

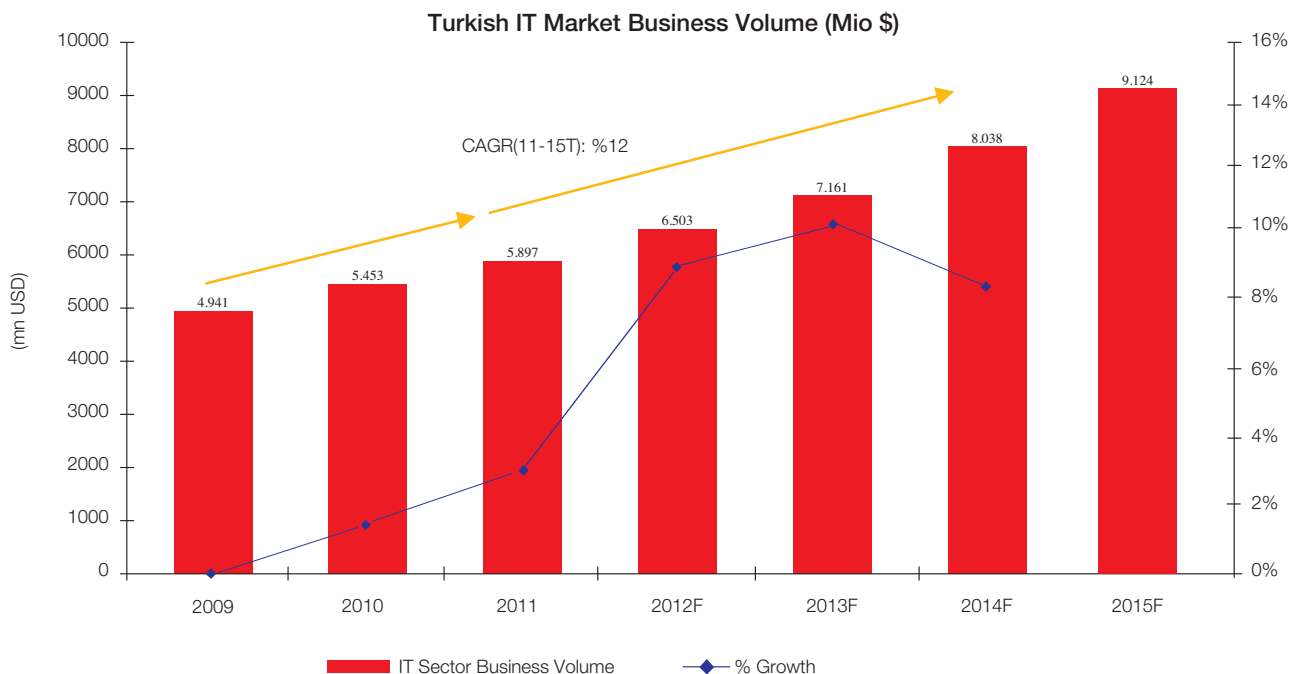
# Sector of Operation

## 1. IT Sector

### 1.1. Turkish IT Sector

The usage of computers in Turkey started in the end of the 1980's. Although there was a very rapid development in the sector between the years of 1990 and 1995, usage of computers were limited to mostly financial sector, governmental units, big businesses and universities. In the second half of the 1990's, the increase in the usage of computers made the IT sector one of the most rapidly growing sectors in Turkey. According to the data issued by International Data Corporation ("IDC"), the Turkish Information and Communication Technologies ("IT") sector achieved a compound annual growth rate ("CAGR") of 20% between 1997 and 2000. In 2000, the Turkish IT sector has reached its greatest business volume thus far with 2,3 billion USD, whereas that figure reduced to 1,2 billion USD with 49% recession in 2001 because of the economical crisis that was encountered in the end of 2000 and the postponement of the demand of IT investments by public and private sectors. The figures achieved in 2000 were again caught only in 2004, with a business volume of 2.4 billion USD. In other words, it took 4 years to eliminate the effects of the crises. However, one should also consider that one of the causes of the shrinkage of the business volume was the continuously price reduction of products, which is the structural feature of the IT Industry.

As a consequence of the realization of the postponed IT investments especially in the private sector in parallel with the improvement in the macroeconomic indicators after 2001, the IT sector continued its growth with a compound annual growth rate ("CAGR") of 27,9% between 2001 and 2007, which is higher than the growth rates in the period before the crisis. Particularly the increasing usage of internet in the recent years has made a great contribution to this development. However, in despite of the negative pressure of the global economic shrinkage on the consumption tendency and the appreciation of USD against TRY, contrary to the previous crisis periods, the Turkish IT Sector did not shrink, but has reached 4,9 billion USD in 2009. The contribution of tax stimulus packages of the government during 6 months cannot be underestimated for this growth. According to IDC's research, IT market achieved growth from 2009 to 2010 with 10,4%, from 2010 to 2011 with 8,1%.



Source: IDC 2012

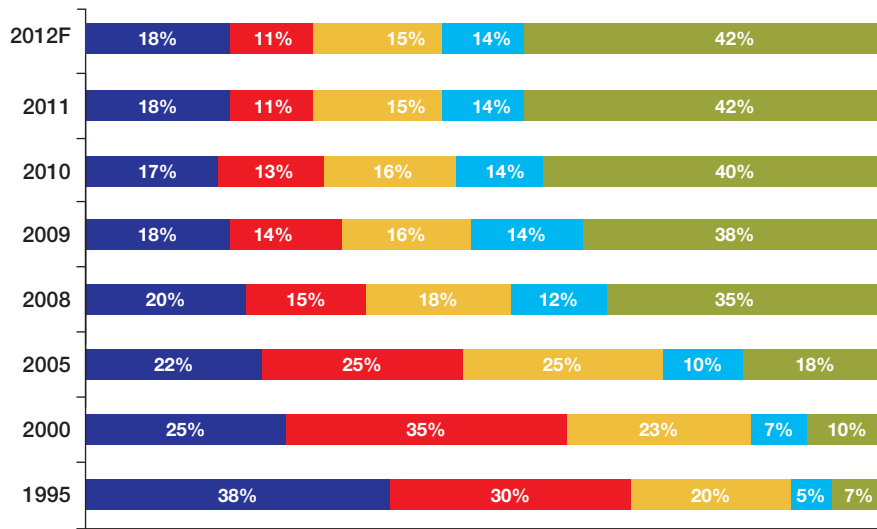
According to the 2012 Turkey IT Expenditures Research conducted by IDC, the Turkish IT market is expected to have a 12% compound annual growth rate (CAGR) in the period between 2011 and 2015, reaching 9,1 billion USD in 2015. IT investment demands deferred in the 2001 crisis period have been started to be realized with the appearance of the increasing stable outlook of the economy and these investment expenditures have been one of the most powerful dynamics of the market in the first 5 years following 2001.

New investments that increased after merger and acquisition operations in all sectors, beginning in the finance and telecommunication sectors and spread to other sectors from 2005 on, technology replacement investments, increased IT investment made by the government as part of e-government projects, increase in the internet usage rates and finally, in the number of the users who follow up the rapidly developing technology became the driving forces of the market between 2005 and 2008. Although the first quarter of 2008 started very favourably, the sector started to lose its strength due to the suit brought to close AKP, a slowdown was experienced in the third quarter when not so many negative results were observed. However, with the last quarter, the sector was affected by the global financial crisis that started at the beginning of October, and thus, the quarter was closed with a double-digit shrinkage. 2009 was experienced as a year when the wounds of the crisis were bandaged; the effects of the crisis in the first quarter diminished with the effect of the VAT cut applied for 6 months, including the second and third quarters, and positive growth was recorded in the fourth quarter. In 2010, IT sector achieved quite gradual growth after constitutional referendum particularly static summer season. In 2011, particularly in the second half of the year, IT sector was affected negatively by currency fluctuations sourced by debt crisis of European Countries.

Turkey has been one of the major developing countries due to the improving general economic conditions, increased per capita income and steps taken for globalization. In addition to highly qualified and cost effective human resources, majority of the young population is contributing to the attractiveness of our country. When the pressure of the diminished consumption tendency on the IT Market due to the crisis in 2008-2009 decreased, IT sector achieved growth of 8,1% in 2011 comparing to 2010. In 2012, it is expected IT to grow 10,3% and reach 6,3 billion USD business volume. In particular, positive movements are expected especially in the second half of the year.

On the other hand, if the share of the end-users in the market is monitored in the period between 1995 and 2009, it would be clearly seen that the market structure has changed considerably. Accordingly, the IT market comprised governmental and public bodies (38%), finance sector companies (30%), private sector companies (20%), individual users (7%) and SMEs (5%) in 1995. However, the shares of government and public sector companies, finance sector companies and private sector companies in the market decreased while those of individual users and SMEs increased in the period between 1995 and 2009. As a result, as of 2011, the Turkish IT market comprises 42% individual users, 18% government and public sector companies, 15% private sector companies, 11% finance sector companies and 14% SMEs.

**Changes in the Market Share of End Users**



	1995	2000	2005	2008	2009	2010	2011	2012F
<b>Public Institutions</b>	38%	25%	22%	20%	18%	17%	18%	18%
<b>Financial Sector</b>	30%	35%	25%	15%	14%	13%	11%	11%
<b>Private Sector (Corporate)</b>	20%	23%	25%	18%	16%	16%	15%	15%
<b>SME's</b>	5%	7%	10%	12%	14%	14%	14%	14%
<b>Individual Users</b>	7%	10%	18%	35%	38%	40%	42%	42%

Source: IDC 2012

According to the 2009 report of ITU (International Telecommunication Union) on the basis of 2007 data, the rate of PC ownership per household is 70% in the USA, 75% in England, 79% in Germany, 40% in Greece, 53% in Italy, 21% in Brazil and 29% in Turkey. The rate of internet users is 62% in the USA, 67% in England, 71% in Germany, 25% in Greece, 43% in Italy, 15% in Brazil and 19% in Turkey.

It is estimated that the rate of the number of PC in operating status to the total population has increased from 8% to 27% in the period between 1995 and end of 2010, and that the rate of the internet users to the total population has increased from 10% to 37% in the same period. This indicates that PC ownership and internet usage rates increased over 3 times in the last 15 years. PC ownership and internet usage rates have increased by 67% and 40%, respectively in the last 5 years. Comparing to the country data published by ITU above, it is clear that Turkey is far below the developed countries with respect to the PC ownership and internet users rate and that there is a long distance to be covered in this field. The PC and internet penetration in Turkey between 2000 and 2013F has developed as shown in the following graphics.

Trends in Internet &amp; PC Penetrations



Source: IDC 2012

According to the results of "Households IT Usage Research" published by the Turkish Statistical Institute (TÜİK) in April 2010, the PC and internet usage rates of individuals are 40,1% and 45%, respectively. The survey indicates that computer and internet usage rates of people between 16 and 74 ages are 56,1% and 54,9% for men and 36,9% and 35,3% for women, respectively.

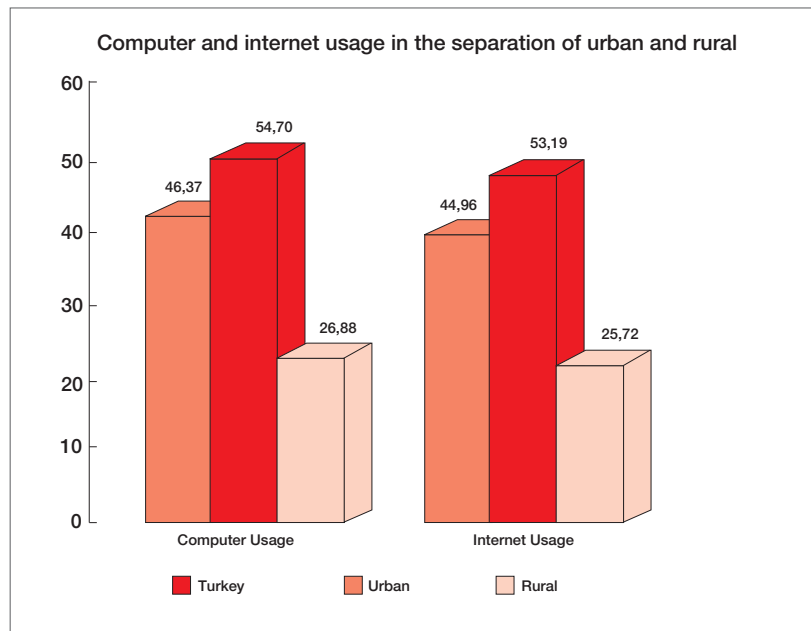
The age group in which the rate of computer and internet usage is highest is 16-24. These rates are higher in men than women in all age groups. By educational level, the population who use the computer and internet most are graduates of first degree and higher education levels. 11,8% of people place order for or purchase goods or service for personal use via internet.

According to the report results, PC and internet usage rates have increased by 7% and 8%, respectively in the period between 2010 and 2011. Another interesting feature of the report is that although the computer and internet usage rate of the rural population is lower than the urban population, the computer and internet usage rates increased by 5% and 9%, respectively, in the rural areas. Although the increasing rate is pleasing, it is clear that the computer and internet usage rate in the urban areas is over 2 times higher than the rural areas.

**Comparison of computer and internet usage on area based (rural & urban) (%) (2010-2011)**

		Computer Usage Rate		Change	Internet Usage Rate		Change
		2010	2011	%	2010	2011	%
<b>Computer and internet users</b>	<b>Turkey</b>	43,2	46,4	7%	41,6	45,0	8%
	Urban	50,6	54,7	8%	49,2	53,2	8%
	Rural	25,6	26,9	5%	23,7	25,7	9%
<b>In the last there months</b>	<b>Turkey</b>	39,1	42,1	8%	37,6	40,5	8%
	Urban	46,3	50,2	8%	44,7	48,4	8%
	Rural	22,0	23,3	6%	20,7	22,0	7%
<b>Between three months and one year</b>	<b>Turkey</b>	1,9	2,1	10%	2,2	2,6	16%
	Urban	2,1	2,3	7%	2,6	2,7	7%
	Rural	1,5	1,9	24%	1,5	2,2	53%
<b>Over 1 year</b>	<b>Turkey</b>	2,2	2,1	-3%	1,8	1,9	4%
	Urban	2,2	2,3	2%	1,9	2,1	8%
	Rural	2,1	1,8	-14%	1,6	1,4	-8%
<b>Never used</b>	<b>Turkey</b>	56,8	53,6	-6%	58,4	55,0	-6%
	Urban	49,4	45,3	-8%	50,8	46,8	-8%
	Rural	74,4	73,1	-2%	76,3	74,3	-3%

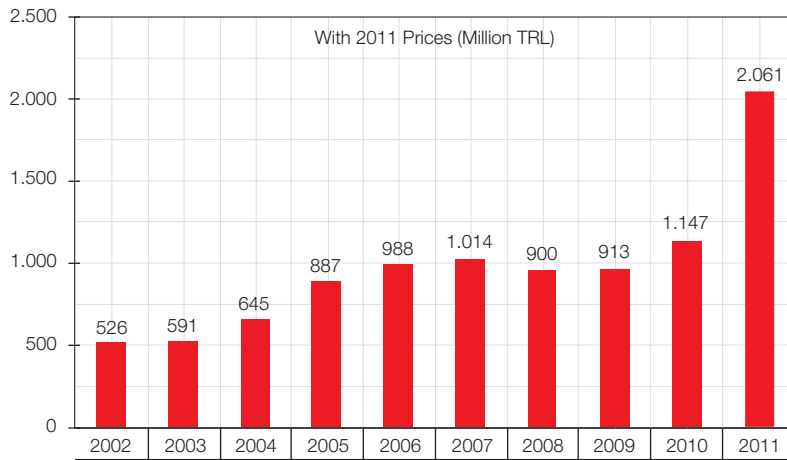
Source: TUIK 2010, 2011



Source: TUIK 2011

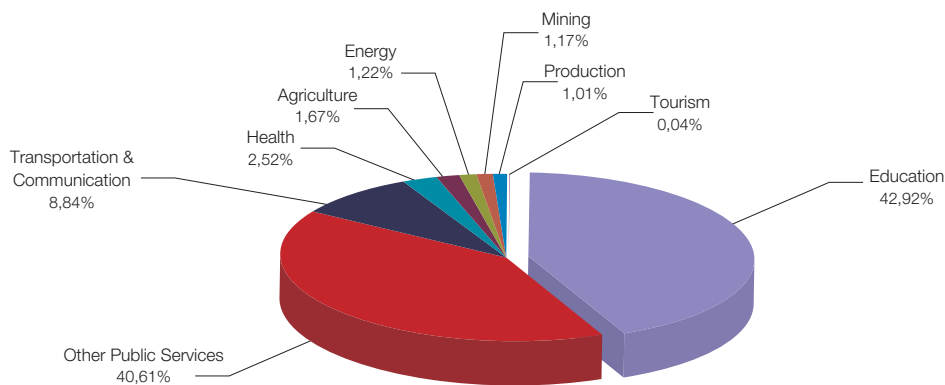
Yearly IT Investment by Government seen below chart with contribution of e-transformation Turkey Project conducted in the context of Information Society Strategic Action plan structured by Premiership of Turkish Republic. Thus, Incremental tendency is seen year on year. While the allocated budget was approximately 526 million TRL with 2011 prices, this value exceeded the value of 2 billion TRL in 2011. Public Information Communication Technology investment increased 4 times since 2002 by routinely increasing except 2008. Particularly, project in education in 2011 contributed to this increase.

### Public Information Communication Technology Investment (2002-2011)



Source: State Planning Agency, Information Society Department

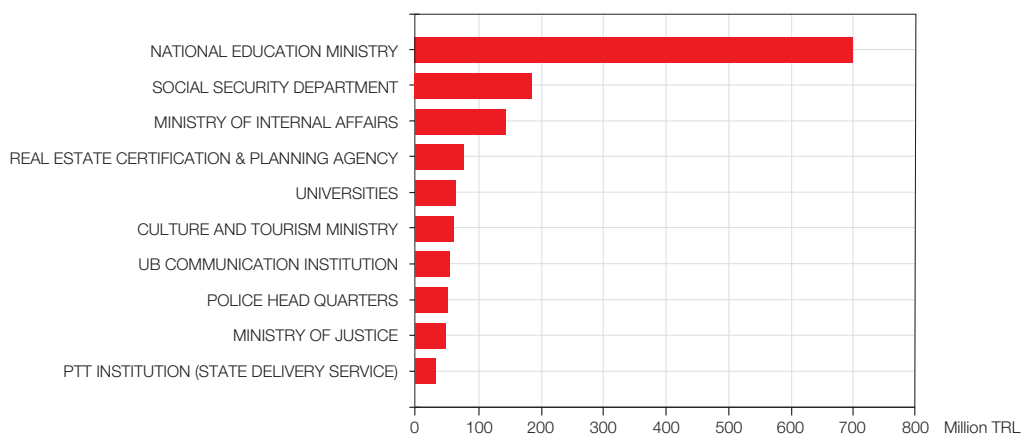
### Public Information Communication Technology Investment on Sector Based Breakdowns 2011



Source: State Planning Agency, Information Society Department

When looked at Public Information Technology Investments on sector based in 2011, education, other public services and transportation have the biggest portions. Ministry of Internal Affairs, Social Security Department and Real Estate Certification & Planning Agency...etc Institutions are considered under Other Public Services.

### First 10 Public Institutions and Ministries who will make the highest Information Communication Technology Investment in 2011



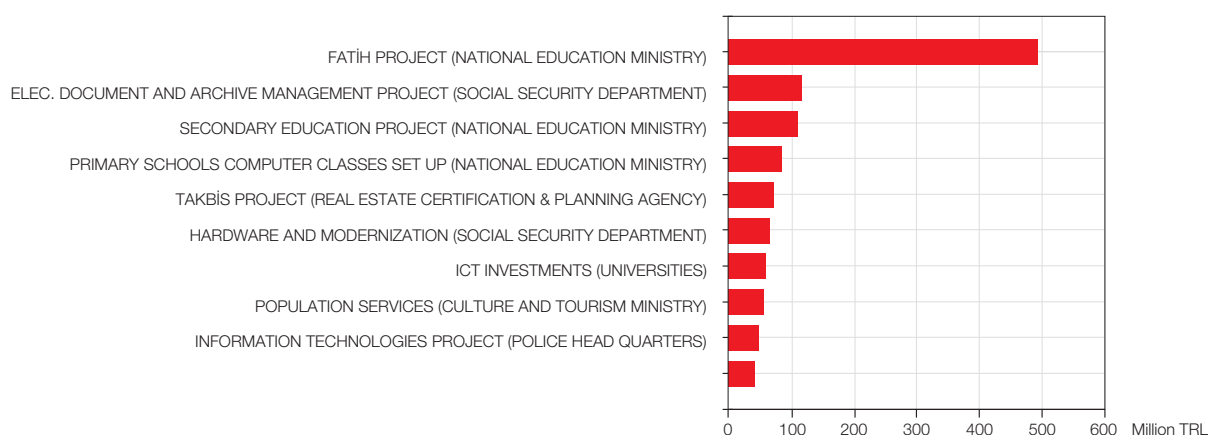
Source: State Planning Agency, Information Society Department

Considering Public Information Technology Investments of State on project based in 2011, respectively “increasing opportunities & technology amendment movement (FATİH) project”, “e-Signature & Mobile Signature Supported Electronic Documents & Archive Management System setting and structuring Project”, “Secondary Education Project”, “Primary Schools Computer Classes Setting Project”, “Real Estate Certification & Planning Project” and “Hardware and Modernization Project”. With “increasing opportunities & technology amendment movement (FATİH) project”, “Secondary Education Project” and “Primary Schools Computer Classes Setting Project”, it is seen that National Education Ministry has the biggest portion on Ministry based.

Social Security Department follows this with “Hardware and Modernization Project”, “e-Signature & Mobile Signature Supported Electronic Documents & Archive Management System setting and structuring Project”.

Ministry of Internal Affairs with “population services IT project” and “e-internal affairs project”, Real Estate Certification & Planning Agency with “TAKBİS” project are the third and fourth institutions respectively.

**Top 10 Information Communication Technology Projects who have the highest budget in 2011**



Source: State Planning Agency, Information Society Department

When looked at Public Information Technology Investments on allocated budget based, these are “FATİH Project” with 496 million TRL, “e-Signature & Mobile Signature Supported Electronic Documents & Archive Management System setting and structuring Project” with 110,4 million TRL, “Secondary Education Project” with 102 million TRL, “Primary Schools Computer Classes Setting Project” with 90 million TRL” and “Real Estate Certification & Planning Project” with 71,8 million TRL.

**2011 Public Information Communication Technology Investment Summarized Table**

000 TRL

Sector	Numbers of Projects	Amount of Projects		Cumulative Expenditure			2011 Investments		
		External	Total	Loan	Equity	Total	Loan	Equity	Total
Agriculture	7	0	277.848	0	0	51.215	0	0	34.380
Mining	8	6.595	25.214	0	0	1.182	6.595	0	24.032
Production	10	15.000	20.821	0	0	0	0	15.000	20.821
Energy	8	0	105.312	0	0	52.311	0	0	25.098
Transportation&Communication	24	220.410	833.135	0	52.986	513.831	0	63.139	182.302
Tourism	1	0	882	0	0	0	0	0	882
Education	28	403.000	1.381.909	176.000	0	330.894	192.000	0	884.594
Health	5	115.159	171.046	24.910	0	37.410	39.999	0	51.949
Other Public Services	119	77.514	2.141.470	3.887	0	636.840	44.541	0	837.063
<b>GENERAL TOTAL</b>	<b>210</b>	<b>837.678</b>	<b>4.957.637</b>	<b>204.797</b>	<b>52.986</b>	<b>1.623.683</b>	<b>283.135</b>	<b>78.139</b>	<b>2.061.121</b>
<b>000 US Dollars</b>	<b>210</b>	<b>538.368</b>	<b>3.186.347</b>	<b>131.626</b>	<b>34.055</b>	<b>1.043.565</b>	<b>181.975</b>	<b>50.211</b>	<b>1.324.713</b>

Source: State Planning Agency, Information Society Department

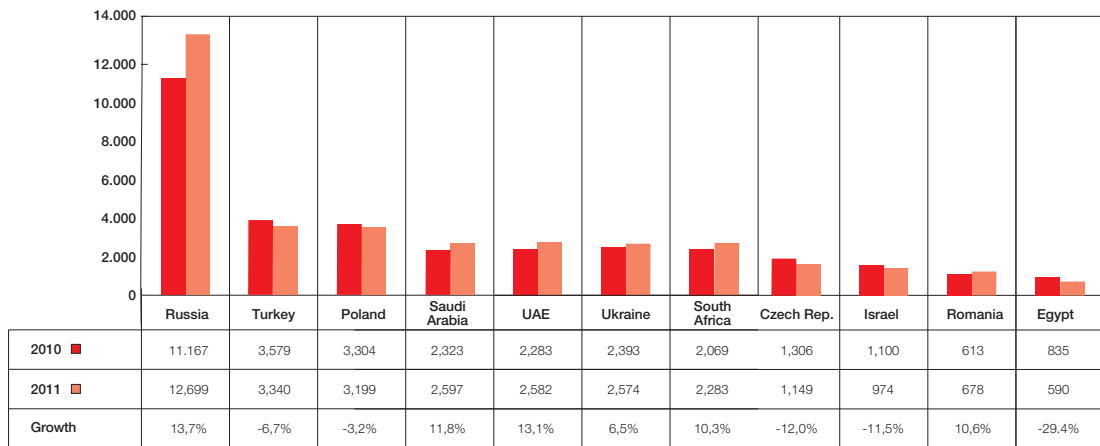
(\*) In high education sector, university investments are shown under only one project.

Looking at the table above prepared by Information Society Department of State Planning Agency, it can be seen that state made investment in Public Information Communication Technologies with 210 projects, the value of the projects was 2,061 billion TRL in 2011, the US Dollar amount of this was 1,324 billion.

### 1.2. IT Market Comparison in the World and Turkey

According to IDC's report regarding growth rates between countries, the highest growth rate from 2010 to 2011 was seen in Russia with 13,7% and respectively UAE with 13,1%, Saudi Arabia with 11,8%, Romania with 10,6%, South Africa with 10,3%. Other countries faced with shrinkage, Egypt had highest shrinkage with -29,4%. Turkey has -6,7% shrinkage in 2011 unfortunately.

World IT Market – Country Based PC Market Growth Analysis 2010-2011 (Quantity)



Source: IDC 2012

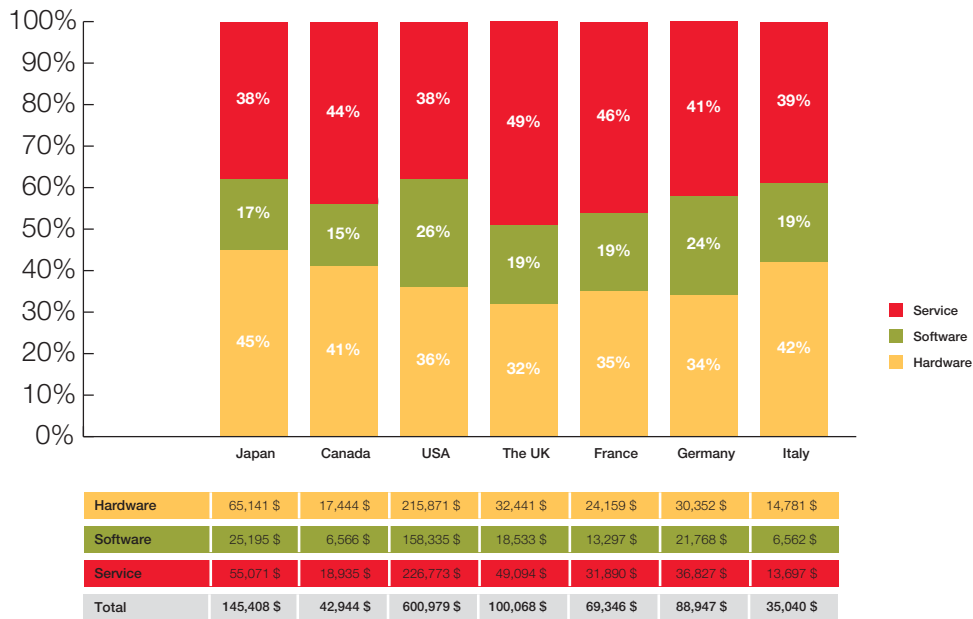
World IT Market – Developing Countries Based IT Sector Analysis 2011 (Quantity)



Source: IDC 2012

According to the report published by IDC, as understood by above chart, China has the highest rate of hardware market with %85. Others are Russia with 70%, India with 69%, Mexico & Turkey with 68%, Brazil with 61% and Indonesia with 48% respectively. On the other hand, Indonesia has the highest rate of service market with %32. Others are Brazil with 27%, India with 22%, Mexico with 20%, Turkey & Russia with 19% and China with 10% respectively. When looked at software segment, these are Indonesia with 21%, Brazil & Turkey with 13%, Mexico with 12%, Russia with 11%, India with 10% and China with 5%.

**World IT Market – Developed Countries Based IT Sector Analysis 2011 (Quantity)**



Source: IDC 2012

Looking at the same report on developed countries based, Japan 45%, Italy with 42%, Canada with 31, USA with 36, France with 35%, Germany with 34% and the UK with 32% on hardware based. On service based, the UK with 49%, France with 46%, Canada with 44%, Germany with 41%, Italy with 39% and USA & Japan with 38%. On service based, USD with 26%, Germany with 24%, the UK, France & Italy with 19%, Japan with 17%, Canada with 15%. Distribution in segments on developed countries is more homogeny comparing to developing countries.

**2. Sub-segments of the ICT Sector**

Turkish IT sector is essentially separated into three main groups, namely hardware, software and IT services. According to the Turkey results published by IDC in 2012, the business volume of the Turkish Information and Communication Technologies (IT) market reached 4,9 billion USD in 2009, 5,5 billion USD in 2010. The same report shows that the share of the “Hardware”, “Software” and “IT Services” sub-segments in the total market are 67,7%, 13,3% and 19%, respectively. This indicates that the Turkish IT sector has got a structure where “hardware” is predominant with respect to income created.



IT Sector Expenditures, 2009-2015F (mio US\$)



Source: IDC 2012

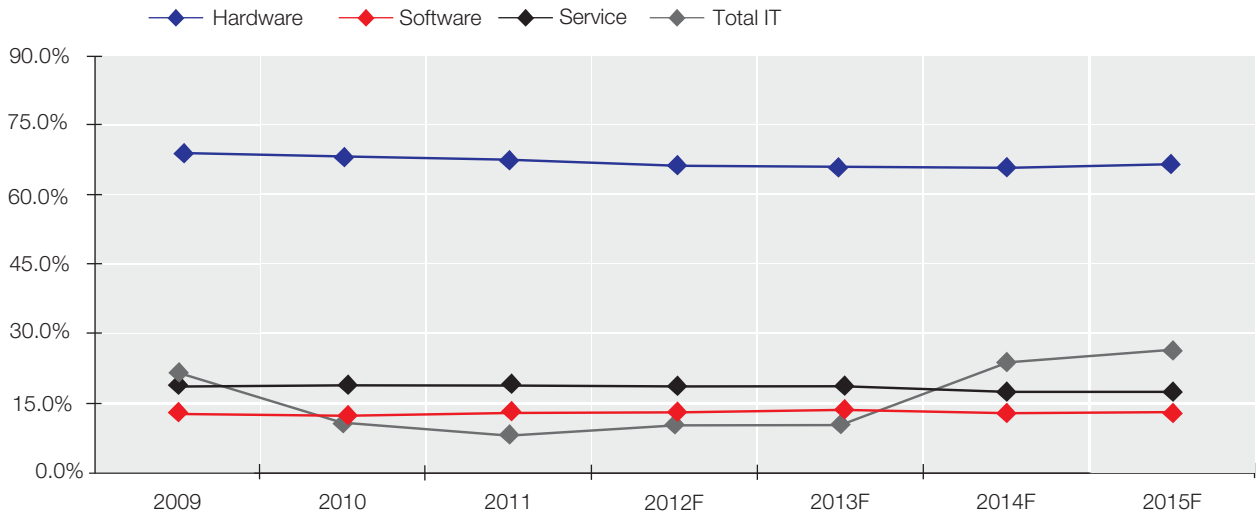
Turkish IT Market 2010-2015F (Mio US\$)

IT Sector Contents(x m \$)	2010	2011	2012 F	2013 F	2014 F	2015 F
Hardware	3.743 \$	3.993 \$	4.383 \$	4.787 \$	5.368 \$	6.124 \$
Software	696 \$	784 \$	874 \$	986 \$	1.120 \$	1.266 \$
Service	1.014 \$	1.121 \$	1.245 \$	1.388 \$	1.551 \$	1.734 \$
<b>Total IT</b>	<b>5.453 \$</b>	<b>5.897 \$</b>	<b>6.503 \$</b>	<b>7.161 \$</b>	<b>8.038 \$</b>	<b>9.124 \$</b>
Growth %		8,1%	10,3%	10,1%	12,2%	13,5%
<b>Growth on Segments</b>	<b>2010</b>	<b>2011</b>	<b>2012 F</b>	<b>2013 F</b>	<b>2014 F</b>	<b>2015 F</b>
Hardware		6,7%	9,8%	9,2%	12,1%	14,1%
Software		12,6%	11,6%	12,8%	13,5%	13,1%
Service		10,5%	11,1%	11,5%	11,7%	11,8%
<b>Distribution in Segments</b>	<b>2010</b>	<b>2011</b>	<b>2012 F</b>	<b>2013 F</b>	<b>2014 F</b>	<b>2015 F</b>
Hardware	68,6%	67,7%	67,4%	66,8%	66,8%	67,1%
Software	12,8%	13,3%	13,4%	13,8%	13,9%	13,9%
Service	18,6%	19,0%	19,1%	19,4%	19,3%	19,0%

Source: IDC 2012 (Telecom, Network tools are not included for the calculation)

According to the 2011 Turkey IT Expenditures Survey conducted by IDC, the Turkish IT market is expected to have a 12% compound annual growth rate (CAGR) in the period between 2011 and 2015F, reaching 9,1 billion USD in 2015. These estimates are based on the anticipated growth rates, investments anticipated to be made by companies rapidly as they were deferred due to the crises of 2001 and 2008, effects of IT expenditures incurred by the public sector for e-transformation projects on IT consumption, increased use of IT in education, anticipated increased rate of the use of internet and mobile technologies and replacement investments to be caused by new technologies.

**Growth Rates in Turkish IT Market Between 2009-2015F (%) on Sub-Group Based**

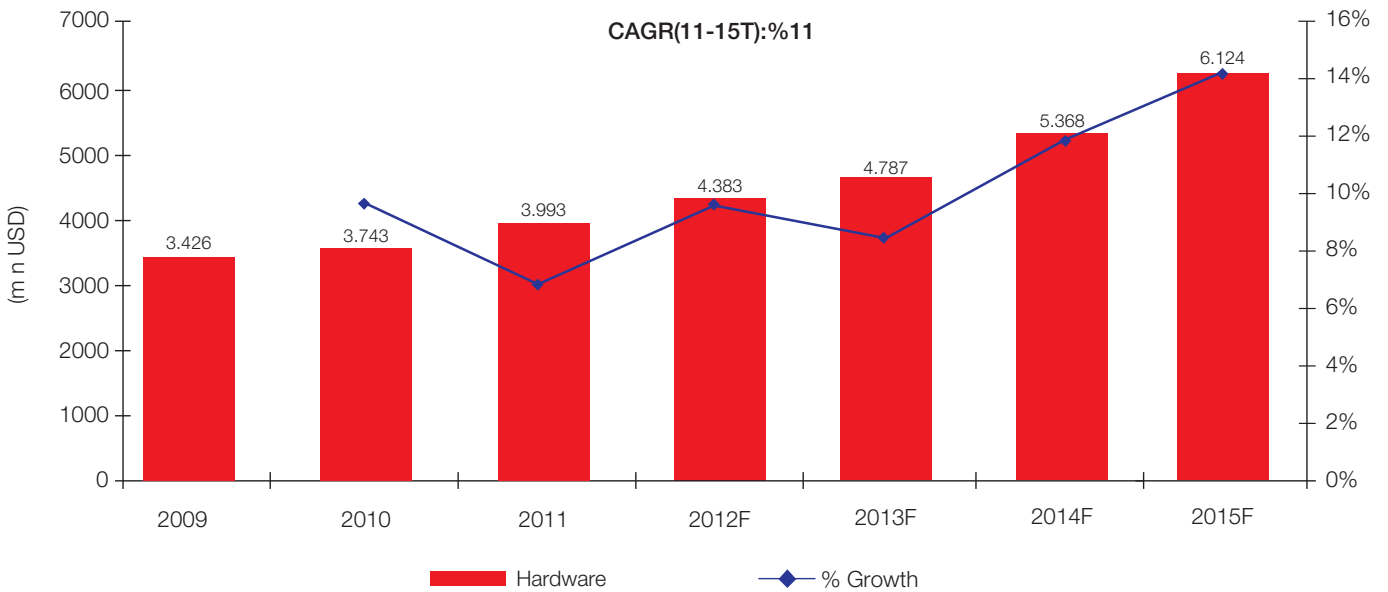


Source: IDC 2012, (Telecom Network Tools not included)

**2.1. Hardware Market**

Hardware market in Turkish IT sector is the sub-segment having the biggest share regarding the sales amounts of 1999 – 2009, with the ratios changing between 57% and 74%. With tax stimulus packages of the government for only 6 months in 2009 and constitutional referendum at the end of third quarter were both supported the growth in the sector. The hardware sector achieved growth from 2010 to 2011 as 6,7%.

**Growth Rates & Targets of Hardware Expenditures in IT Sector, 2009-2015 (Mio USD,%)**



Source: IDC 2012

IDC expects Hardware sector capacity will be reaching 6,124 million USD in 2015.

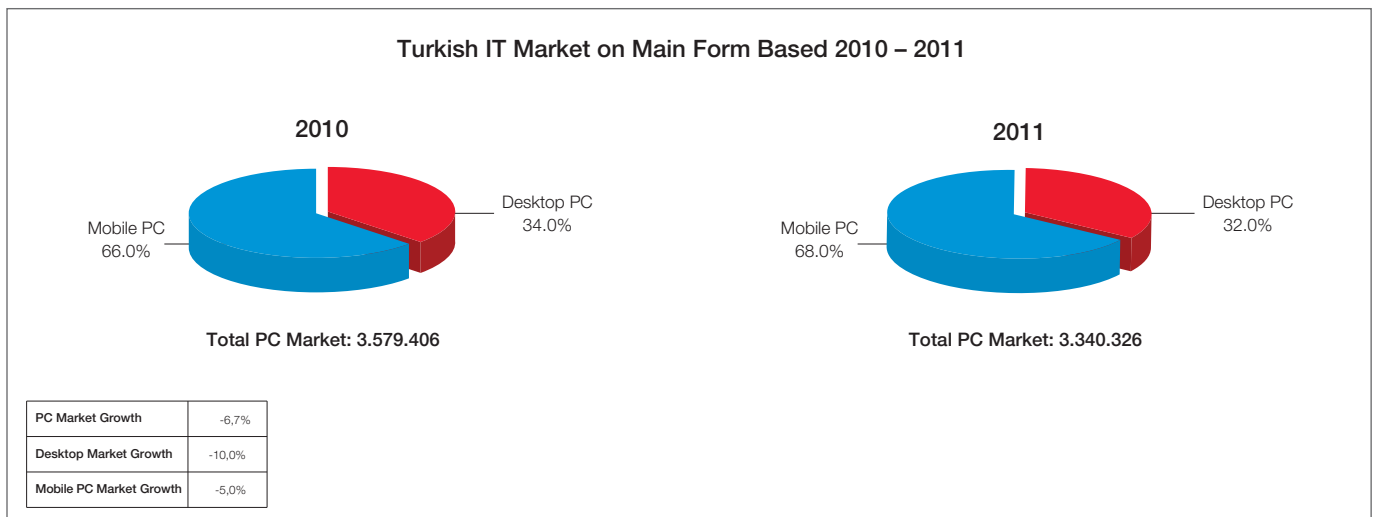
**2.1.1. PC Market:**

The hardware sub-group consisting of Desktop PCs, portable PCs (“Laptop PCs”, “Notebooks”), Servers and Peripherals is monitored via the sales data in PC market which represent a very significant portion of the total sales. Accordingly, total sales of the PC market were realized as 3.579.406 in 2010, whereas such total number (both notebook and desktop) rose to 3.340.326 units with an decrease of -6,7% in 2011.

However, when the sales in the PC market are considered by quantity excluding the server market, it is noticed that portable PCs have gained majority in this market for the first time in 2009. Beginning from the year 2004, supplying portable PCs with high performance, increased mobility possibility with their lighter structure and affordable prices to the consumers has enabled significant increases in their sales, and finally, sales of portable PCs have surpassed those of desktop PCs in 2009.

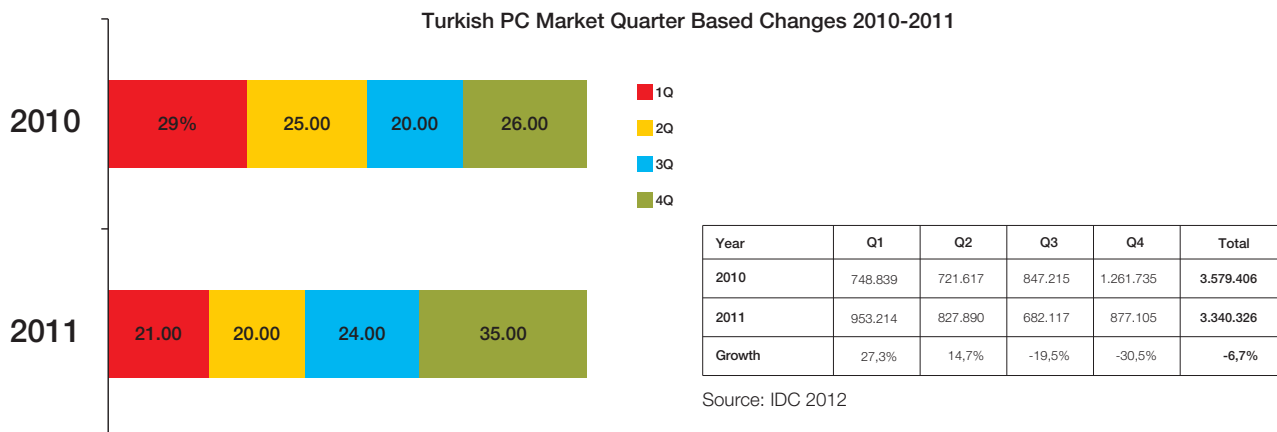
When the market share of mobile PC was 35,7% in 2005, it reached 63% in 2009, 66,1% in 2010 and 68% in 2011. In this paralel, when the market share of desktop PC was 64,3% in 2005, it decreased to 37% in 2009, 33,9% in 2010 and 32% in 2011.

The developments at PC market are closely related with the ongoing projects in public and educational sectors. The stable growth in demand of the consumers is also considered as another significant factor on this issue. The growing retail chains and financial opportunities offered to the consumers by these chains have been the most important driving forces for the PC sales. Besides, noticing the benefits of mobile computing systems by the corporate companies is seen as another important reason for the growth. At this point, one may clearly see from then market sales figures that the demand by the small and large enterprises seeking productivity for portable PCs as an important part of mobile data systems has increased.



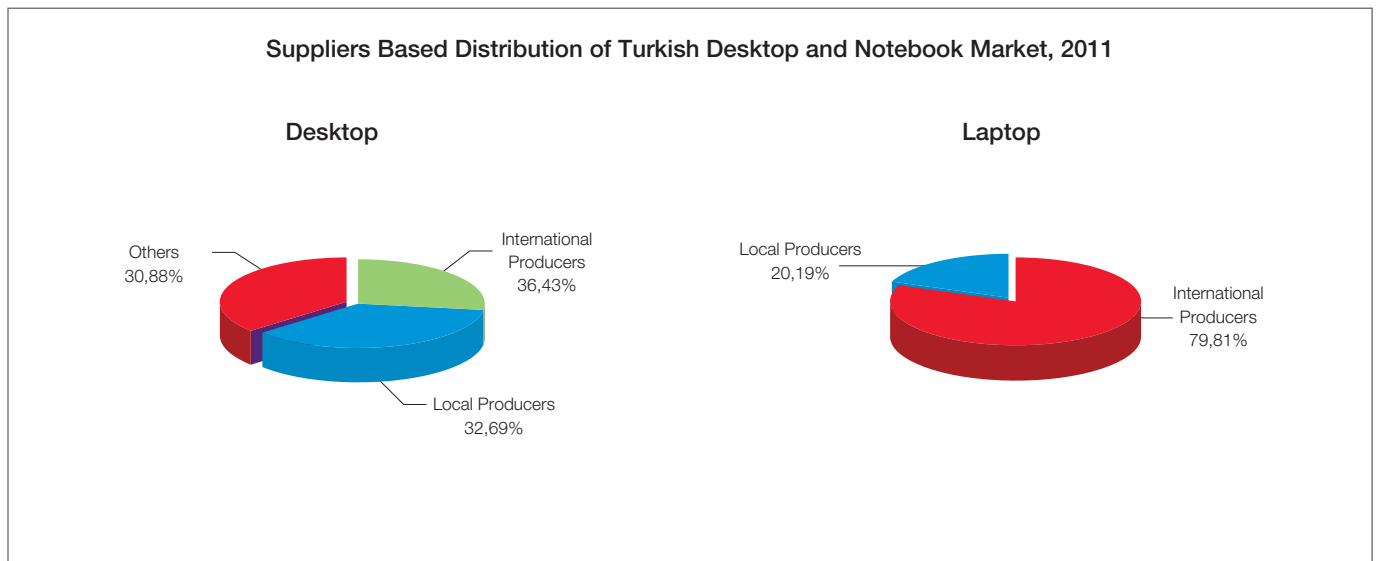
Source: IDC 2012

Besides the producers which have international brands, a considerable part of hardware production both inside and outside the country is performed with the main components that are obtained from the global computer parts suppliers by big and small-sized companies. Over time, these factors have transformed the hardware product market and the especially PC market into a low added value structure in which the competition is highly sensitive to the price.



Source: IDC 2012

According to IDC's Turkish PC Market Report, PC Market achieved growth rate of 27,3% and reached 953 thousand on quantity based when a comparison made between the 1st quarters of 2010 and 2011. When the 2nd quarters compared for the same years, 14,7% is seen. Unfortunately, consumer tended to be more conservative with the currency shock markets faced in the second half of 2011. Therefore, this affected market grow negatively in the second half. Furthermore, IT Sector faced with -19,52% shrinkage in the third quarter of 2011 when compared to 3rd quarter of 2010. This shrinkage increased more and reached -30,5% in the last quarter. In general, 30-35% business volume of IT Sector realized in the fourth quarter, other quarter are usually between 20-25%. This general rule has changed and PC Sector business volume became 29% in the 1st Quarter, 25% in the 2nd Quarter, 20% in the 3rd Quarter, 26% in the 4th Quarter.



Source: IDC 2012

According to IDC's 2012 report, 32,69% of Desktop PCs were sold by local producers, 36,43% International Producers and the rest consists of processor selling amount to local market. When look at the Notebook amounts, local producers have market share of 20,19% and International producers have market share of 79,81%.

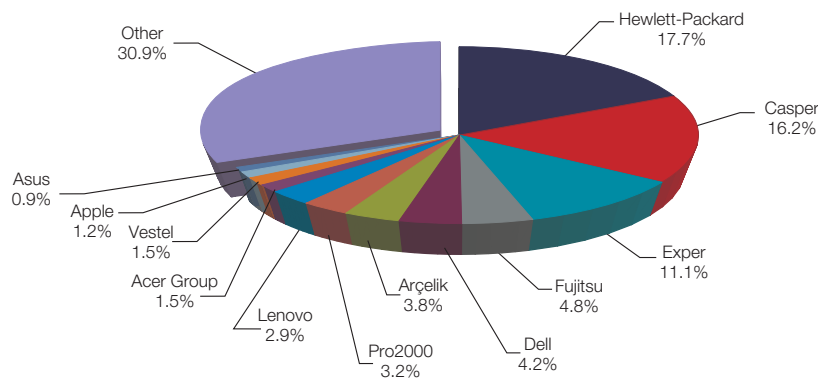
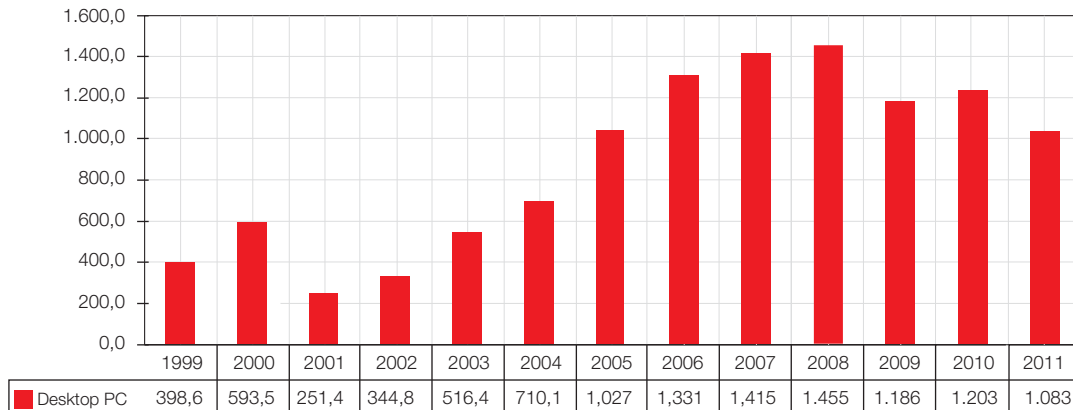
**2.1.1.1. Desktop PCs**

PC Desktop products have represented the most important product category within the sub-group of hardware in terms of the unit and sale volumes until 2009. Total sales of Desktop PCs decreased from 594 thousand in 2000 to 251 thousand in 2001 due to the 2001 economic crisis. PC sales increased with the rate 41% CAGR between 2002 and 2005, well above the economical development, with the influence of the decrease in the year 2001 and reached 1 million units in 2005. Desktop PC sales rose to 1,33 million units and 1,4 million units with an increase of 30% and 6% in 2006 and 2007, respectively.

Such sales again increased by 10-15% in the first three quarters of 2008 and by 2,8% in the last quarter due to the global crises, and closed the year with a sales quantity of 1,45 million units, which was the highest historical level. However, as a consequence of the development of the mobile technology, the share of the desktop PC sales in the total PC market decreased to 37%, and the sales quantity was realized as 1,19 million units with a decrease of 18,4% in 2009.

PC Desktop market exhibits much segmented structure where the domestic producers are dominated. While international producers get a market share of 28%, the remaining part of the market is under the control of the big or small sized domestic producers. These are Hewlett-Packard 17,7%, Casper 16,2%, Exper 11,1%, Fujitsu 4,8%, Dell 4,2%, Arçelik 3,8%, Pro2000 3,2%, Lenovo 2,7%, Acer Group 1,5%, Vestel 1,5%, Apple 1,2%, Asus 0,9% and Others 30,9%.

Quantity Based Distribution of Desktop Sales (000), 2011



Source: IDC 2012

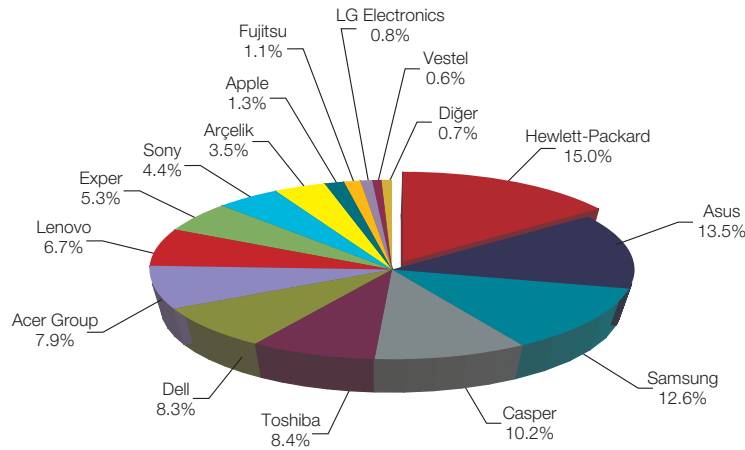
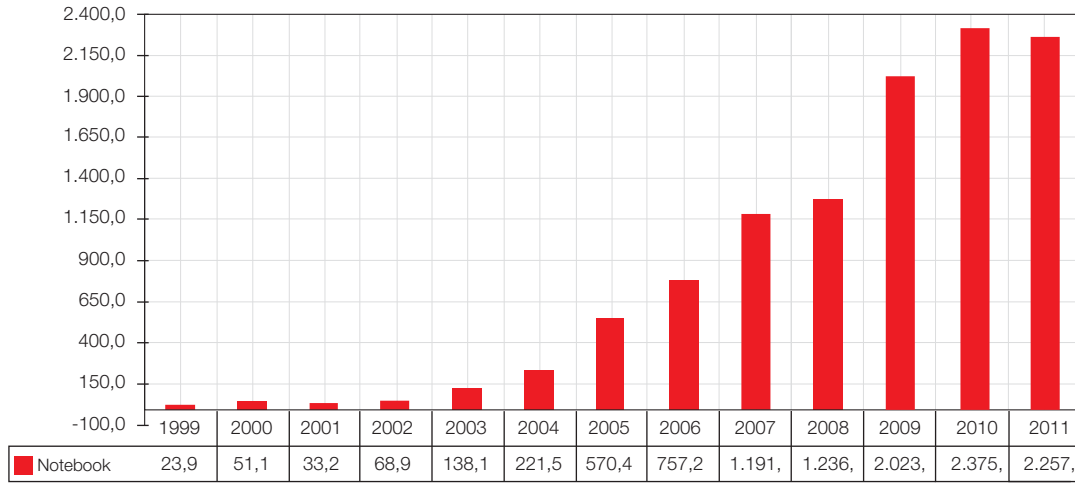
### 2.1.1.2. Notebooks

Since 2004, a significant consumption activity has started all over the world in Portable PCs (notebook, netbook) market when the international big producers decreased the prices with increasing competition in this market and the developing technology. As a consequence of affordable price policies of producers and retailers, notebook prices for end users decreased to 400 - 1000 USD on average in Turkey, which eventually made these products affordable for home users and increased the widespread usage of the notebooks in the offices. Accordingly, the share of Portable PCs (except for server) in the total PC sales by quantity has increased from 5% to 23,8% between 1998 and 2004 and then to 45,9% in 2008. Supplying portable PCs with high performance, increased mobility possibility with their lighter structure and affordable prices to the consumers has enabled significant increases in their sales, and finally, sales of portable PCs have reached 63,03%, well above those of desktop PCs in 2009. In 2010, it reached 66,1%.

Sales of Portable PCs in 2000 increased from 51 thousand units to 221 thousand units in 2004 and then rose to 1.236 thousand units in 2008, 2.023 thousand units in 2009 and 2.385 thousand units in 2010. According to the 2011 results of the IDC report on Turkish IT Expenditures, the Turkish mobile PC Market is estimated to reach 3 million units in 2011, and the share of the mobile PC shares in the total PC sales shall reached 66,1% in 2010 and 68% in 2011.

It seems that international brands are more dominant in the Notebook PC market than the Desktop PC market. According to the 2012 data obtained from IDC, the most important leading brands in the Portable PC market, namely Acer, Hewlett Packard, Toshiba, Casper, Lenovo and Dell, control 68% of the market in terms of quantity. As a consequence of the fact that just like in the desktop products in previous periods, the structure of notebook products tends to be standardised, it is observed that some part of the market shares of international brands are left to the domestic producers. The market share of the domestic producers which was 10% at the end of the year 2003 increased to 16,8% in 2008, 19% in 2010 and 20% in 2011. According to the 2011 results, the shares of Casper and Exper, which are the two big domestic market of the Turkish market, were realized as 16,4% and 11,1%, respectively.

**Desktop PC Sales (000) and Supplier Based Distribution of Sales, 2011**



Kaynak: IDC 2012

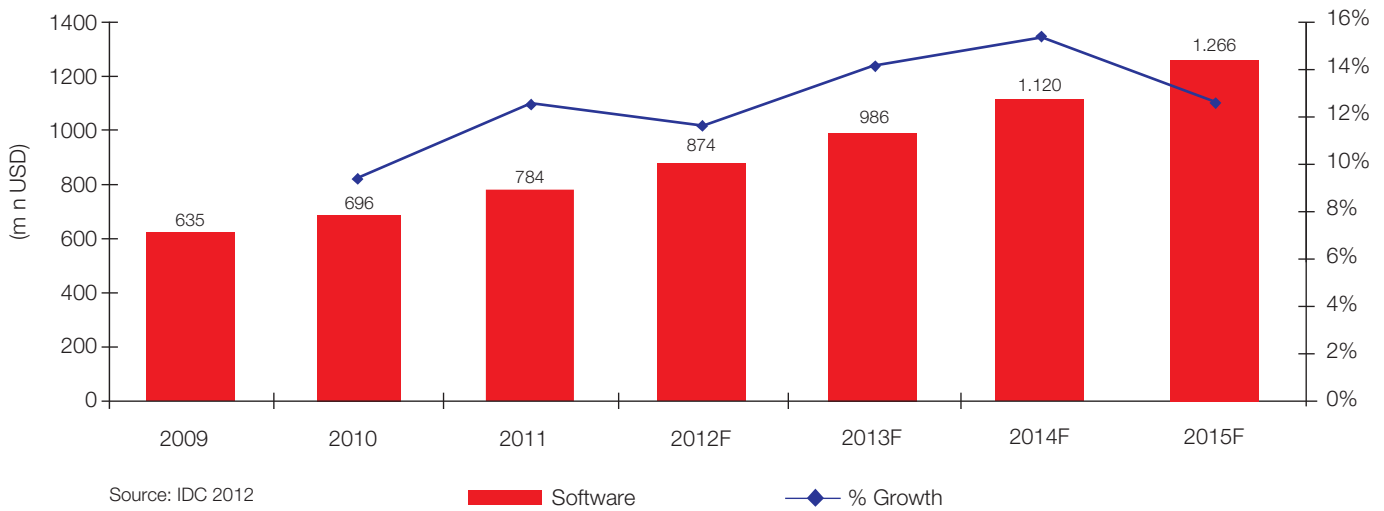
**2.2. Software Market**

The size of the software sub-group increased from USD 276 million in 1999 to USD 377,3 million in 2000. However, in the 2001 crisis, just like in hardware sector, software sector decreased to USD 172,3 million with shrinkage of about 54% and volume became 215 million USD in 2002. In 2009 it reached 635 million USD. Although, the pressure of the crises that has deepened in the last quarter of 2008 on the consumption tendencies, the sales of the Turkish Software Market reached 635 million USD with growth of 19% in 2009, contrary to the dramatic shrinkage of the 2001 crisis. IT sector software market achieved growth of 5,3% from 2007 to 2008. The volume of IT Sector software market reached 696 million USD in 2010 and 784 million USD in 2011. According to IDC's, it is expected IT Sector software market to achieve Compound Annual Growth Rate of 13% between 2011 and 2015F and reach 1,226 billion USD.

As of the end of 2010, the share of the software sub-group in the entire IT market in terms of the total turnover is at very low levels in comparison with Europe and America with 13,3% share, mainly because of pirated usages. Microsoft Office, being a commonly used program, is the most pirated program. The laws which were enacted by the Turkish Parliament in 1995 for purpose of ensuring the protection of the registration rights decreased the pirated usage rate. According to the estimations of our company, while 70% of the software is illegally used in Turkey, this rate is around 35% in the USA.

Because the operating system software is purchased as incorporated into the computer, its pirated usage is less than other software. The registration right laws had influence on the custom suppliers using pirated products most frequently. Most of the custom suppliers use the licensed operating system software at present.

IT Sector Software Expenditures Growth Figures and Growth Targets, 2009-2015 (Mio USD,%)

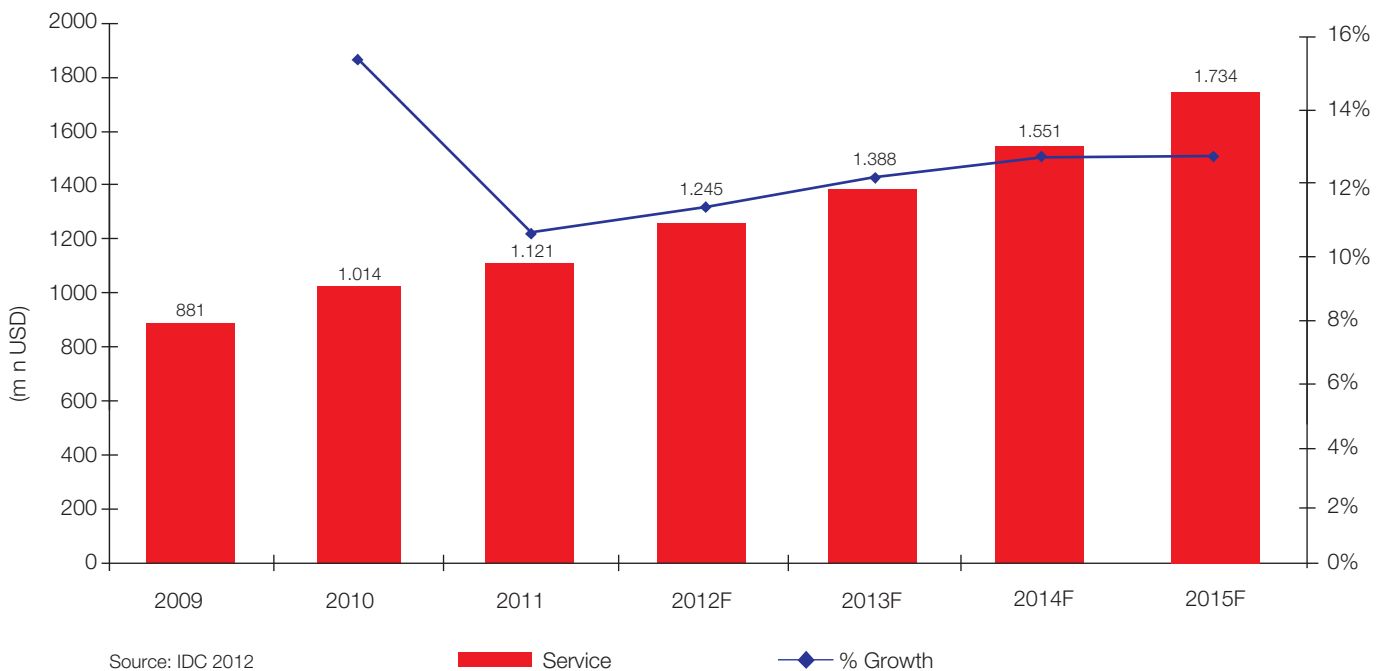


### 2.3. IT Services Market

Contrary to the hardware and software sub-sectors, IT Services sub-sector s the constant and necessary services relating to the existing IT investments periodically and leasing services. In the 2001 crisis, the Turkish IT Services Market decreased to 288.2 million USD with a decrease of 39% comparing to the previous year. The volume of the Turkish IT Services Market grew faster than the total market in 2002, reaching 403.5 million USD, and the share of the IT Services in the total market increased to a record level of 28,1% in the same year. However, in spite of the pressure of the crisis that deepened in the last quarter of 2008 on the consumption tendencies, the market was realized at 881 million USD in 2009 and achieved 18,6% growth rate when compared to 2008.

The share of the IT Services in the total market was 17,8% in 2009, which increased to 18,6 in 2010. In 2011, this rate became 19%. However, it is expected that this share will increase due to the needs that may arise during the integration of newer technology systems on the existing systems and outsourcing of IT operations by big companies - banks in particular. IT Sector Service Market reached 1.014 billion USD in 2010 and 1.121 billion USD in 2011. The Compound Annual Growth Rate between 2011 and 2015F is expected to be 12% and reach 1.734 billion USD.

IT Sector IT Services Growth Figures and Growth Targets, 2009-2015F (Mio USD,%)



### Indeks Computer in the ICT Sector:

In Turkey, Top 500 ICT Companies Ranking performed every year by Interpro Medya A.Ş., our company ranked seventh in the general ranking based on turnover achieved in 2010 among the companies including telephone operators and mobile phone sellers. On the other hand, it ranked first, like the previous years, in the category of companies selling only computers. Further, it ranked first in seven IT categories.

#### 2010 Top ICT Companies Revenue Range (Sales Revenue)

2010 Range	Company	USD Dollar (million)
1	Turkish Telecom	7.187
2	Turkcell	5.962
3	Vodafone	2.460
4	Avea	1.752
5	KVK	1.339
6	Gen-pa	1.131
<b>7</b>	<b>Indeks Computer</b>	<b>813</b>
8	Teknosa	785
9	Hewlett-Packard	650
10	Digitürk	551

### Important Events in the IT Sector in 2011:

Important events that occurred in the Turkish IT Sector in 2011 are listed below:

- 1- Announcement of smart devices and tablet products.
- 2- Demand for internet connection increased in important level in any places of Turkey.
- 3- Incremental leadership of individual consumers continue in technology world.
- 4- Telecom campaigns affected sector positively and in considerably important level.
- 5- Prevalence of Social Networking websites increased in especially Anatolia. Turkey became 4th country with 24 million subscribers in numbers of subscribers in social networking websites. This number increased in 2011.
- 6- With the implementation of FATİH Project, which will make huge contribution to education, in selected schools, the bullet points of the project started appearing.
- 7- Demand shrinkage was faced in disk sector by reason of flooding in Far East countries.
- 8- Despite of demand shrinkage in IT Sector with currency shock faced in markets in the second half of the year especially, it closed the year with 8,1 % growth from 2010 to 2011.
- 9- In PC Market, Ultra-books were introduced to market and sales of these products started.
- 10- The usage of IT products became widespread with the improvements in new Turkish Trade Code.

### 3. Growth of the Turkish IT Sector:

#### Factors Inciting the Growth of the Turkish IT Sector:

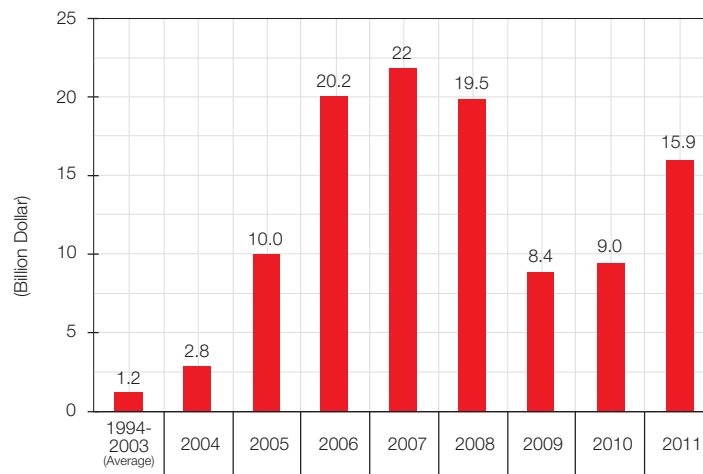
- **Investment to National Education:** Government started making huge investment to education in the context of "Fatih Project". The implementation of this project started in 2011 in selected 52 schools. This project is considered not only 2011, it will also cover next few years and will contribute to growth of IT Sector.
- **Rapidly Increasing Usage of Technology:** All business and public companies recognise the value of the increasing control over sources, development of productivity, expanding the business volume and analysing the customer requirements by using the technological devices.
- **Economic Performance:** The development of the IT market was struck down by the economic crises of 2001 and 2008. After the economic crisis, Turkey entered a recovery period with strict economic policies. Economic stability makes a direct positive effect on IT investments.
- **Changing Economic Structure:** The importance of service sector increased, with a decrease of agriculture in the economy in Turkey in the last ten years. The increasing operations in the service sector instigate the IT investments especially in retail, wholesale, logistics, financial services, professional and personal services markets.
- **Import and Export:** According to the statistics published by TUIK, the import volume reached 241 billion USD, export volume reached 135 billion USD and total foreign trade volume reached 376 billion USD in 2011.



**Direct Foreign Investment Inflow:** Direct foreign capital investments in developing countries such as Turkey, make important contribution to the development of the country economy. It makes direct contribution to the improvement of IT investments.

The economic reforms implemented by Turkey just after the 2001 crisis and the macroeconomic stability, together with the political stability, contributed to the improvement of the business and investment environment and broadened the horizon of the companies in their investment decisions. With the economic and political stability environment, Turkey utilized foreign resources in considerable amounts. The amount of the direct foreign investment flowed into Turkey was 1,2 bn USD between 1994 and 2003, 1.8 bn USD in 2003, 2,8 bn USD in 2004, 10 bn USD in 2005, 20,2 bn USD in 2006, 22 bn USD in 2007 and 19,5 bn in 2008. With the effect of the global crisis towards the end of 2008, the foreign capital investments decreased with 56% in 2009 and went down to 8,4 bn USD. In 2010, it remained as 9 bn USD level with 7% increase. In 2011, this number increased 77% and reached 15,9 bn USD. Foreign Direct Investment Flow can be seen below according to the research of YASED- International Investors Association sourced by Turkish Republic Central Bank.

**International Direct Foreign Investment Flow to Turkey**



Source: YASED-International Investors Association:TRCB Sources Research  
International Direct Foreign Investment Flow to Turkey

**International Index's of Turkey:**

INDEX	RANGE OF TURKEY ON YEARLY BASIS										DIRECTION OF MOVEMENT
	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	
World Bank Business Convenience Index	-	-	-	84	91	60	63	60	73	71	↑
UNCTAD World Investment Report IDI Flow Range	52	37	22	17	25	20	30	27	-	-	↑
AT Kearney UDY Safety Index	24	-	13	-	20	-	-	23	-	13	↑
WEF Global Competitiveness Index	65	66	66	58	53	61	61	61	59	-	↑
IMD Global Competitiveness Index	48	46	39	43	48	47	47	48	39	-	↑
Transparency International Corruption Perception Index	77	77	65	60	64	61	61	56	-	61	↓

Source: YASED-International Investors Association

According to the research done by YASED-International Investors Association, improvements are seen in the international index's of Turkey.

**Privatization:** Income obtained from privatization has increased considerably in the last 5-6 years. According to the data obtained from the Turkish Privatization Administration, the income obtained from privatization was 187 million USD in 2003, 1,3 billion USD in 2004, 8,2 billion USD in 2005, 4,3 bn USD in 2007, 6,3 billion USD in 2008 and 2,3 billion USD in 2009. 1.225 million USD, 600 million USD and 440 million USD out of 2,3 bn USD obtained in 2009 was resulted from the privatization of Başkent Elektrik, Sakarya Elektrik and Meram Elektrik, respectively. In 2010, 3,1 billion USD privatisation was made. In 2011, this number became 1,4 billion USD.

Investments made following the privatizations by the new owners of the privatized companies in new infrastructure and technological optimization efforts supported the growth in the IT sector.

**Telecommunication Sector:** Turkey made major progress in the telecommunication sector with respect to the compliance with the EU and catching up with the global changes in the recent years. As part of the process of the accession of Turkey to the European Union, the chapter "Information Society and Media" was opened and the negotiations have started on 19 December 2008 because Turkey has met the criteria for the chapter to be opened. On the other hand, the chapter "Information Society and Media" in the Third National Program, which was adopted on 31 December 2008 to schedule the commitments of Turkey for harmonisation with the EU acquisition, commits to complete necessary arrangements in 2009 and 2010. This commitment aims at the liberalization of the electronic communication sector, creation of good working competition atmosphere, catching up with the development in information and communication fields and establishment of infrastructure and legal foundations for the related fields. Accordingly, it is estimated that a resource of about 8 million Euros will be needed for the institutional structuring for purpose of the harmonization with and implementation of the EU acquires.

The enforcement of the Electronic Communication Law, which had been on the agenda of the telecommunication sector for five years from 2003, on 10 November 2008 and the enforcement of the Authorisation Regulation on Electronic Communication on 28 May 2009 are some of the favourable events that occurred in the recent years. In addition to the foregoing, the -enforcement of the Number Porting Regulation at the beginning of July may be considered one of the most important steps taken for introduction of the third generation electronic communication service.

Rapid progress of technological developments makes impact on every part of our lives and creates some concepts such as information economy and internet economy. Extraordinary developments in the IT sector go beyond the country borders of the goods and finance markets and take the world into an economic globalization. Besides such progress in the IT technology, telecommunication sector also experiences many developments. As a consequence, it is inevitable that the countries that cannot keep up with such developments will remain behind the technologically advanced countries.

**Retail Sector:** Competition in the Turkish retail sector is intensifying. Investments made by international actors in the Turkish market increasingly continue. Media Markt, Dixons, Darty, Electro World and Best Buy have also been included in the chain stores in Turkey in the recent years. Entrance of the international actors into the Turkish market has made a favourable effect on the growth rate of the sector. It is the first time Best Buy and Media Markt has met in the Turkish market in 2009. However, Best Buy announced that they decided to leave Turkish Market in 2011. One of the biggest local retailers, Bimeks was offered to public in 2011

**Growing Individual Consumer Market:** It is obvious that consumers use the IT more than before. Opportunity of payment by instalment with credit cards and growth of retail markets rapidly support the growth of the individual consumer market. PC usage of end users and their demand for peripherals have increased from 7% to 38% of the market between 1995 and 2009. Accordingly, the structure of the market has changed, and individual consumers have represented the biggest share in the end user market since 2007. In 2010, individual user portion became 40% and 42% in 2011. Individual users became dominant player in BT Sector.

**Internet Technology and Portals:** Corporate usage of internet technology is still improving. Data portals become common via internet banking. The public sector is the main factor instigating the portal turnovers due to the e-government projects. Telecommunication, production, insurance and distribution sectors use portals for developing business with partners and suppliers, enhance communication and cooperation with customers and develop the management of the internal business processes. Internet usage will increase with the new Turkish Trade Code coming into power.