2008. The Western-Central Europe region is the second largest IT spender, with USD 663 billion (€483 billion) in 2008. Asia-Pacific's IT spending followed closely at USD 588 billion and is estimated to have grown at double-digit rates in 2008. Eastern European, Middle Eastern and African IT spending was also growing at double-digit rates in 2006 and 2007.[3]

Figure 1 - Global IT Spending by Region



Within the global IT market breakdown, the largest category is IT staff costs with 30 percent share, estimated to have amounted to USD 699 million in 2008. The second largest category in the global market is the IT services and outsourcing category with 22 percent. Global software spending is lower than the computer or communications equipment spending.

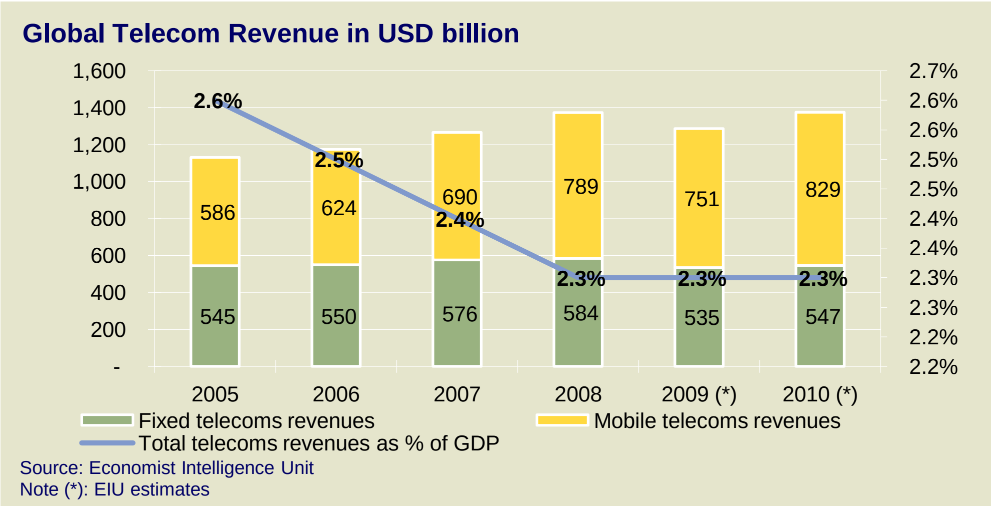
Figure 2 - Global IT Spending Breakdown



3 Forrester Research, 2009

In 2009, the global telecommunications market size was recorded as USD1,286 billion, down from USD 1,373 billion the previous year, a decrease of 6.4 percent[4]. The shrinkage in market size is explained by the global economic conditions. The major telecommunication players in the world have been suffering from unfavourable currency fluctuations and shortage of new growth opportunities. During the slowdown, customers in Western markets have switched to cheaper tariffs and limited their usage which placed serious pressure on the largest telecommunication operators. Accordingly, a movement towards consolidation is expected in global telecommunications markets. The global operators are actively seeking to acquire the few new licences and takeover targets left in under-penetrated emerging markets.

Figure 3 - Global Telecom Revenues



The internet market has been facing difficulties; however, the number of people with internet access has reached c.30 percent of the global population in 2009, up from 28 percent in 2008. The trend is expected to continue in 2010 and increase to c.32 percent of the global population. Broadband, which as yet has a small base, is also growing rapidly. Total broadband subscribers globally have reached c.502m in 2010. However, the growth rate is expected to be higher in emerging markets than in the developed and saturated markets.[5]

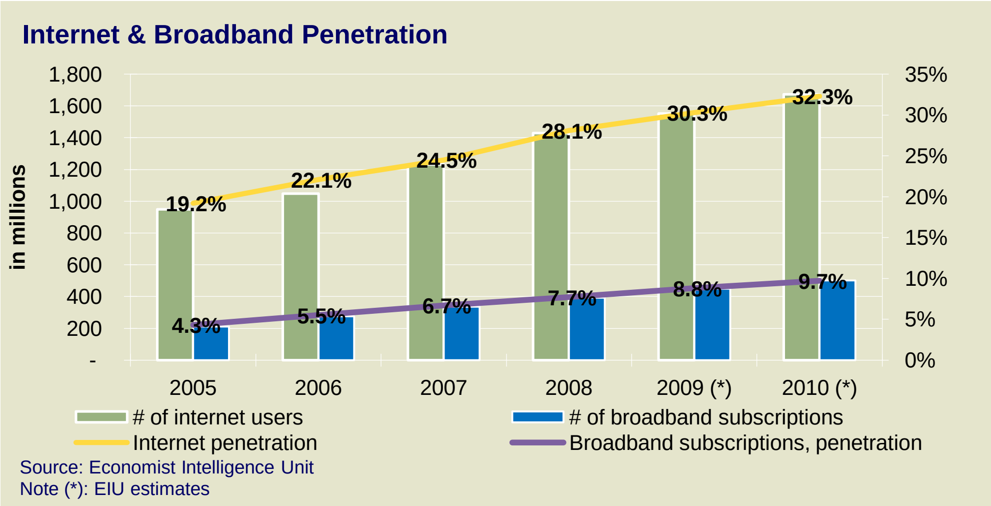
Worldwide fiber-based broadband subscribers reached 43 million in 2009. This figure is expected to rise to 125 million by 2014.[6] Most of the growth in this area is expected to take place in the Asian and US markets, where leading fixed-line operators are expanding their networks in the major cities. South Korean and Japanese markets, which are already strong in broadband, are expected to continue their growth. The emerging markets are suffering from weak investment ratios in broadband services.

4 Economist Intelligence Unit, 2010

5 Economist Intelligence Unit, 2009

6 Pyramid Research and Economist Intelligence Unit, 2010

Figure 4 – Global Internet & Broadband Penetration



The hardware segment was heavily impacted by business spending cuts that took place during the financial crisis in 2008. In 2009, global hardware spending decreased by a significant 9.2 percent to USD 514 billion. The growth rate for 2008 was recorded as 0.9 percent, also showing the negative effects of the financial crisis. However, this segment has started to recover from the effects of the crisis, and personal computer sales have started to grow above expectations. Total spending on hardware is expected to grow by 2.2 percent to USD 525 billion in 2010.[7]

Figure 5 - Global Hardware Penetration & Expenditure

Hardware Penetration and Expenditure

	2005	2006	2007	2008	2009 (*)	2010 (*)
No. of PCs (in millions)	906	1,019	1,134	1,271	1,390	1,514
No. of PCs (per 100 people)	18	21	23	25	27	29
No. of PCs (% growth)	*13.6%*	*12.4%*	*11.3%*	*12.1%*	*9.4%*	*8.9%*
Hardware spending (USD billion)	448	526	561	566	514	525
Hardware spending (USD; % growth)	*9.4%*	*17.5%*	*6.6%*	*0.9%*	*(9.2)%*	*2.2%*
Hardware spending (% of global GDP)	*1.0%*	*1.1%*	*1.1%*	*1.0%*	*0.9%*	*0.9%*

Source: Economist Intelligence Unit
(*) EIU Estimates

2.2 The Domestic Sector

2.2.1 Overview

Turkey is likely to become a key strategic country for vendors in the near future. The Turkish ICT sector is a fast growing sector with a CAGR of 14 percent between 2005 and 2009. According to BMI predictions, Turkey will be the highest growing IT market in the 2009-2014 period, followed by Poland.[8]

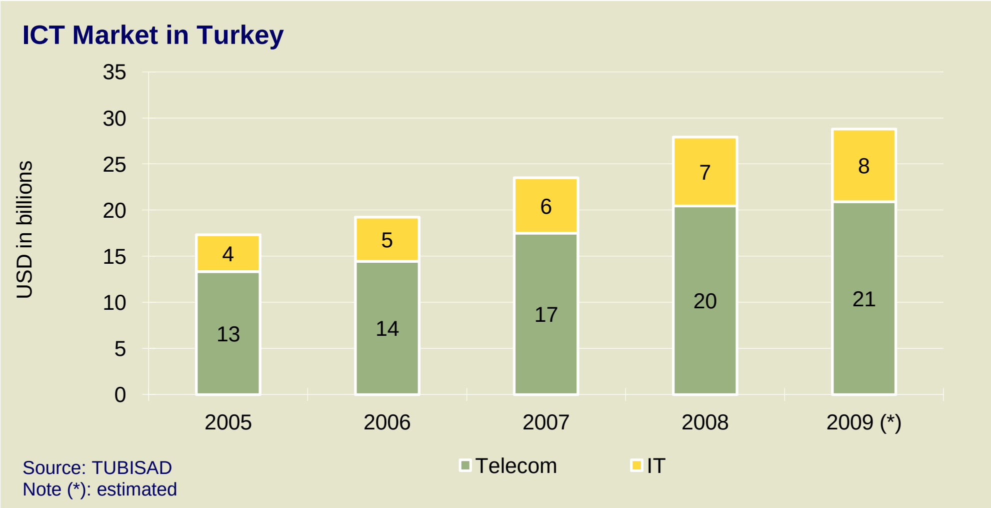
The country has a large and predominantly young population, and future trends, global and local developments offer more opportunities each year. Moreover, the fact that the current size of the Turkish ICT sector is below EU averages presents great scope for growth.

[7] Economist Intelligence Unit, 2010

[8] Business Monitor International, Turkey Information and Technology Report Q2 2010

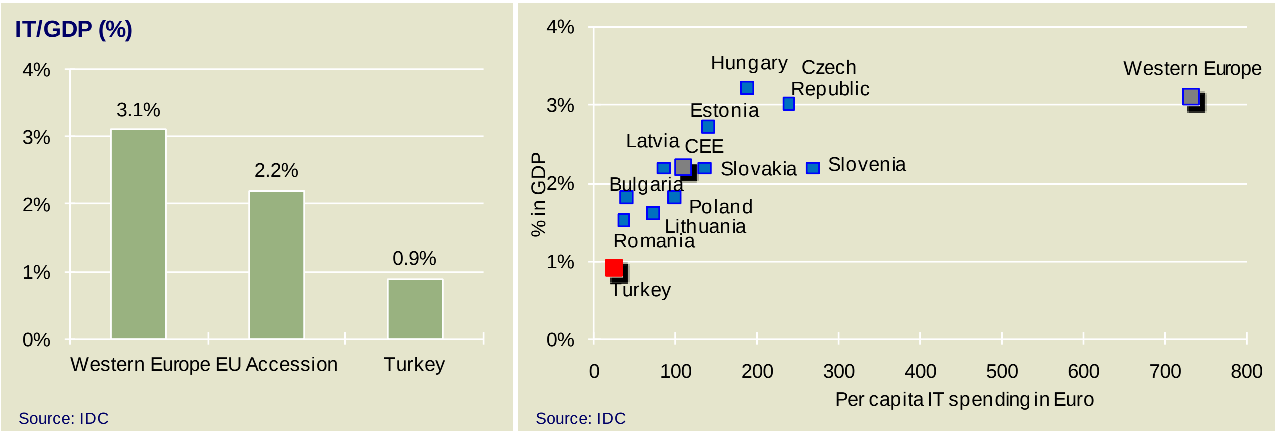
The overall size of the ICT market in Turkey is estimated to be USD29 billion in 2009. The Turkish ICT market is dominated by telecommunication, constituting approximately 73 percent of the total, with the entire IT market constituting the other 27 percent. The IT market has experienced double-digit growth over recent years except during the 2001 financial crisis and in 2009.[9]

Figure 6 - Turkish ICT Market 2005-2009



The size of the IT market and the share of software and services are significantly behind Western markets and CEE countries, indicating significant growth potential.

Figure 7 - Turkish IT Market vs. Europe



[9] TUBISAD (Turkish Informatics Industry Association)

Export and import volumes in the ICT sector have reached levels of USD3.27 billion and USD9.05 billion respectively as of 2009.[10] The volumes in recent years have been as follows:

Figure 8 - Turkish ICT Foreign Trade

The sector can be broken down into four main categories as follows:

- telecommunications,
- internet & broadband,
- hardware and
- software.

The four categories are further analyzed in the following sections.

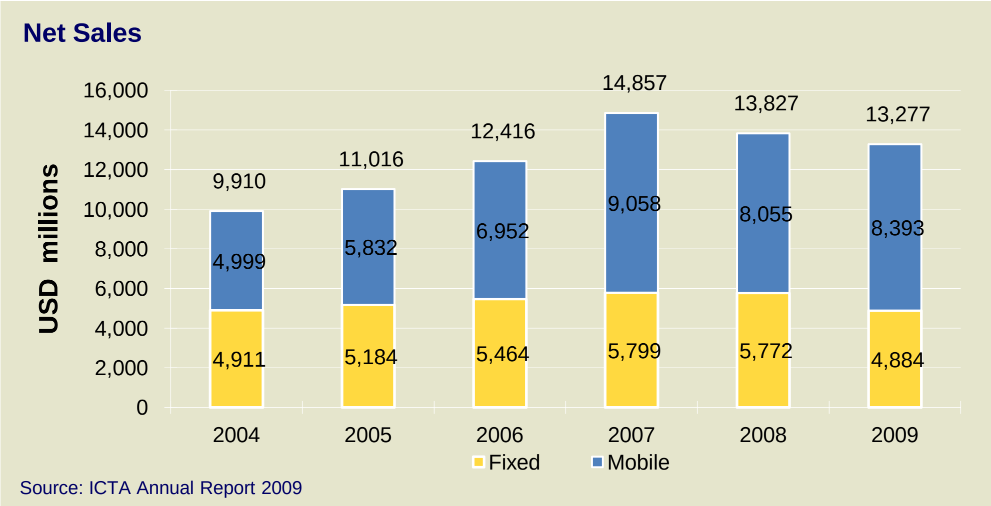
Telecommunications

Turkey is an attractive market for the development of the telecommunications sector with its young population and its network infrastructure covering the whole country. The liberalization of the telecommunications sector in Turkey has led to higher quality services offered at more suitable prices. Total telecommunications revenue in Turkey, comprising both fixed line and mobile, was reported at USD 13.3 billion in 2009, down from USD 13.8 billion in 2008.[11] In 2009, 36.7 percent of total revenue consisted of fixed line revenues whereas 63.2 percent was mobile revenues. However, investment in electronic communications is growing. Total investments for fixed and mobile operators reached USD3.7 billion in 2009 with an increase of 46 percent compared to the previous year. Mobile sector investments amounted to c.79 percent of the investment total in 2009. The fixed line penetration rate reached a peak in 2001 at 28.5 percent and has been slightly decreasing starting from 2004 due to the growth of mobile usage.[11]

[10] Undersecretariat of Foreign Trade – Export Promotion Center (IGEME)

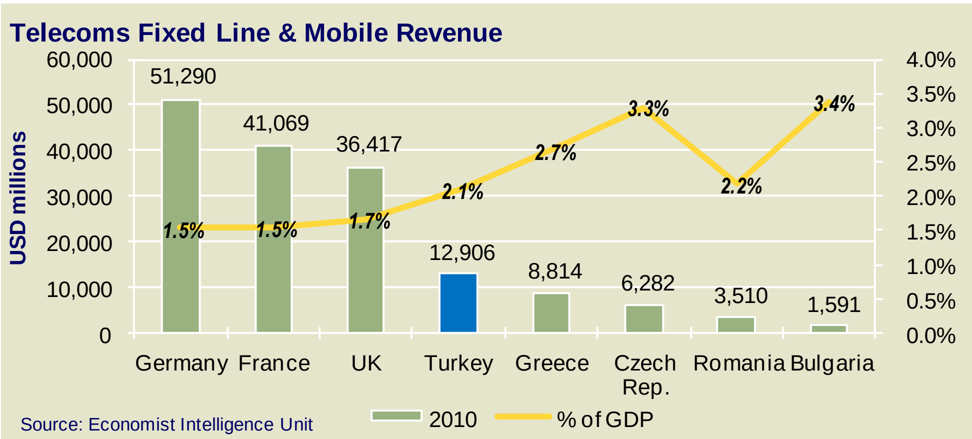
[11] Information and Communication Technologies Authority, 2010

Figure 9 - Fixed Lines and Mobile Revenue



Turkey's fixed line operator is Turk Telekom which was state-owned until 2005. In November 2005, Turk Telekom was privatized through a 55 percent shareholding being sold to Oger Telekomunikasyon (a consortium led by Saudi Oger and Telecom Italia). Following that block sale, a further 15 percent of Turk Telekom's capital was privatized through a public offering on the Istanbul Stock Exchange, where Turk Telekom has been traded since May 15, 2008. Turkey's fixed line and mobile sector revenue level is below mature markets such as Germany, Italy, France and the UK.

Figure 10 - Telecoms Fixed Line & Mobile Revenue



Mobile communications is the most competitive sub-sector of the Turkish telecommunications market. There were 62.8 million registered mobile subscribers in Turkey as of 2009 year end. There are currently three licensed mobile operators, namely, Turkcell, Vodafone and Avea. Mobile Number Portability was introduced in Turkey on November 9, 2008 to strengthen the free competition in the market.[12]

[12] ICTA, 2009

Figure 11 - Market Shares of Mobile Operators in 2009

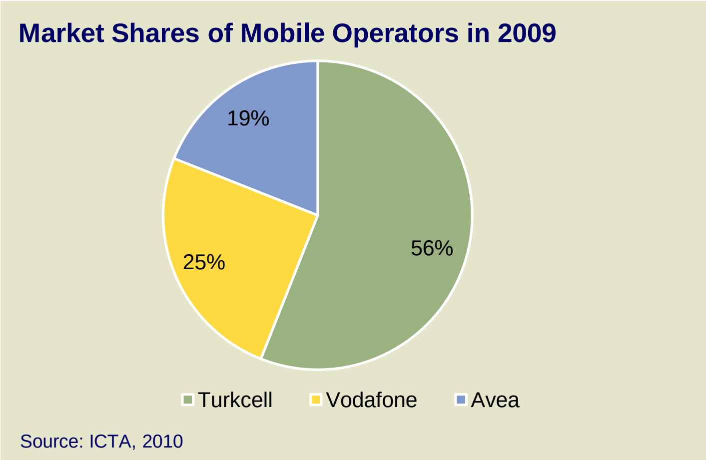
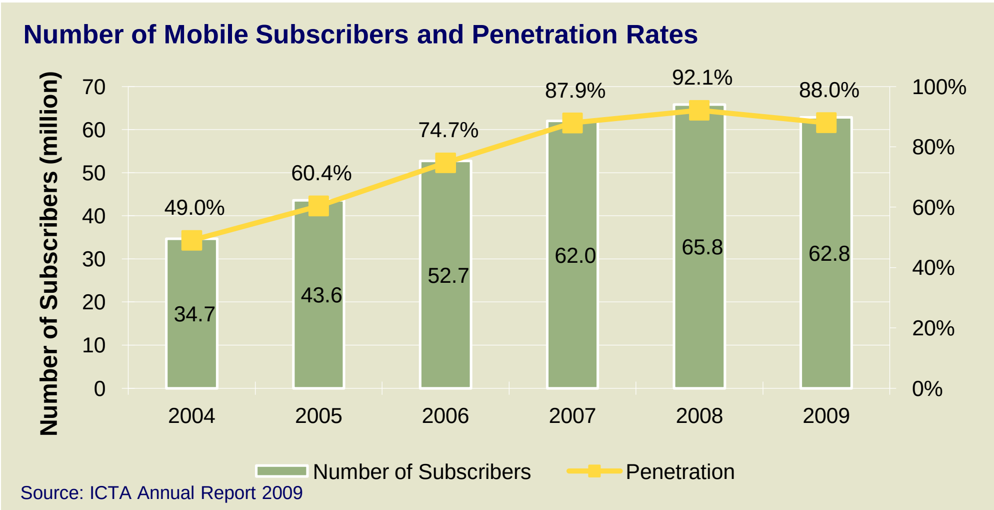
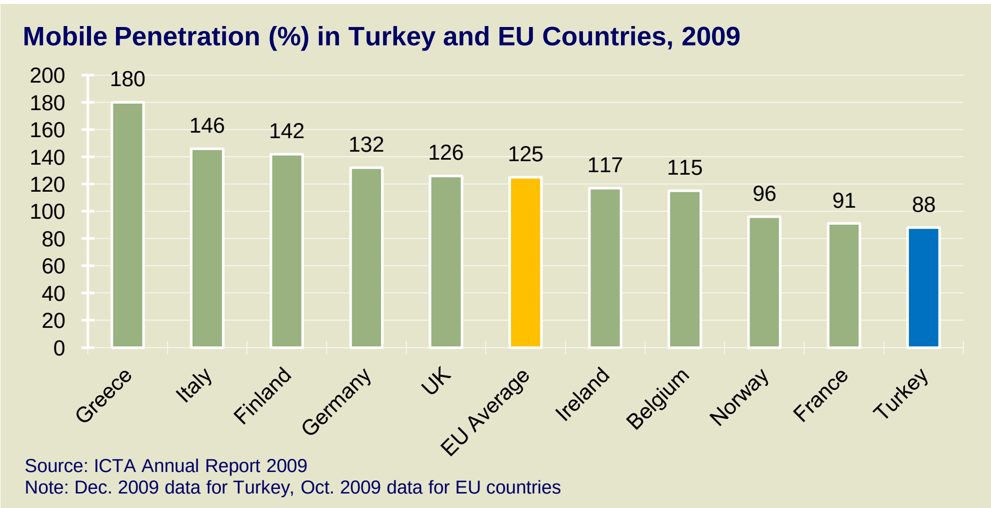


Figure 12 - Number of Mobile Subscribers and Penetration Rates



Average mobile penetration rate for EU countries was 125 percent as of October 2009 whereas Turkey's penetration rate is 88 percent as of December 2009. The penetration rate in Turkey is expected to increase further towards the EU level.

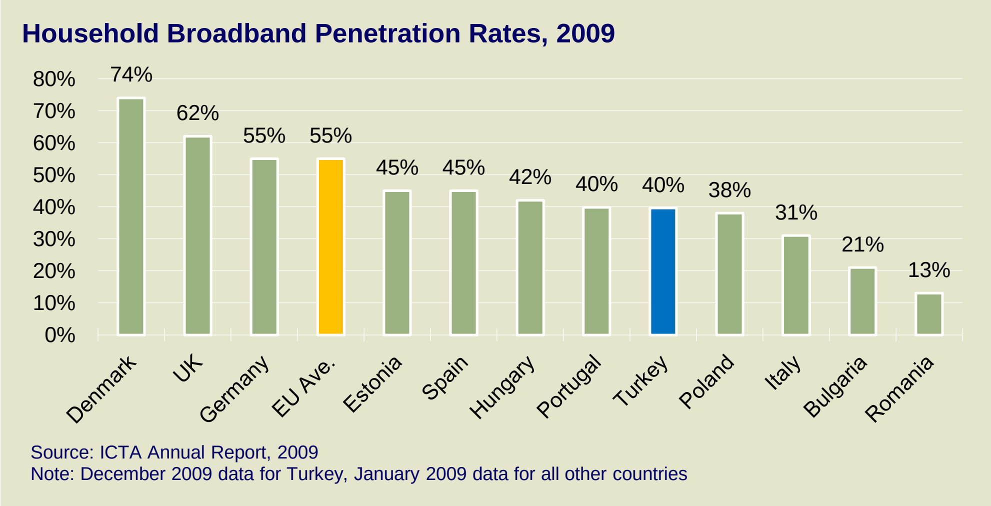
Figure 13 - Mobile Penetration Rates in Turkey and EU Countries



Internet & Broadband

As shown in the graph below, the household broadband penetration rate in Turkey appears relatively low when compared to EU averages; however penetration rate in Turkey still exceeds some European countries such as Poland, Italy, Bulgaria and Romania, and is very close to the rates in Portugal, Hungary, Spain and Estonia. On the other hand, the personal computer (PC) penetration level in Turkey in 2009 was only about 25.3 percent, compared to 77 percent in the UK. Since internet usage depends on PC penetration, increasing PC usage and ownership in Turkey are expected to create opportunities for the broadband market.[13]

Figure 14 - Broadband Penetration Rates in Turkey and EU Countries



After the migration from dial-up and cable Internet to ADSL, ADSL has become the most widely used Internet access tool in Turkey. The number of ADSL subscribers rose to a level of 6.2 million in 2009 from 1.5 million in 2005.[12]

Figure 15 - Number of Internet Subscribers in Turkey

Number of Internet Subscribers

	2004	2005	2006	2007	2008	2009
ADSL	452,398	1,539,477	2,813,143	4,545,795	5,894,522	6,216,028
Cable Internet	37,404	31,729	27,804	41,109	67,408	146,622
ISDN	14,005	14,298	14,535	15,297	17,096	16,570
Satellite	2,203	2,823	7,164	6,884	7,075	7,074
Total	**506,010**	**1,588,327**	**2,862,646**	**4,609,085**	**5,986,101**	**6,386,294**

Source: ICTA Annual Report 2009

The ratio of internet users in Turkey per 100 people was 42 percent in 2009. In 2010, this ratio is expected to reach 49 percent, demonstrating a substantial increase which will bring internet usage in Turkey close to rates in other European countries such as Italy, Bulgaria and Romania. The number of internet users in Turkey has grown with CAGR of 41.6 percent between 2005 and 2009.[14]

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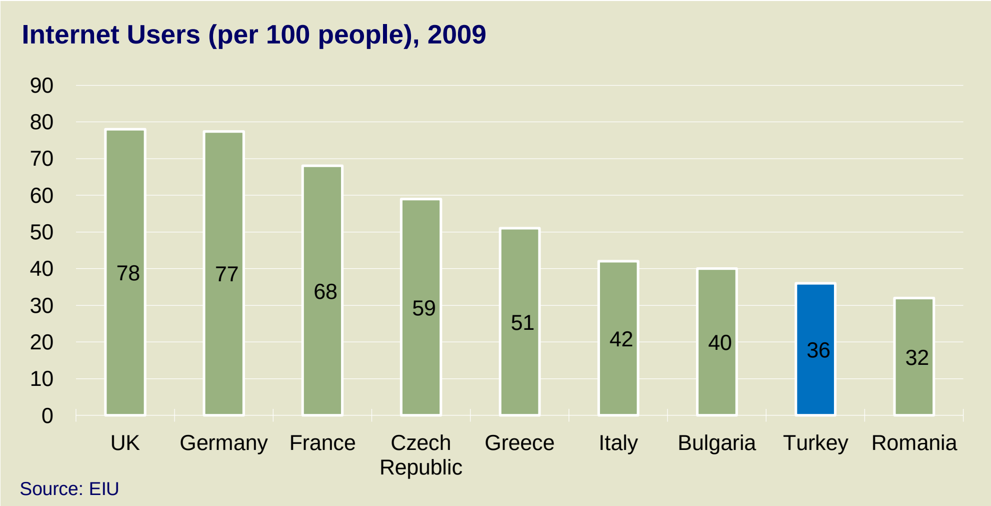
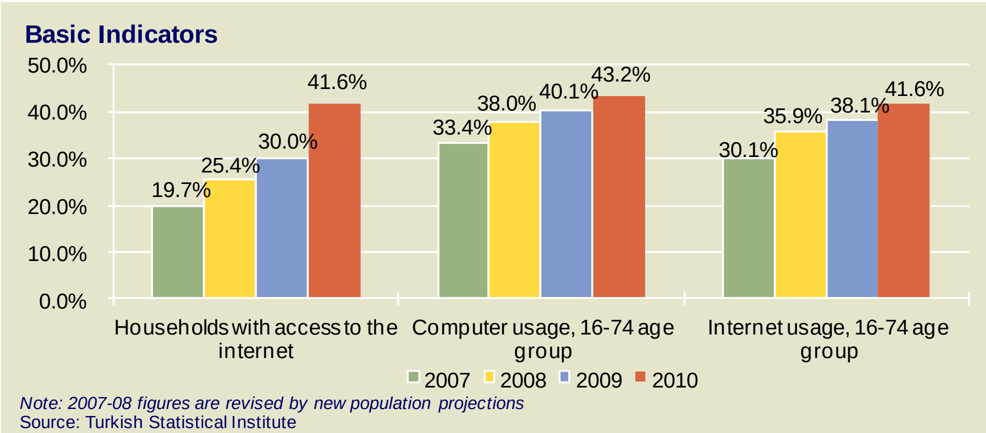
[13] Economist Intelligence Unit, 2010

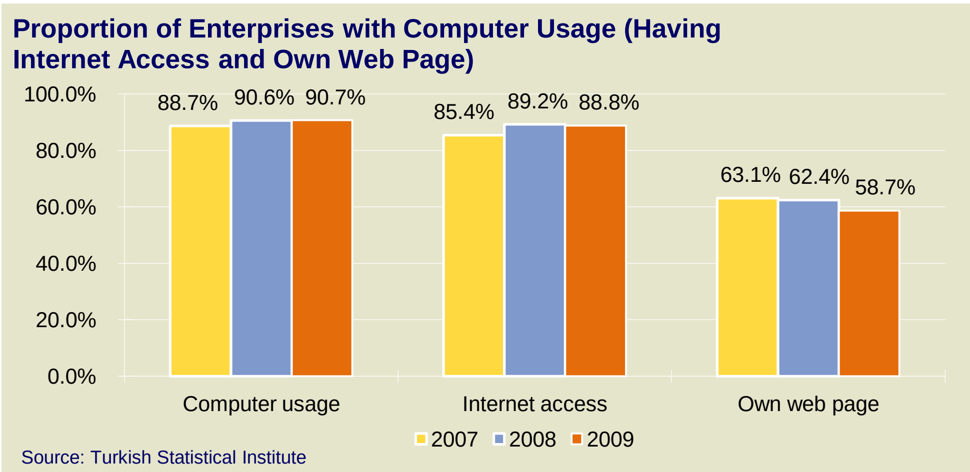
Figure 16 - Internet Users per 100 People, Comparison



The rates of internet access, the computer usage as well as internet usage have increased consistently between 2007-2009 in Turkey.[14] As shown in the chart below, the internet and computer usage of enterprises in Turkey has reached high levels over the same period.

Figure 17 - Internet Usage of Households and Enterprises

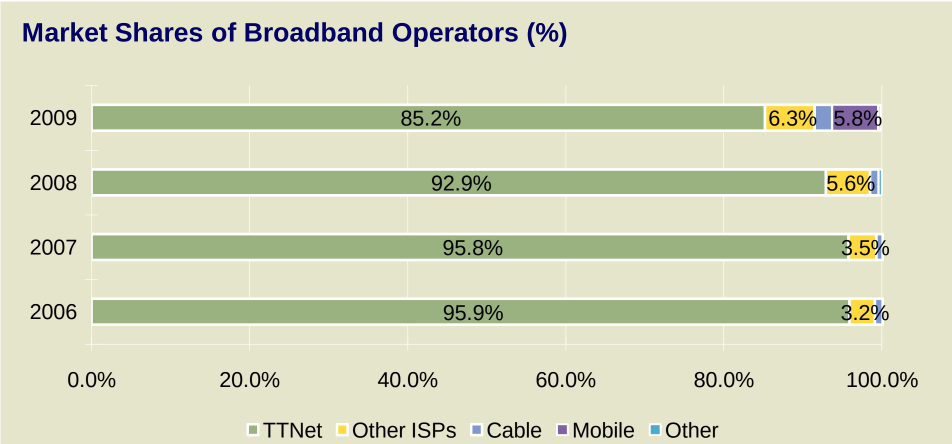




[14] Turkish Statistical Institute

Yearly market shares of the broadband operators are indicated below. In 2009, the market share of TTNet which is owned by the fixed line operator (Turk Telekom) decreased by 10.7 percent in 2009 as shares of mobile and alternative operators grew. However, TTNet's dominance remains clear.

Figure 18 - Market Shares of Broadband Operators



Source: ICTA Annual Report 2009

Hardware

In 2006, the stock of PCs was 92 per 1,000 people in Turkey. It has grown rapidly and reached levels of 253 per 1,000 people in 2009. This figure is higher in European markets, being 519 per 1,000 people in Italy, 725 in Germany and 766 in France. The temporary value-added tax (VAT) reduction on consumer durables, introduced in March 2009 in the Turkish market to counter the impact of the financial crisis, improved the sales of PCs and laptops in 2009.[15]

Figure 19 - Hardware Penetration in Turkey

Hardware Penetration

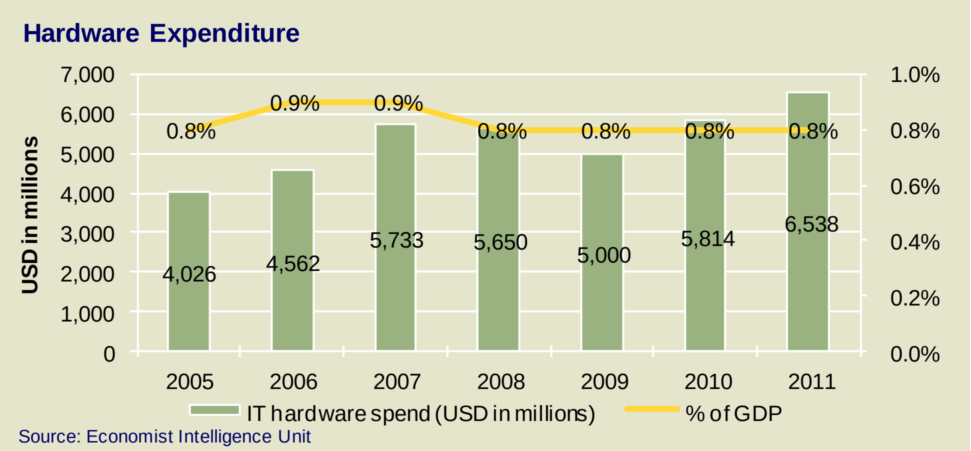
	2005	2006	2007	2008	2009
Stock of personal computers ('000)	5,000	6,500	9,500	16,150	18,350
Stock of PCs (per 100 people)	7.2	9.2	13.4	22.5	25.3
Stock of PCs (% growth)	35.0%	30.0%	46.2%	70.0%	13.6%

Source: Economist Intelligence Unit

Major multinational institutions, such as IBM, Hewlett-Packard, Dell, Siemens, Cisco, and NCR, account for a considerable share of Turkey's technology market. These multinationals typically have local subsidiaries, which assemble PCs and other IT hardware components imported from overseas. Sales are realized both domestically and for export to the EU, Eastern and Central Europe, and the Middle East.

[15] Economist Intelligence Unit, 2010

Figure 20 - Hardware Expenditure in Turkey



Software

The Turkish software industry is a dynamic and fast developing sector. There are currently ten different state incentive programs. Four of these programs target only SMEs.

Recently, there has been a huge increase in the number of "Technology Development Zones" (TDZs) where many of the Turkish IT companies are located. Software developers located in these TDZs benefit from significant tax and investment incentives provided by the government. Law No: 4691, the "Technology Development Zones Law", was enacted on June 26, 2001. The number of companies located in TDZ's reached 1,381 as of May 2010.

Figure 21 - Technology Development Zones in Turkey

Technology Development Zones

	2005	2006	2007	2008	2009	2010
Number of Technology Development Zones (*)	20	22	28	31	37	38
Number of Companies	500	604	802	1,154	1,254	1,381
Employment in the TDZs	5,042	8,843	9,770	11,093	11,021	12,091

Note: (*) The number of operational TDZ's as of May 2010 is 26
Source: Ministry of Industry web site (http://www.sanayi.gov.tr)

Today, there are about 55 Computer Engineering Departments in various Turkish universities with around 3,000 graduates per year. In addition, it is estimated that around 15,000 graduates of other disciplines with IT knowledge enter the market each year. Moreover, there are 727 private computer training courses under the support of the Ministry of National Education.

Turkey has highly qualified human resources in the IT software sector. Very competent, young and dynamic computer engineers and software developers have been trained and are meeting the increasing demand in the sector. It is believed that the rates of employee turnover are lower and loyalty is higher than in many of the low-cost base countries developing software around the world.

Software piracy is one of the biggest problems in the sector. The Turkish government is taking the necessary actions to prevent copyright infringement.

Turkish software companies are increasingly obtaining various certifications which are mandatory for large scale projects.

The Turkish government gives high priority to market-friendly policies in order to improve the environment for foreign direct investments. Various incentives, tax exemptions and waiver mechanisms introduced in the law, create important potential opportunities and benefits to universities, academics and companies that have R&D activities and/or are developing software in TDZs. Accordingly, the participants are exempt from corporate taxes on the revenues generated by software development and R&D activities until December 31, 2013. Additionally, the wages of R&D and software development personnel in the TDZ companies are exempt from any taxes until December 31, 2013. The companies can also benefit from other government support determined by the law.

2.2.2 Main Players

Reform of the communications market started in accordance with the Telecommunications Law in 2000. The law established an independent regulator, the "Information and Communication Technologies Authority" and predetermined full market liberalization starting from January 2004.

Until 2001, the GSM operators Turkcell and Telsim enjoyed a duopoly in the mobile market. In 2001 the government awarded two further GSM licences, to Aycell, owned by Turk Telekom and to Aria, owned by Telecom Italia. The two new mobile operators competed to gain market share and merged in February 2004. The ownership of Telsim was transferred to the government after its owners were convicted of fraud in relation to different areas of their activity. The operator was afterwards privatized in an international tender won by Vodafone in December 2005. 3G mobile licences were awarded to all three operators in 2008 and services commenced in 2009.

Figure 22 - Main Players in the Sector

Main Players

Company and Website	Shareholders	Sector	Company Description	Market Cap. as of 30.07.2010 (TRY million)	Sales in 2009 (TRY million)
Turk Telekom (www.turktelekom.com.tr)	Oger Group (55%) ; Rep. of Turkey P.M.Undersecretariat of Treasury (30%); Public Offering (15%)	Telecoms	Provides fixed telephone, mobile telephone, and Internet services to personal and corporate customers principally in Turkey	19,970	10,568
Turkcell (www.turkcell.com.tr)	Turkcell Holding A.Ş. (51%); Others (49%)	Telecoms	Provides mobile voice and data services over its mobile communications network; voice services; mobile data and services; and interactive voice and video response services	19,910	8,936
Avea (www.avea.com.tr)	Turk Telekom (81%); Others (19%)	Telecoms	Aria and Aycell brands were sustained under the umbrella of TT&TIM in 2004. It provides telecommunication	Not Listed	1,397 (*)
Vodafone Turkey (www.vodafone.com.tr)	Vodafone Group (100%)	Telecoms	Telsim was established in 1994 and became a member of Vodafone Group in 2006.	Not Listed	1,790 (*)
Anel Telekom (www.anel.com.tr)	Public Shares (40.91%); Rıdvan Çelikel (26.18%); Anel Elektrik Proje Taahhut ve T.A.Ş. (20%); Other (11.14%)	Hardware	Anel Telekom gives service to central-data and transmission systems in metropol and rural places for institutional customers.	76	N/A
Karel Elektronik (www.karel-electronics.com)	Public Shares (30.96%); Serdar Nuri Tunaoğlu (23.01%); Sakır Yaman Tunaoğlu (23.01%); Ali Sinan Tunaoğlu (22.97%); Other (0.05%)	Hardware	It is engaged in design, development, production and marketing of all kinds of telephone systems including public switches and PBX systems.	102	109
Logo Yazılım (www.logo.com.tr)	Logo Yatırım Holding A.Ş. (70.56%); Public Shares (21.3%); Other (8.14%)	Software	Founded in 1984 as a small software house, Logo Yazilim is now the largest ISV in Turkey and has grown into a group of companies encompassing various fields of the IT sector.	52	14
Meteksan (www.meteksan.com.tr)	N/A	IT services	Meteksan IT Group, consists of five companies working within the Bilkent Holding Co.. Meteksan Sistem, Meteksan Net, Tepe Teknoloji, Mobilsoft, and Sispa.	Not Listed	N/A
Datateknik (www.datateknik.com.tr)	One of Yıldız Holding's companies	Hardware	It produces hardware, and provides system integration, IT hardware integration, software, consultancy, mobile solutions, technical support and outsourcing services, and broadcasting solutions.	Not Listed	N/A
Nortel Networks Netaş (www.netas.com.tr)	Nortel Networks International (53.13%); Public Shares (31.87%); Turkish Army Association (15%)	Telecoms	Established as a joint venture company between Turkish PTT and Northern Electric Company Limited of Canada with the aim of supplying Turkey with locally manufactured equipment.	357	212
Alcatel (www.alcatel-lucent.com)	Alcatel N.V. (65%); Other (35%)	Telecoms	Formed from the merger of Alcatel and Lucent Technologies when Alcatel's parent company, CGE, acquired ITT's European telecom business.	115	353
Arena Bilgisayar (www.arena.com.tr)	Public Shares (38.21%); Izi Kohen (18.88%); Mehmet Betil (17.48%); A.Umur Serter (11.12%); Alvi Mazon (11.12%); Namık Tülümen (3.19%)	Computer and Electronic Product Manufacturing	The company's product portfolio includes PCs, peripherals, PC components, consumer electronics, networking & communication products, supplies & accessories and software.	106	698
Escort (www.escort.com.tr)	H.Ibrahim Ozer (58.73%); Public Shares (37.77%); Other (3.5%)	Computer and Electronic Product Manufacturing	It is active in manufacturing and marketing of PCs. The company realizes its sales to corporate customers through Index chain and the sales to individual customers through EscortLand franchise store chains.	21	9
Vestel Elektronik (www.vestel.com.tr)	Collar Holding (51.59%); Public Shares (48.41%)	Computer, Electronic Product, Electrical Equipment, Appliance, and Component Manufacturing	It manufactures color televisions, refrigerators, room air conditioning units, washing machines, and cookers; and electronic devices, such as digital devices, computer, and panel.	765	3,796
Indeks Bilgisayar (www.index.com.tr)	Nevres Erol Bilecik (39.96%); Pouliadis Associates SA (35.56%); Public Shares (19.89%); Ayse Inci Bilecik (2.37%); Nikos Pentherousdakis (2.22%)	Computer and Electronic Product Manufacturing	It engages in the wholesale trading of various information technology (IT) products in Turkey.	118	1,116

Source:ISI Emerging Markets, Capital IQ & Company websites
Note (*): 2008 sales in TL m

2.3 Sector Outlook

The Turkish telecommunications and IT markets have grown rapidly in recent years as a result of increases in disposable income levels and the government support for liberalization and privatization of the telecommunications sector. However, Turkey still has low fixed-line, internet and broadband penetration rates compared to its European peers. The large population in Turkey, as well as the growing demand for IT services and infrastructure, are expected to increase total IT spending to a level of USD 10.5 billion in 2014 from USD 7.2 billion in 2009[16]. Increasing competition in the telecommunication sector is also expected to motivate operators such as Turk Telekom, Turkcell and Vodafone to continue looking for new business expansion and customer retention strategies to sustain and gain market share. These companies are likely to invest in new technologies such as WiMAX, IPTV and 3G, pushing the deployment of network infrastructure in the country.

Fixed-line penetration has been declining since a peak around 2001-2004 in Turkey, similar to most developed and developing countries. Accordingly, the penetration rate is estimated to have decreased to 23.3 percent in 2009, from around 28 percent in 2004. The penetration is low compared to EU countries, for example c.37 percent in France, 43 percent in Germany, 46 percent in Greece and 31 percent in Hungary.[16]

The outlook for fixed-line telephone penetration does not look promising. Fixed-line penetration is expected to decline to 19 telephone main lines per 100 people by 2014, as more individuals choose to rely only on mobile telephones. In 2010, the fixed-line telephone lines are expected to be 16.4 million. On the other hand, the outlook for mobile subscriptions is for significant increases in the next five years. The rate of mobile subscription per 100 people is expected to reach 95 in 2010 and 113 in 2014. The number exceeds 100 as people subscribe to more than one mobile line.[16]

Figure 23 - Telecoms Penetration Forecast

Telecoms Penetration

	2010	2011	2012	2013	2014
Telephone main lines ('000)	16,464	15,925	15,368	14,701	14,086
Telephone main lines (per 100 people)	23	22	21	20	19
Mobile subscriptions ('000)	69,481	73,441	77,748	81,907	86,177
Mobile subscriptions (per 100 people)	95	99	104	109	113

Source: Economist Intelligence Unit

The Turkish mobile telecommunications segment has achieved a considerable size with its share of c.60 percent within total sector revenue in 2008 and is expected to continue growing. Mobile number portability (MNP) which was launched in November 2008, as well as the 3G mobile services which were introduced in July 2009, have accelerated the competition between the three market players. Mobile virtual network operators (MVNO) are also expected to start operating in the market along with the three mobile operators. Mobile-phone subscribers are expected to grow at an annual rate of 5.5 percent between 2010 and 2014, following a fall of 0.5 percent in 2009. This will increase the mobile-phone penetration rate in Turkey to about 113 percent in 2014, similar to most EU countries, where penetration rates are generally around 100-120 percent.[17]

There were 30 million internet users in 2009 in Turkey, compared to c.10.3 million in 2005. The ratio of subscribers per 100 people reached a level of 42 percent in 2009, compared to 14.7 percent in 2005.[18]

[16] Economist Intelligence Unit, 2010

[17] Economist Intelligence Unit, 2010

[18] Economist Intelligence Unit, Turkey: Telecoms and Technology Report, 2010

Figure 24 - Internet Penetration Forecast

Internet Penetration

	2010	2011	2012	2013	2014
Internet users ('000)	35,759	41,305	46,402	50,862	54,613
Internet penetration (per 100 people)	49	56	62	68	72
Broadband subscriptions ('000)	7,793	9,029	10,440	11,681	12,690
Broadband subscriptions (per 100 people)	11	12	14	16	17

Source: Economist Intelligence Unit

The stock of PCs increased with an annual growth rate of 33 percent between 2004 and 2009 and reached 18.4m in 2009. Sales were supported in recent years by declining international PC prices and the strong Turkish lira (particularly until October 2008), making imported PCs less expensive. The reduction in value-added tax (VAT) on consumer durables, introduced in March 2009 to combat the impact of the financial crisis, boosted PC and laptop sales. The number of PCs per 100 population is expected to rise to 38 per 100 population in the forecasts.[19]

Figure 25 - Hardware Penetration Forecast

Hardware Penetration

	2010	2011	2012	2013	2014
Stock of personal computers ('000)	20,393	22,619	24,833	27,090	28,996
Stock of PCs (per 100 people)	27.8	30.6	33.2	35.9	38.1
Stock of PCs (% growth)	11.1%	10.9%	9.8%	9.1%	7.0%

Source: Economist Intelligence Unit

[19] Economist Intelligence Unit

2.4 SWOT Analysis

Strengths	Weaknesses
• Demand for high-tech telecommunication services, as well as the large Turkish population, are expected to increase total ICT spending • Huge potential for growth considering the young population compared to Western countries • Companies that have R&D activities in TDZs are exempt from income tax for these activities • Government institutions are one of the biggest IT buyers • Share of IT in total public investment is growing	• High (though reducing) software piracy rate • High taxation (VAT and Special Communication Tax) in the mobile sector
Opportunities	**Threats**
• Increasing budget allocation by government for public IT investments • Mobile phone subscriptions are expected to grow • The ability to train highly qualified, young and dynamic computer engineers and software developers in ever increasing numbers	• Underdeveloped collaboration culture of R&D and innovation in sector

2.5 Investment Opportunities

The ICT sector in Turkey has witnessed strong growth in recent years. The mobile penetration rate and internet usage are expected to continue to increase in line with higher demand in the country. Personal computer usage is also increasing, creating a sustained demand for the hardware sector.

The Turkish government has implemented new legal frameworks to encourage R&D and IT spending, which will support the growth of the sector. The income earned as a result of R&D activities for companies located in technology development zones is exempt from tax. Additional incentives include contributions to the social security payments of R&D employees.

Turkish companies operating in the ICT sector have great potential for growth. Of the top 500 IT companies within the Deloitte Technology Fast EMEA 2009 list, 30 companies were from Turkey, following the UK, France, Netherlands, Norway, Sweden and Germany.[20]

Since 2005, many large international players have invested in Turkish ICT sector companies. Below is a list of M&A transactions by foreign investors in the Turkish ICT market between 2005 and 2010:

Figure 26 - M&A Transactions by Foreign Investors in the Turkish ICT Sector (2005 – 2010)

#	Acquirer	Origin	Target	Date	Stake	Deal Value (USD million)
1	Rhea Investments	Turkey	Netsafe Bilgi	21.01.2010	*60.0%*	1
2	Vestel Elektronik	Turkey	Cabot İzmir Yazılım	10.03.2010	*58.0%*	1
3	Asseco South Eastern Europe	Poland	ITD	14.06.2010	*35.0%*	N/D
4	Ericsson	Sweden	Bizitek	27.05.2009	*100.0%*	N/D
5	Verifone	USA	Lipman Elektronik	13.04.2009	*100.0%*	N/D
6	Verifone	USA	Teknosis	01.03.2009	*100.0%*	N/D
7	Türk Telekom	Turkey	Sobee	15.03.2009	*100.0%*	N/D
8	Sistaş	Turkey	Medyanet	31.03.2009	*Majority*	N/D
9	Sistaş	Turkey	Smart Digital	31.03.2009	*Majority*	N/D
10	Casper Bilgisayar	Turkey	Aidata Bilgisayar	08.10.2009	*100.0%*	N/D
11	Saran Holding	Turkey	Alen Elektronik	06.12.2009	*100.0%*	N/D
12	Aselsan	Turkey	Mikes Mikrodalga Elektronik Sistemler	23.02.2009	*23.7%*	2
13	Avnet	USA	Akora Teknoloji	19.12.2008	*N/A*	N/D
14	Xing	Germany	cember.net	23.01.2008	*100.0%*	6
15	Westcon Group	USA	Neteks İletişim	24.07.2007	*50.0%*	4
16	Ingenico	France	Planet	23.07.2007	*100.0%*	36
17	S&T System Integration & Technology Distribution	Austria	T-Systems Türkiye	01.11.2006	*N/D*	N/D
18	Vodafone	UK	O2 Oksijen Teknoloji Geliştirme ve Bilişim	01.06.2006	*N/A*	9
19	Tiger Global Private Investment Partners III L.P and Feroz Dewan	USA	Mynet	01.02.2006	*19.0%*	N/D
20	Alfa Group	Russia	Turkcell	01.12.2005	*13.2%*	1,590
21	Turkven Private Equity	USA	Trendtech Group	01.12.2005	*N/D*	N/D
22	Vodafone	England	Telsim	01.12.2005	*N/A*	4,550
23	Lexmark International	Switzerland	Pera Bilgi İşlem Ürünleri	01.08.2005	*100.0%*	N/D
24	Saudi Oger	Saudi Arabia	Türk Telekom	01.06.2005	*55.0%*	6,550
25	Fusion Telecommunications	USA	LDTS	01.03.2005	*75.0%*	N/D
26	Intelsis Sistemas	Spain	İntelsis	01.01.2005	*90.0%*	N/D

N/A: Not Applicable

N/D: Not Disclosed

Source: Deloitte

[20] Deloitte, 2009

2.6 Sector Establishments and Institutions

Establishments and Institutions	Code	Description	Website
Ministry of Transport and Communication	MoTC	MoTC is to provide the production and the control of quality, balanced, safe, environmental friendly, fair and economic transport, information and communication services for all users.	http://www.ubak.gov.tr
General Directorate of Postage and Telegraph Organization	PTT	Postage and telegraph services are operated by General Directorate of PTT.	http://www.ptt.gov.tr
Information Technologies and Communication Establishments	BTK	BTK prepares plans in telecommunication sector according to Wireless, Telephone and Telgraph Law. Then BTK presents the plans to MoTC. BTK also investigates and audits tellecommunication market.	http://www.tk.gov.tr
International Satellite and Cable Operator	TURKSAT	Turksat A.S. is the only satellite operator company in Turkey. Turksat manages and operates three satellites (Turksat 1C, Turksat 2A, Turksat 3A) and provides all types of satellite communications through Turksat and other satellites.	http://www.turksat.com.tr
The Scientific and Technological Research Council of Turkey	TUBITAK	The Scientific and Technological Research Council of Turkey (TÜBİTAK) is the leading agency for management, funding and conduct of research in Turkey. It was established in 1963 with a mission to advance science and technology, conduct research and support Turkish researchers.	http://www.tubitak.gov.tr
Turkish Informatics Association	TBD	TBD is a non governmental organization which was established in 1971 to expand Informatics Culture by members.	http://www.tbd.org.tr
Informatics Sector Association	Tubider	TUBIDER IT Sector Association was founded in November in 1999 so as to protect rights and interests of the IT companies operating in the informatic sector and to make the vocational regulations to be done. Now TUBIDER which started with 22 members continues its' journey with 800 registered members and more than 1500 applicants.	http://www.tubider.org.tr
Turkish Informatics Industry Association	TUBISAD	Established in 1979, TUBISAD is the largest non-governmental organization of the Turkish private ICT sector, including industries and services, with a representative base of 95 % through its direct membership. TUBISAD has a group of members comprising of nearly 180 very prestigious ICT companies of which are Software Developers, Hardware Manufacturers, Hardware and Software Distributors, Telecommunication Companies, System Integrators, Local Subsidiaries of IT and Communication multinational companies and/ or Consultants.	http://www.tubisad.org.tr

List of Figures

ABBREVIATIONS

ADSL	Asymmetric Digital Subscriber Line
BMI	Business Monitor International
CAGR	Compound Annual Growth Rate
CEE	Central and Eastern European Countries
CMMI	Capability Maturity Model Integration
EIU	Economist Intelligence Unit
EMEA	Europe, the Middle East and Africa
GDP	Gross Domestic Product
ICT	Information and Communication Technologies
ICTA	Information and Communication Technologies Authority, Turkey
IDC	International Data Corporation
IPTV	Internet Protocol Television
ISO	International Organization for Standardization
MNP	Mobile Number Portability
PSTN	Public switched telephone network
SME	Small and Medium scale Enterprise
SPICE	Software Process Improvement and Capability Determination
TDZ	Technology Development Zone
TRY	New Turkish Lira
TUBISAD	Turkish Informatics Industry Association
US	United States
USD	US Dollars
VAT	Value Added Tax
WiMAX	Worldwide Interoperability for Microwave Access
3G	3rd Generation

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