

Information & Communications Technology

REPUBLIC OF TURKEY PRIME MINISTRY
INVESTMENT SUPPORT AND
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Investment Support and Promotion Agency of Turkey

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Glossary of Terms

Acronym	Definition
2G	Second Generation
3G	Third Generation
A.Ş.	Incorporated
ADSL	Asymmetric Digital Subscriber Line
B2B	Business to Business
B2C	Business to Customer
BRIC	Brazil, Russia, India, China
CAGR	Compound Annual Growth Rate
CBRT	Central Bank of Republic of Turkey
CD	Compact Disc
CEO	Chief Executive Officer
CMS	Content Management Systems
CRM	Customer Relationship Management
DDK	State Supervisory Council
DVD	Digital Video Disc

Acronym	Definition
EBITDA	Earnings Before Interest, Tax, Depreciation, Amortization
EIU	Economist Intelligence Unit
EMEA	Europe, the Middle East and Africa
ERP	Enterprise Resource Planning
EU	European Union
FDI	Foreign Direct Investment
GBps	Gigabytes per second
GDP	Gross Domestic Product
GMPCS	Global Mobile Personal Communications Services
GOSB	Gebze Organized Industrial Site
GSM	Global System for Mobile Communications
HR	Human Resources
ICT	Information & Communications Technology
ID	Identification



Glossary of Terms

Acronym	Definition
IT	Information Technology
ITO	Information Technology Outsourcing
KOSGEB	Small and Medium Enterprises Development Organization
LCD	Liquid Crystal Display
M&A	Mergers & Acquisitions
MBps	Megabytes per second
MD	Managing Director
NGO	Non-Governmental Organization
O/N	Overnight
OECD	The Organization for Economic Co-operation and Development
OPEX	Operating Expenses
OS	Operating System
PC	Personal Computer
PTT	Turkish Postal Service
R&D	Research and Development
SME	Small and Medium Sized Entity

Acronym	Definition
TDZ	Technology Development Zones
TEYDEB	Directorate of Technology and Innovation Support Program
TL	Turkish Lira
TTVM	Turkish Telecom Data Center
Turkstat	Turkish Statistical Institute
TV	Television
UAE	United Arab Emirates
UK	United Kingdom
USA	United States of America
USD	United States Dollars
VP	Vice President
YASED	International Investors Association



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Executive Summary

- Turkey is strategically located in the center of the EMEA region, which provides many advantages. Turkey offers investment and business opportunities to foreign investors in various sectors including ICT. While FDI continues to flow into the ICT sector, the total FDI inflow into Turkey exceeded USD 10 billion in 2011 and 2012 after the economic crisis of 2008. On average, 2.5% of the FDI inflow during those years was to the ICT sector.
- Stable economic growth and recent data on the correlation between increasing GDP and ICT spending in Turkey shows that the ICT sector has a promising future. Between 2012-2017 the Turkish IT market is projected to grow at a rate of 7.4%, while the regions of the Middle East and Africa combined are expected to grow by 9.6%.
- Turkey has already been chosen as a regional hub by many market leaders including Microsoft, Intel, Hewlett-Packard as well as others. These companies chose Turkey as a hub not only because of geographical reasons, but also because of its demographic advantages.
- The young Turkish population's motivation to work in the ICT sector will provide a quality workforce for investors. Both the number of university students pursuing studies within the field and the number of job offerings in the ICT sector are increasing in recent years.
- The government is focused on improving the ICT sector by 2023, with the goal of reaching an ICT sector size of USD 160 billion and sector share of 8% of the GDP. Since the 1990s, 36 Technology Development Zones have been built and 14 more are under construction for a total of 2,209 companies. Turkey currently has 129 ICT related Research and Development centers and is still building more.
- The FATIİH project is the biggest public ICT project and was launched in 2012 with an investment of TL 803 billion, a sign of Turkey's dedication to ICT.
- Turkey is also growing within ICT sub-sectors. Revenue growth in the mobile market was 10.5% in 2012, while e-commerce transactions are expected to reach USD 170 billion by 2018. It is expected that the software market will reach USD 1.2 billion from USD 719 million in 2012. Within all areas of ICT, the hardware market corresponds to a significant portion of the sector.
- Spending in the hardware market composes the majority of the investments in technology in Turkey, corresponding to more than 2/3 of the Turkish information technology market. Total spending is projected to increase to USD 53.5 billion in 2017 from USD 20 billion in 2009, with a compound annual growth rate of 12.65%.



I. Reasons to Invest in Turkey's ICT Sector



Investing in the ICT sector in Turkey

Turkey is a growing economy with the potential of becoming a regional hub for the ICT sector.

- Turkey is a growing economy with a favorable investment climate for the ICT sector.
- Turkey has a sizeable internal ICT market.
- Global companies choose Turkey as their regional center to manage business in growth markets.

Turkey offers an investment-friendly environment for the ICT sector with focused support from the government.

- It is both advantageous and easy to invest in Turkey's ICT sector.
- The Turkish Government, public agencies and NGOs support the ICT Sector in many different ways.

Turkey offers high-quality business resources & infrastructure for the ICT sector.

- Turkey's universities have distinguished engineering faculties providing exceptional academic research.
- This creates outstanding academic programs in engineering and related fields.
- In Turkey, academia participates in producing innovation in technology development zones
- Turkey has a modern infrastructure that has witnessed increasing investment in recent years.

Turkey has the competitive edge in various ICT sub-sectors.

- Communications
- IT Services & E-Business
- The Software Market
- The Hardware Market



II. Turkey's Growing Economy and its Potential as a Regional Hub for the ICT Sector

- A. Turkey's Growing Economy and its Favorable Investment Climate for the ICT Sector
- B. Turkey's Sizeable Internal ICT Market
- C. Global Companies Choose Turkey's Strategic Positioning to Manage Their Growth Markets



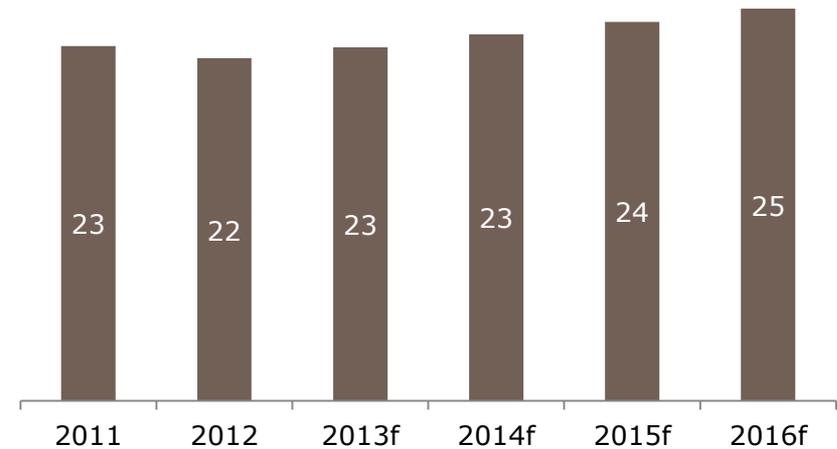
Turkey's ICT spending is expected to increase in parallel to the positive trend in the GDP for the future

"Our aim is to increase the contribution of the ICT sector to the country's growth, the GDP and the prosperity of the community."

Binali Yıldırım, Minister of Transportation, Maritime Affairs and Communications



Figure 1: Development of ICT Spending in Turkey (USD Billion)



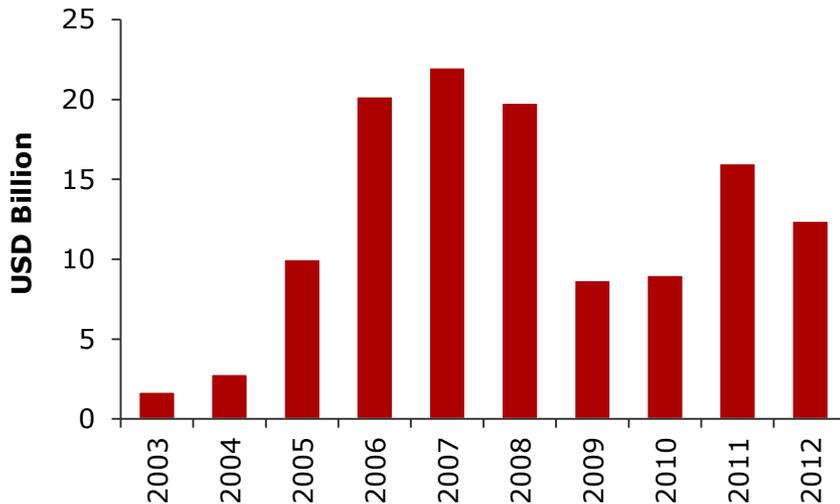
Source: Gartner
f: forecast

- IT spending in hardware, software, IT services and telecommunication services in Turkey is expected to reach USD 25 billion by 2016.
- The forecasts show that Turkey's ICT spending will increase in parallel to its GDP growth between 2013-2016.



Turkey is expected to attract further FDI inflow in the coming years

Figure 2: FDI Inflows to Turkey

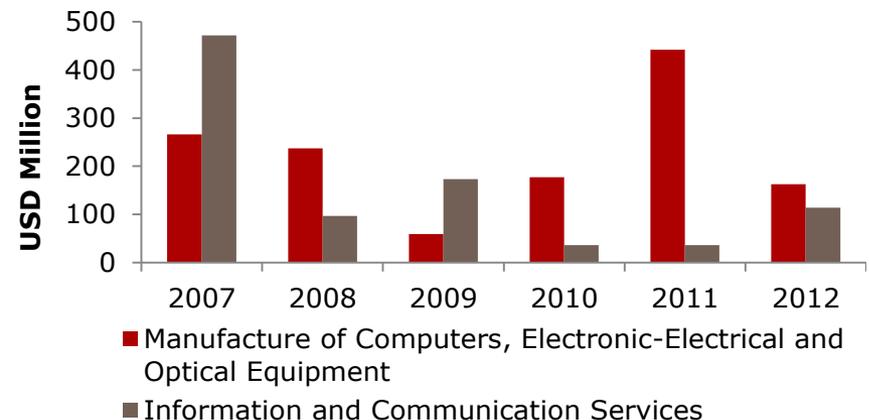


Source: Ministry of Economy

- Turkey has become an attractive destination for FDI. Sluggish FDI inflows after 2002 experienced an incremental increase and reached a record level of USD 22 billion in 2007. The decrease in 2009 can be explained by the global crisis which lowered FDI all around the globe as well as in Turkey.
- The volume of FDI inflows directed to Turkey shows a promising recovery. 2012 FDI inflow rose to USD 12.4 billion, compared to USD 8.4 billion in 2009.

- The majority of FDI inflows to Turkey have come primarily from the EU, followed by North America and Asia.
- Turkey had a peak in FDI inflows in 2007, following a decrease in inward FDI in 2008 and 2009 due to the global economic crisis. With promising macroeconomic figures from the Central Bank and the potential the country has shown in the past 5 years, forecasts show that FDI will steadily increase in upcoming years.
- FDI directed to the ICT sector has been - on average - 2.5% of the total FDI inflows to Turkey for the last five years.

Figure 3: FDI Inflows to the ICT Sector in Turkey



Source: Central Bank of Turkey



Turkey's fast-growing economy is expected to attract more investments in the future

- Turkey has undergone profound economic transformation over the last decade and its economic fundamentals are quite solid. It is the 17th largest economy in the world and the 6th largest economy in Europe with a current GDP of approximately USD 786 billion in 2012.
- Monetary policy played a vital role in reining in inflation over the recent years. Turkey's inflation stayed under 10% since 2004 and year end inflation was realized as 6.2% in 2012. EIU forecasts that the average inflation will further ease to 4% by 2018.
- The investment environment in Turkey has become increasingly more welcoming to foreign investors, which makes the country one of the most important investment destinations in the world. Having boomed as fast as 9.3% and 8.8% in 2010 and 2011, respectively, with a slowdown of 2.2% in 2012, EIU projects that Turkey is expected to grow by 3.5% in 2013, 4.9% in 2014, 5.1% in 2015, 5.0% in 2016 and 4.9% in 2017.

Figure 4: GDP Growth (percentage change in real GDP, over previous year)

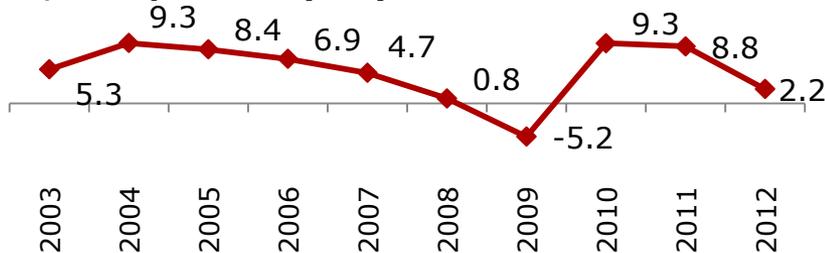
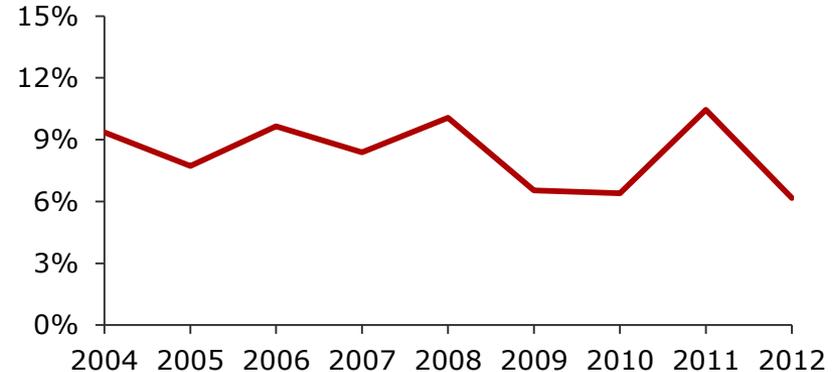


Figure 5: Declining Inflation (%)



Source: Turkstat

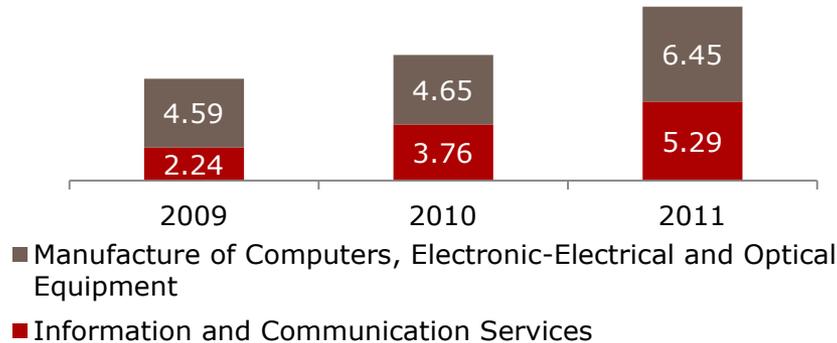
- Moody's raised Turkish government bond ratings to Baa3 and revised its outlook to stable from positive in May 2013.

	Rating-Local Currency	Outlook-Local Currency	Rating-Foreign Currency	Outlook-Foreign Currency
Standard & Poor's	BBB	Stable	BB+	Stable
Fitch	BBB	Stable	BBB-	Stable
Moody's	Baa3	Stable	Ba1	Positive
JCR	BBB-	Stable	BBB-	Stable



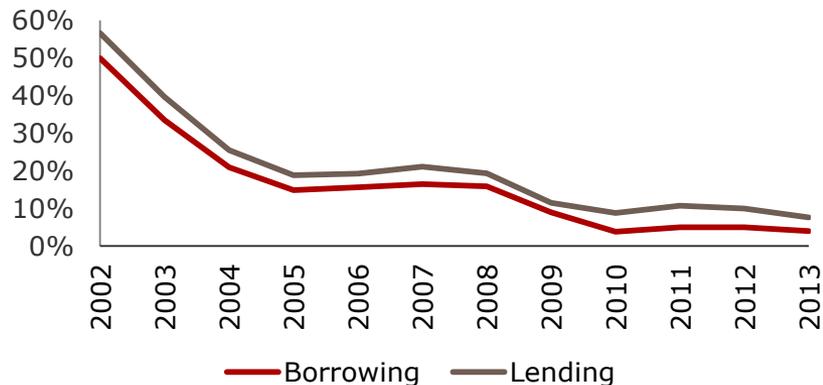
Considerable funds are available for projects

Figure 6: Financing Capital Loans Provided to the ICT Sector (TL Billion)



Source: CBRT

Figure 7: The Central Bank of the Republic of Turkey O/N Interest Rates



Source: CBRT
O/N: Overnight

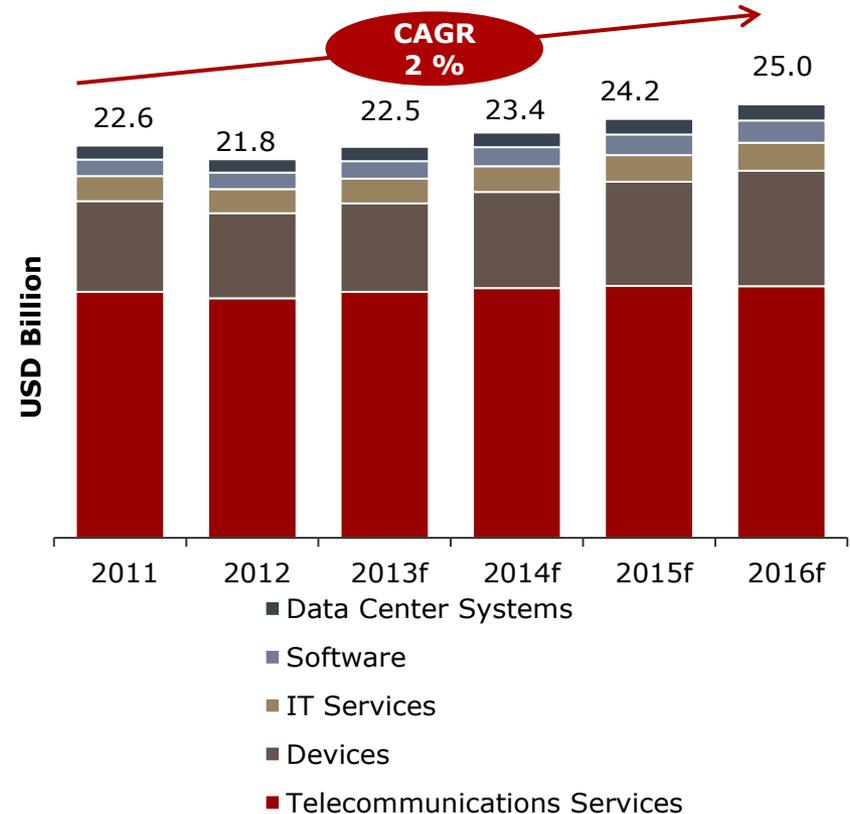
- Loans provided to the ICT sector keep increasing each year. With a 41% increase in 2011, the total lending to 142 companies was over TL 11.5 billion. Loans provided to manufacturing of IT equipment had an increase of 39% in 2011 compared to 2010.
- Major financing institutions continue to finance profitable projects. A robust, well-regulated banking sector with strong capitalization helped Turkey avoid the recession other countries experienced.
- The overnight lending rates have been steadily decreasing over the years and was around 7.5% in September 2013, which is a 500 basis point decrease from 2002.



Turkey is expected to have an ICT expenditure of over USD 25 billion in 2016

- The industry grows every year as new technologies and ways to access information come to the fore.
- There is sizeable demand for various ICT sub-sectors in Turkey.
- In recent years, the number of computer and computer related product exportation has begun to increase and it will continue to do so in order to reach EU average.
- According to Gartner forecasts, the expected spending in the information and communication technology sub-sectors – namely, telecommunication services, devices, IT services, software, data center systems - is expected to be more than USD 25 billion by 2016.
- With the increasing importance of IT in business, most Turkish companies have started to invest heavily in IT to gain a competitive advantage.

Figure 8: ICT Expenditure in Turkey 2011-2016



Source: Gartner
f: Forecast

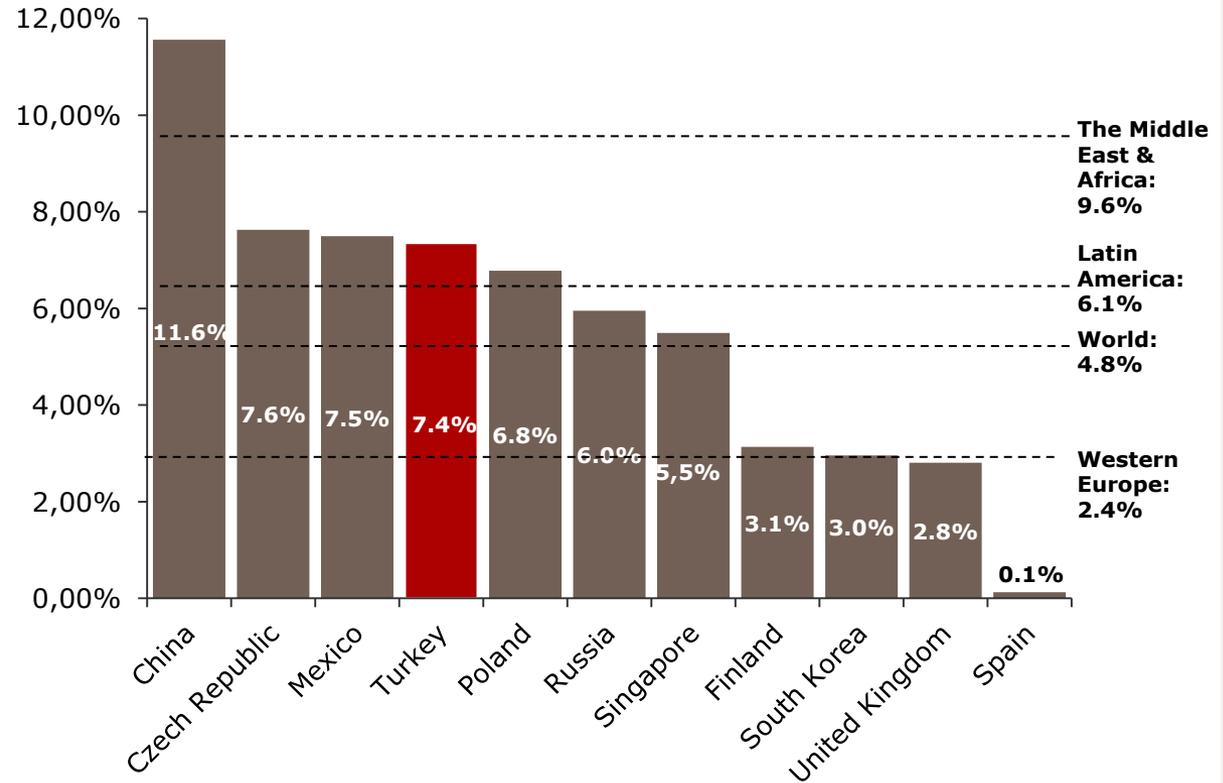


The expectation for growth in Turkey's ICT spending* suggests a promising domestic market

Turkey is expected to grow faster in ICT spending than the world average. Turkey has a large domestic market with sizeable potential in the ICT sector. Future sector growth is expected at a CAGR of 7.4% between the years 2012-2017.

Turkey has been moving in a similar pattern to global consumer preferences in mobile phones and PC's. PC spending is expected to shift to mobile phones and tablets. These will become more affordable as the market continues to grow.

Figure 9: ICT Spending 2012-2017 Forecast CAGR



Source: EIU

Gartner: Emerging Market Analysis: IT, Turkey, 2013 and Beyond

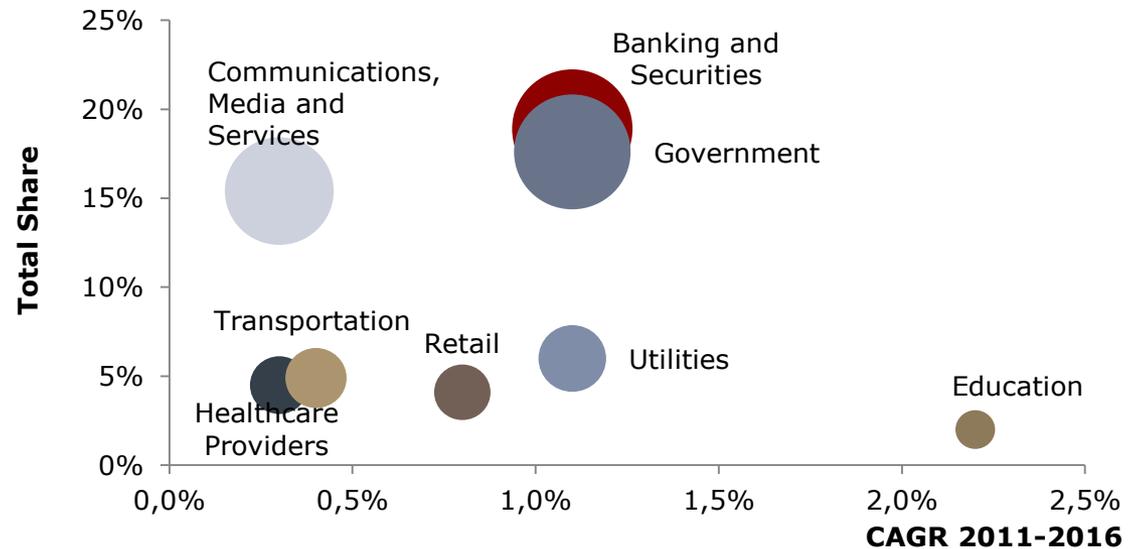
* IT spending in this analysis covers IT hardware spending, packaged software spending and IT services spending but excludes communication.



Banking, communication, manufacturing and government-related industries are the main areas of ICT spending in Turkey

- Government, banking, securities trading, manufacturing, natural resource management, communications, media and services are the largest sectors contributing to ICT spending in Turkey. These account for more than 68% of total IT spending.
- The manufacturing and mining and metals sectors have greater potential for increased spending on ICT as the current level of ICT spending by Turkey's manufacturers indicates room for more spending on new processes and software functionality, more advanced ICT services and ICT infrastructure modernization.
- Increasing government spending in ICT runs parallel to Turkey's 2023 goals of having 80% of all citizens be computer-literate.
- Banking and securities spending will increase as back-office renewals, system integration work and data center consolidation trends drive growth.

Figure 10: ICT Spending for Turkey's Vertical Industries



Source: Gartner

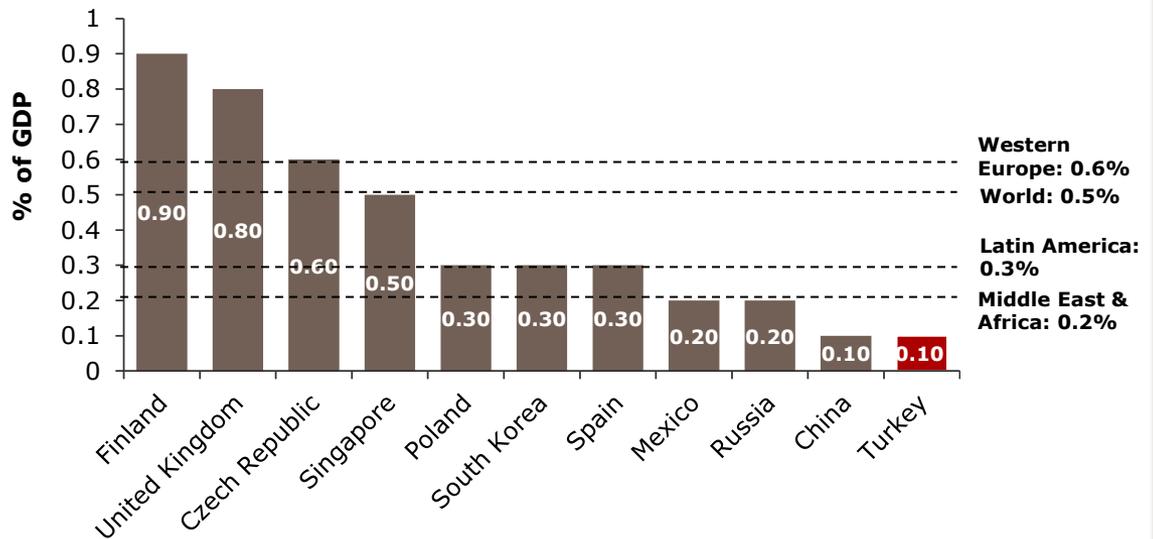
Note: Bubble size represents IT spending in 2013 in terms of USD million.



There is immense opportunity in packaged software sales in Turkey

- In 2012, the scale of the software sector was approximately TL 2.14 billion with a growth of 28% with respect to 2011. Currently, packaged software sales are 0.1% of the GDP in Turkey. The percentage of growth within the sector along with the GDP percentage suggest great potential.
- The combined shares of ICT services and the software sector in Turkey is less than one quarter of Turkey's total ICT market. However, the total share of these two sub-sectors in the global ICT market is around 70%.
- Software sales in enterprise applications and infrastructure software are expected to be USD 4.56 billion by 2016.
- As the Turkish economy grows, there is immense opportunity in software sales. A large number of Turkish firms are also expected to spend on software packages for their respective business requirements.

Figure 11: Packaged Software Sales (% of GDP)



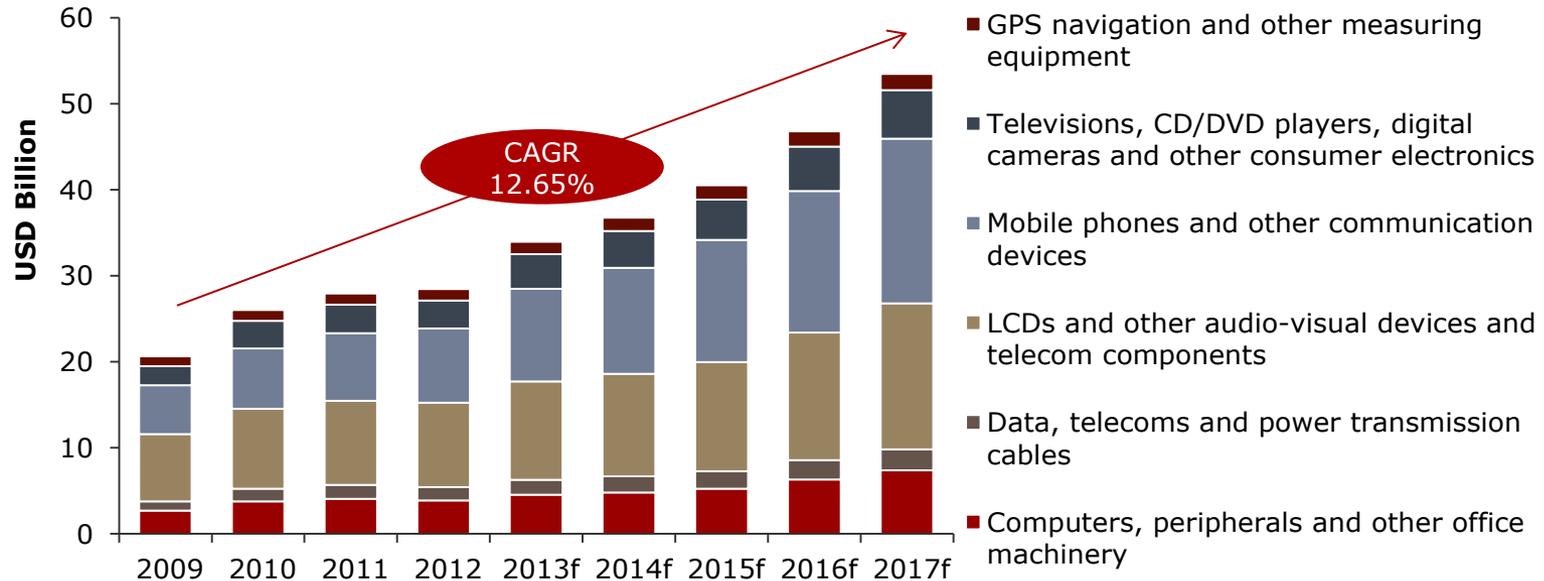
Sources: EIU, YASED: International Investors Association, Information and Communication Technologies on the Road to 2023, TÜBISAD, Gartner, Emerging Market Analysis: IT, Turkey, 2013 and Beyond



A major component of technology spending in Turkey has been in hardware

- According to the Turkish Informatics Industry Association (TÜBISAD) analysis, the hardware sub-sector constituted more than two thirds of the IT market, excluding the communications sector.
- With a broad classification including all technology spending in Turkey, the total spending is expected be around USD 53.5 billion in 2017, with a CAGR of 12.65% between the years 2009-2017.
- LCDs and other audio-visual devices, telecom components, mobile phones and other communication equipment are expected to be the major sources of technology spending in Turkey.

Figure 12: Technology Spending 2009-2017



Sources: EIU

Note: *The taxonomy is based on EIU data

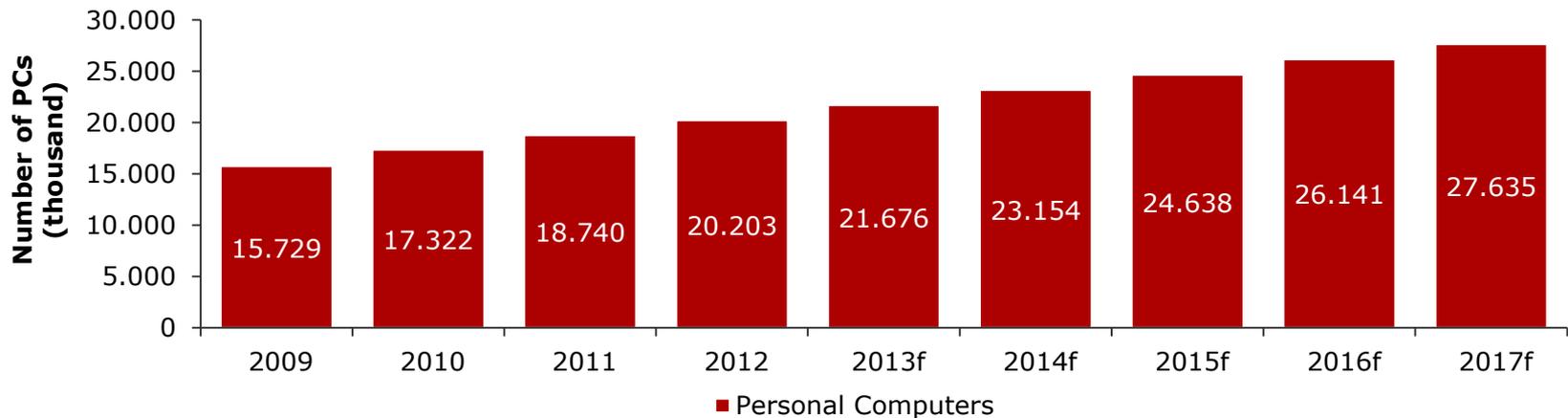
f: forecast



Sales of computers are expected to increase significantly in 5 years

- The market for personal computers (PCs) is an important part of hardware spending and is expected to grow significantly.
- Currently, more than half of all households in Turkey have computers with internet access. The percentage of households with computers that have internet access is expected to rise to 65.6% of total households over the next 5 years.
- By 2020, this number is expected to rise to 70%. Government investment is the main reason for this growth in the market as a result of the infrastructure created in rural (underserved) areas*.
- The prevalence of internet-enabled computers offers a potential for a market in cloud computing, broadband internet and cloud computing businesses in Turkey.

Figure 13: Development of PCs



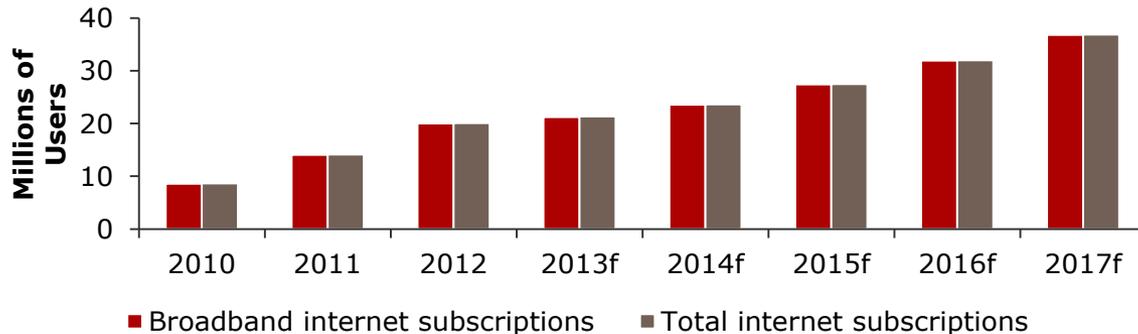
Sources: PCs: EIU
Possession of Internet-Enabled Computers: Euromonitor
* Technology, Communications and Media: Turkey Euromonitor International



In Turkey, internet usage and its potential is increasing because of its young population and interest in social media

- With better infrastructure, internet subscriptions are expected to increase and pave the way for more development in rural areas.
- Currently, the percentage of internet users in Turkey is around 42% and it is forecasted to rise above 47% in 2017. According to an EIU analysis, in 2017 the number of potential internet subscriptions will triple.
- According to a study in 2010, Turkish firms find 46% of new business markets and customers through the internet. It is obvious that internet subscriptions will increase with the development of businesses.
- Blogging and social networking play a significant role in internet usage. Facebook users in Turkey totaled over 40% of the population in the beginning of 2013. The average internet user is spending 32.7 hours online per month in Turkey.
- Broadband internet subscriptions, mobile internet subscriptions and internet retailing are increasing. The youthful population, increasing usage, expected spending and popularity of internet on mobile phones, tablets and/or personal computers show that the sector will continue to grow, thus making the country's ICT sector a gold mine for investments.

Figure 14: Development of (Broadband) Internet Subscriptions



Source: Turkstat (2010-2012), Information and Communications Technologies Authority, Deloitte Analysis (2013-2017)

Notes: Almost 100% of the internet subscriptions are also broadband subscriptions

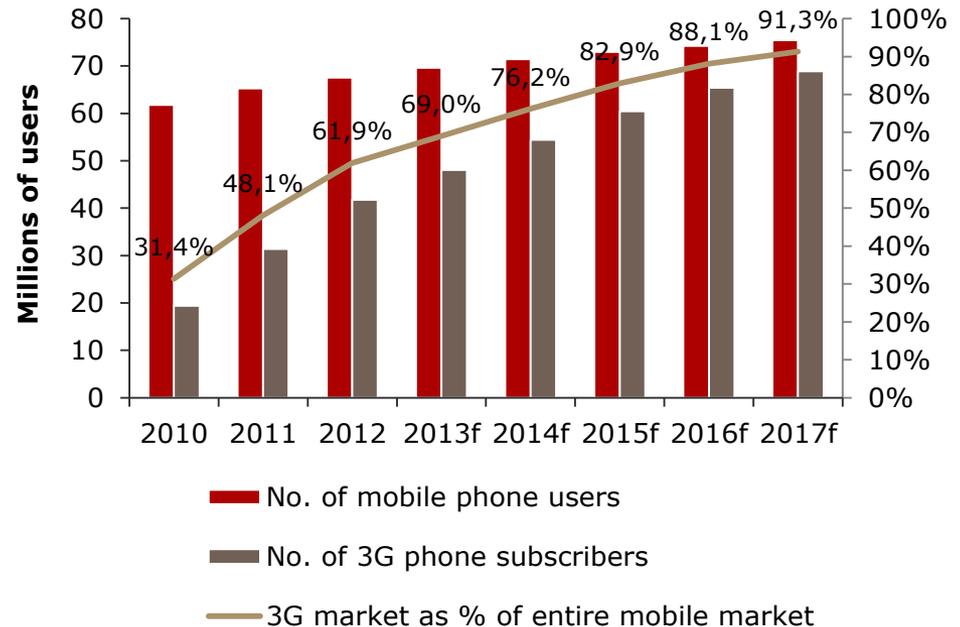
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Mobile phone subscriptions and 3G usage are expected to increase, reaching a 3G penetration rate of 91.3% by 2017

- As the young population increases and the online market expands, the total number of mobile phone subscriptions is expected to grow to over 75 million by 2017.
- After Turkcell, Avea and Vodafone were awarded licenses for 3G in 2008, the 3G market has rapidly evolved over recent years and will reach a penetration ratio of 91.3% by 2017.
- In light of this figure, m-commerce, mobile broadband, mobile banking services and mobile television services will increase and provide favorable business opportunities to investors.
- After the launch of the Android market in 2011, sales in Android OS handsets greatly increased along with the general increase in the percentage of mobile phone users. Android paved the way for the development of applications in the market and this is expected to grow even further with funding and private investment for entrepreneurs in Turkey.
- The smartphone market penetration rate is 19% as of February 2013. The high demand for smartphones suggest that smartphone demand will continue rising.

Figure 15: Development of Mobile Phone and 3G Subscriptions



Source: BMI (Graph data), Nielsen: The Mobile Consumer: A Global Snapshot, Euromonitor International: Technology, Communications and Media: Turkey
f: forecast



Turkey is suitable not only for its geographical location, but also its logistical capabilities, stable environment and workforce

- Turkey's geographical location and singularity in being at the intersection of trade routes, its logistical capabilities, rapidly evolving and favorable investment conditions and stable political structure are the major factors contributing to Turkey's regional prominence.
- Its multicultural historical background and a young and skilled technical workforce are other indicators pointing the way toward business opportunities.
- Turkey's advantageous geographical position enables it to reach over 1 billion people in the vicinity with a GDP of USD 22.8 trillion.
- According to EIU, the region had a total spending of approx. USD 80 billion for telecom investments, USD 600 billion for IT and USD 225 billion for IT services in 2012.

"In a world experiencing capital flow from West to East, we believe Turkey can become a center for attracting international capital by taking the right steps now and making use of new opportunities in the future."

Serpil Timuray, AMAP Regional Director of Vodafone and CEO of Vodafone Turkey, 2013



33% of the members of the International Investors Association of Turkey(YASED) use Turkey as a regional hub...

Major ICT Companies with Turkey as Regional HQ:



Microsoft has been managing the Middle East and Africa from its Istanbul office since 2000. Microsoft manages 79 countries, 39 offices and 3 continents from Turkey. The UAE, Qatar, South Africa, Lebanon, Afghanistan and Egypt are a few of the offices managed from Turkey.



Adobe's Istanbul office is responsible for the Balkans. Offices under the management of the Istanbul office include Albania, Bosnia and Herzegovina, Croatia, Kosovo, Macedonia, Montenegro, Serbia and Israel.



Since 2004, Intel is managing the Middle East and Africa from Turkey. The Turkish office is responsible for all activities related to Sales and Marketing, distribution, investments and social responsibility projects. For Intel, the EMEA region means 64 countries including Egypt, South Africa, UAE & Saudi Arabia.



Partially owned by TeliaSonera and the Altimo Group, this Turkish telecommunications company is the biggest network operator in Turkey. As of 2012, Turkcell Group had a total of 69 million subscribers and 34 million of them were outside Turkey. Turkcell has international operations in countries such as Azerbaijan, Kazakhstan, Georgia, Moldova, Ukraine and Belarus. Turkcell manages Ukraine and Belarus from their headquarters in Istanbul.



Source: YASED

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...including ICT giants such as Microsoft, Google and Riverbed

"There are plenty of factors that would contribute to Turkey being the most strategic country for us in the region. Its economic status looks quite good. Besides, the adoption of the internet is pretty high. Moreover, there are a lot of companies who are making use of Google +. Now, it's time to take action. We have already created strategies. We would like to accelerate our growth in the market."

Sebastien Morette, Google Enterprise
EMEA VP, 2012



"Istanbul is close to business centers in the region, and is in a strategically important location giving you a chance to travel anywhere easily. The business opportunities, the social progress, the potential of information and communication technologies, the developing workforce and the infrastructure presented to foreigners also makes the city an important location. The dynamism, variety and high-quality workforce make Istanbul a very good place to manage the region."

Ala Faramawy, Corporate Vice
President, Microsoft Middle East &
Africa President, 2011



"The current status of Turkey in the data performance market is good. When the telecommunication infrastructure, mobile applications, young population, historic and geographic qualifications are considered, the amount of data every individual can obtain is a lot. Turkey is a part of both Europe and EMEA, a very critical region. The number of customers we have is also increasing. Our expectations are high for this market since there are a lot of companies both in the public and private sectors who want to increase their data management performance."

Serdar Yalçın, Riverbed Turkey MD,
2012



Istanbul is Turkey's rising business center



- Over 2 million people moved to Istanbul in the last 5 years.
- Istanbul is located close to industrial clusters and R&D centers.
- The government plans to invest over USD 4.5 billion in 2013 on Istanbul's development in multiple sectors. Since ICT creates synergies with other sectors, this investment will affect it directly and indirectly. As of May 2013, Turkey has a 212,843 km long fiber optic cable infrastructure, the majority of which is in Istanbul, reaching 15 million people.

- Istanbul is the financial capital of Turkey. Head offices for multinational companies are mainly located in the business district of Istanbul.
- Istanbul based enterprises were responsible for more than 65% of Turkey's exports and 43% of goods produced last year.
- Turkish R&D expenditures grew 8,634 times in the last 10 years, totaling almost USD 6 billion. 19.2% of expenditures for R&D were out of Istanbul.



III. Turkey's High-Quality Business Resources & Infrastructure for the ICT Sector

A. Turkey's Young, Competitive and Well-Educated Workforce

B. Turkey's Outstanding Academic Programs in Engineering & Research

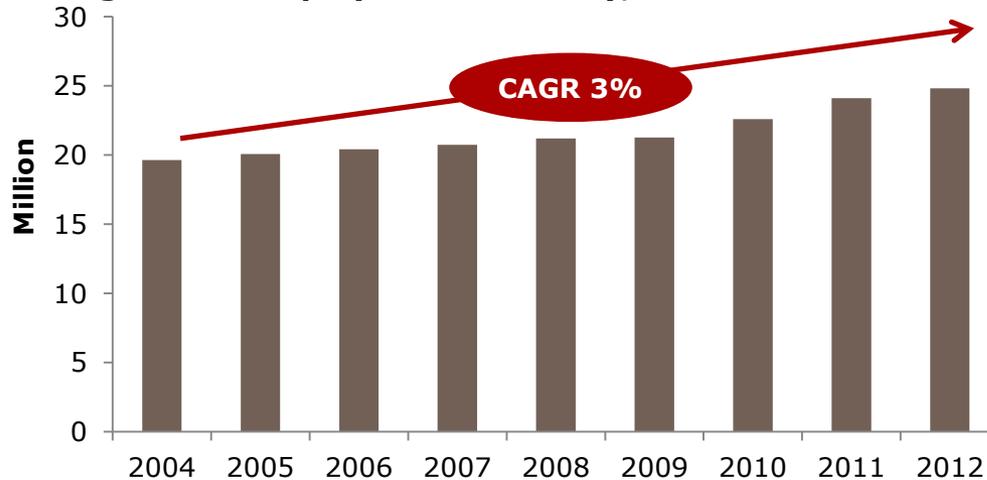
C. Academia Meets Business for Innovation at TDZs

D. Turkey's Modern Infrastructure and the Increasing Investment Therein



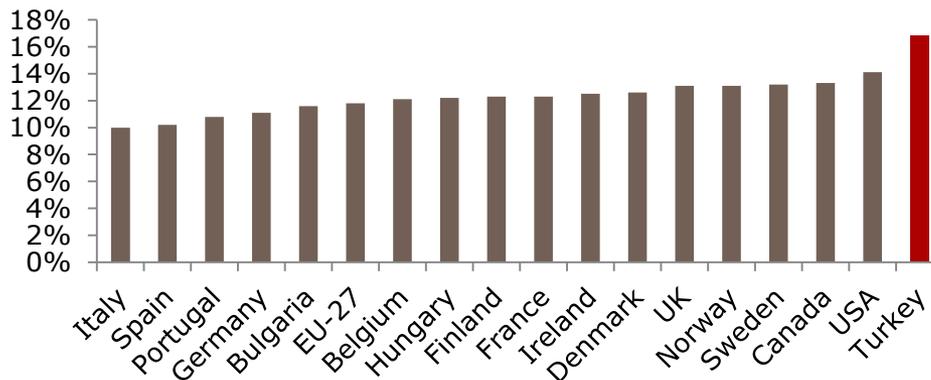
Turkey has one of the highest percentages of young people in the world and an increasing employment rate

Figure 16: Employment in Turkey, 2004-2012



Source: Turkstat

Figure 17: Percentage of Young People (15-24) in Populations, 2012



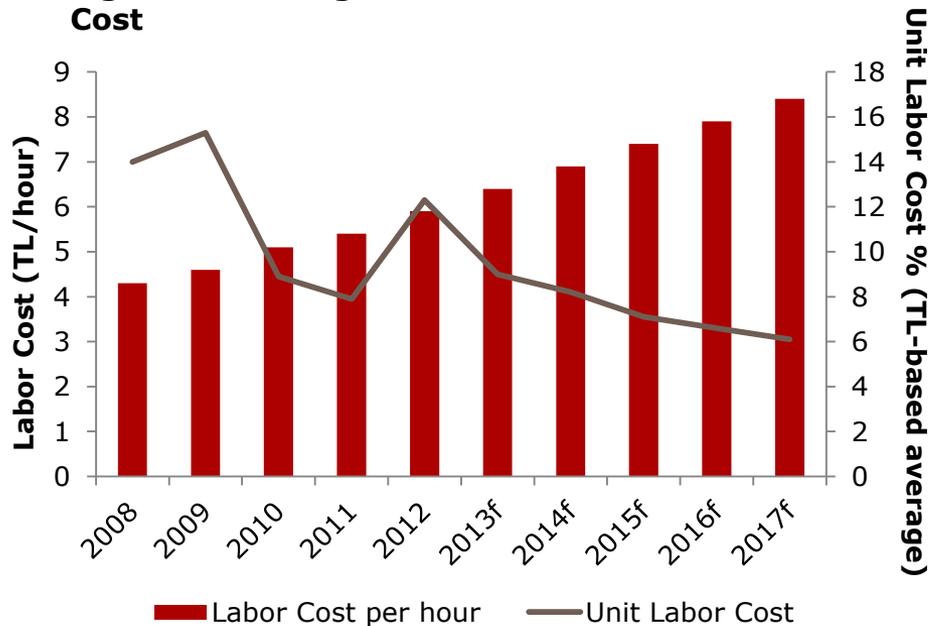
Source: Turkstat, United Nations Economic Commission for Europe

- According to Turkstat, a total of approximately 25 million people are employed in Turkey, which is an increase of a CAGR of 3% between 2004 and 2012.
- From 2011 to 2012, 711,000 jobs were added to the Turkish economy. Even at the onset of the global crisis in 2008 there were no job cuts, in fact, there were an additional 83,000 jobs created from 2008 to 2009.
- Turkey has one of the highest percentages of young people (between the ages of 15 to 24) in the world. The population of young people is 16.8% higher than the EU-27 average.
- A high percentage of young people within a population is a crucial indicator of a country's potential employees. As education programs continue to expand and as the economy continues to grow, Turkey provides an exceptionally well educated and highly skilled workforce to its economy.
- Domestic and foreign investments will also have a positive impact on Turkey's employment rate.



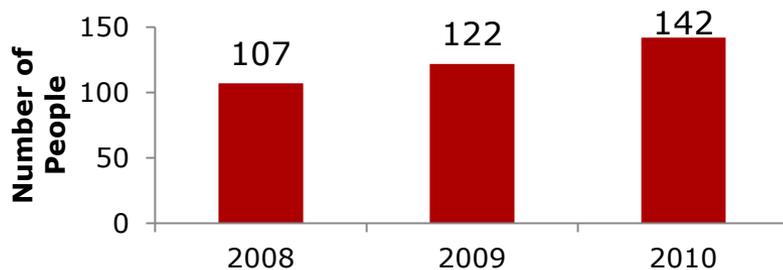
Unit labor costs are expected to decrease in Turkey

Figure 18: Change in Labor Cost and Unit Labor Cost



- Turkey’s unit labor cost decreased from 14% in 2008 to 12.3% in 2012. According to the EIU, the unit labor cost in Turkey will continue to decrease from 2012 to 2017 from 12.3% to 6.1%. This decrease in unit labor costs is a strong indicator of competitiveness.
- In Turkey, labor cost per hour experienced a growth from TL 4.3 in 2008 to TL 5.9 in 2012. The EIU expects Turkey’s labor cost per hour to increase gradually to TL 8.4 in 2017.
- The decrease in unit labor costs when there is an increase in labor cost indicates advances in efficiency.
- The number of R&D technicians per million people in Turkey increased 14% between 2008 and 2009 and 16.4% between 2009 and 2010. This solid increase in technicians in R&D signifies the increasing focus on R&D in Turkey.

Figure 19: Technicians in R&D per Million People

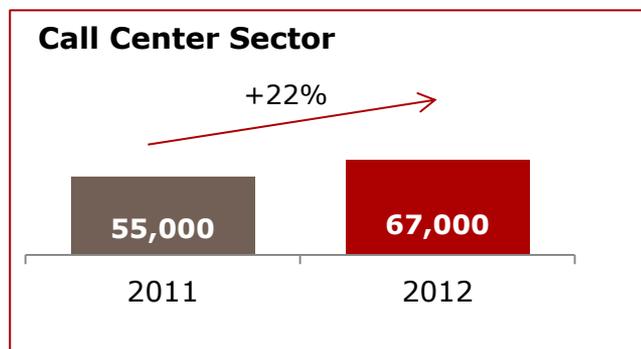
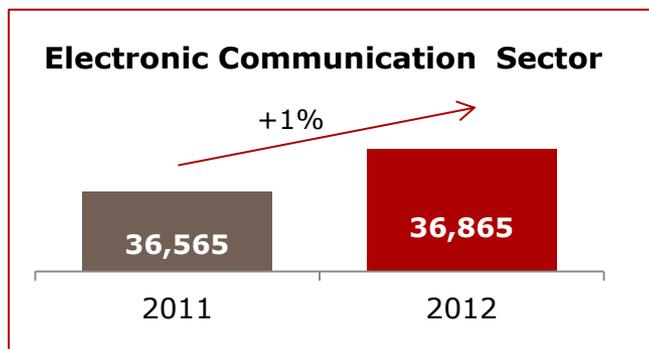
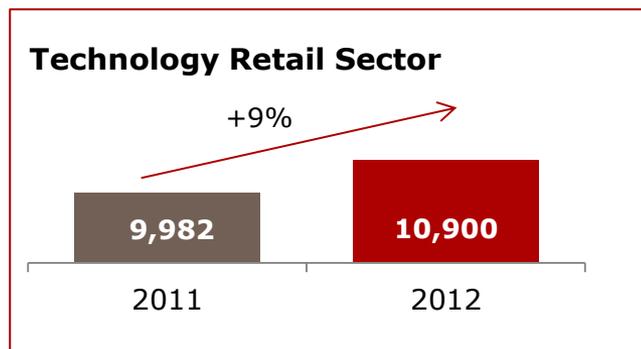
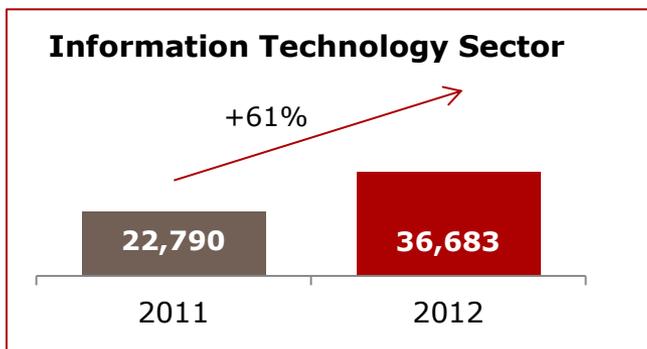
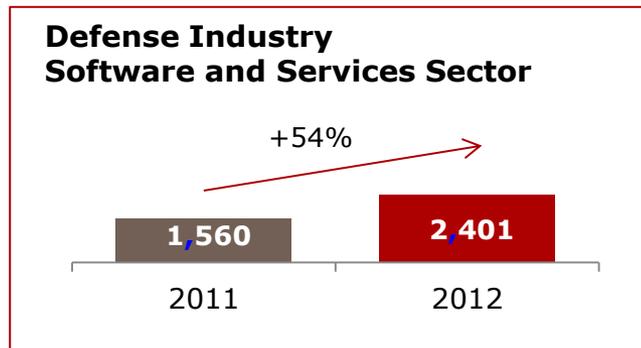


Source: EUI



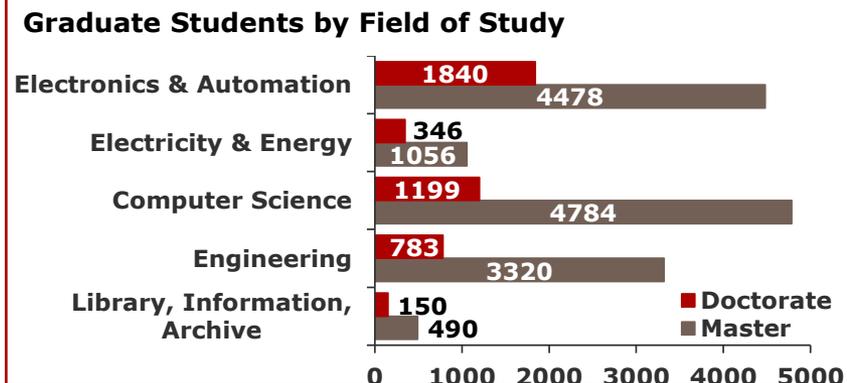
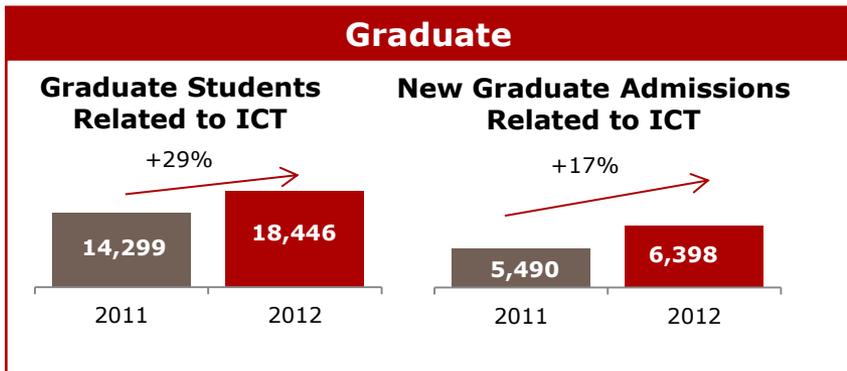
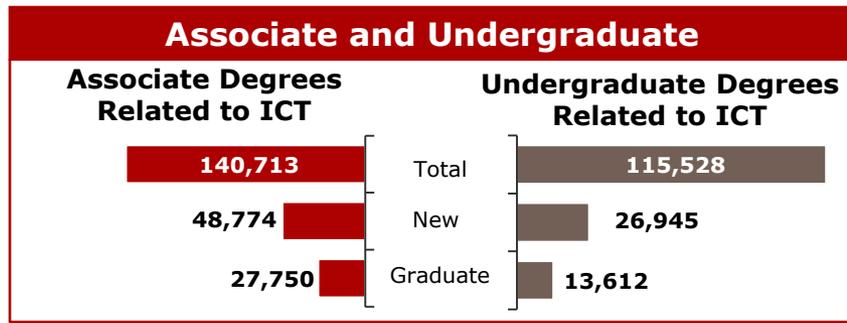
Employment in the ICT sector is increasing in Turkey

- The Turkish ICT market is growing and that growth is reflected in the increase within the total employment within its sub-sectors.
- The call center sector and retail technology sector, which support the ICT services sector, require a large number of employees, the current total is 77,900 people employed.
- The annual increase in the number of employees in the information technology sector and defense industry software and services sector, which are 61% and 54%, respectively, is also noteworthy.



Source: TÜBISAD, ICT Market Data 2012

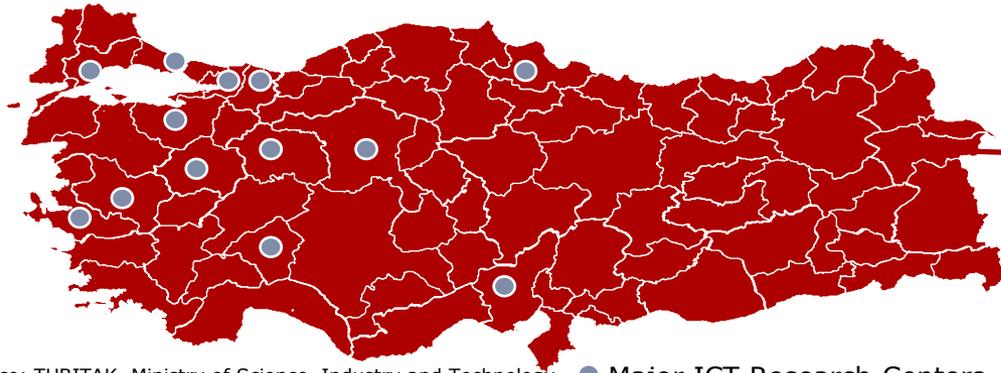
The best students in Turkey are choosing associate, undergraduate and graduate education related to ICT



- In Turkey, the engineering fields related to the ICT sector are among the most popular choices for undergraduate and graduate studies. Every year, a significant portion of the best students in Turkey join programs related to the ICT sector, which will provide a high-quality workforce.
- In 2012, there were 115,528 students enrolled in undergraduate programs and 140,713 students enrolled in associate programs.
- The number of graduate students in ICT related departments increased by 29% in 2012 compared to 2011.
- Due to an increase in number of TDZs and research centers, the quality of engineering departments is improving as well as the quantity of students in the field.
- Besides universities, there are private education and training centers that grant certifications in coding, system & network management, database management, graphics & digital design and the like.



There are 129 important ICT research centers in Turkey



Source: TUBITAK, Ministry of Science, Industry and Technology
 * As of July 26th, 2012

● Major ICT Research Centers

- Most of the 129 ICT related research centers* are located around the Marmara region, with 32 out of a total 50 TDZs positioned around it.
- Istanbul, Ankara, İzmir and Kocaeli have the most research centers due to their location and their proximity to ports, large populations and labor supply.

Some Research Centers

Areas of Activity



- Future networks, network technologies, novel internet architectures, future computing systems, cloud computing, future internet technologies addressing societal challenges, advanced software engineering, CT for health, ICT for governance and policy making, e-learning, intelligent tutoring systems, embedded systems and adaptation of business & manufacturing processes



- New generation web-based services and applications, future internet technologies addressing societal challenges, cognitive systems, e-learning, mobile learning tools, embodied evolution of artificial intelligence systems, interactions between humans & smart spaces and other creative ICTs



- Future networks, networked media and search systems, digital media, telecom equipment, devices and services, new generation web-based services and applications, cloud computing, future internet technologies addressing societal challenges, advanced software engineering, large-scale data applications (processing & analytics), digital preservation
- ICT for health, e-learning, mobile learning tools, smart grids, ICT systems for energy efficiency, ICT for efficient water resources management



- Network technologies, novel internet architectures, networked media and search systems, digital media, new generations of web-based services and applications, future computing systems, cloud computing, future internet technologies addressing societal challenges, connected and sensing enterprise of the future, trustworthy ICT, advanced software engineering, big data applications (processing & analytics), digital preservation, ICT for health, ICT for governance and policy making
- Smart grids, ICT systems for energy efficiency, energy efficient buildings & public spaces, low power consumption devices, networks & software.



Technology Development Zones (TDZs) in Turkey have been on the agenda as strategic investments since the early 1990s

Establishment of TDZs was put on Turkey's agenda by the Prime Ministry State Planning Organization (SPO) in 1989.

In 1990, reports were prepared to create opportunities in the universities of Istanbul, Ankara, Izmir, Gebze and Eskişehir.

The program for the establishment of TDZs in Turkey began.

The SPO brings the establishment of TDZs to agenda.

The TÜBİTAK Marmara Research Center TDZ, the first TDZ in Turkey, is established in Kocaeli.

There are 50 TDZs in Turkey, 36 of them are currently in operation.

1989

1990

2000

2001

2013

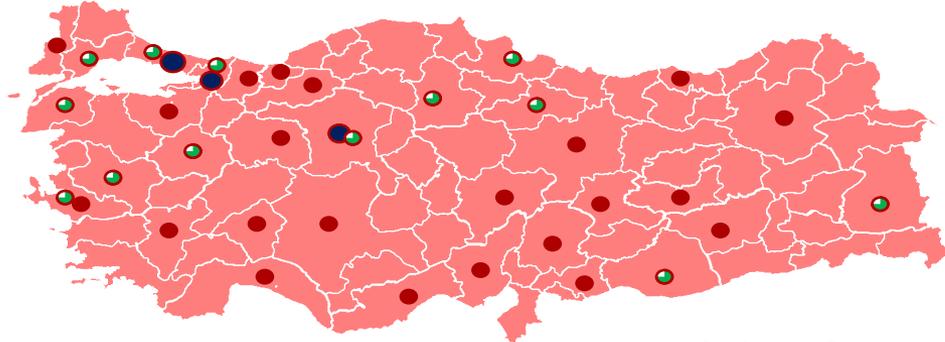
The government program for the establishment of TDZs in Turkey begins.

The first university TDZ was founded at Middle East Technical University (METU).

The program for establishment of TDZs in Turkey started with 5 TDZs, namely, **ITÜ TDZ, METU TDZ, ANADOLU UNIVERSITY TDZ, EGE UNIVERSITY TDZ** and **TÜBİTAK MARMARA RESEARCH CENTER TECHNOPOLIS**. TÜBİTAK Marmara Research Center TDZ (TÜBİTAK MAM) is the first TDZ of Turkey established in Kocaeli in 2000. Followed by METU, in 2001. It established the first TDZ founded by a university. In 2002, GOSB, Bilkent and İzmir TDZs followed.



Turkey has 50 TDZs, 36 are active and 14 are under construction



● One TDZ ● More than one TDZ ● Under Construction

The Minister of Science, Industry and Technology Nihat Ergün states:
 "The 2023 goals for TDZs are 5,500 companies, 65,000 employed and USD 10 billion in exports."

Some TDZs

Overview



- METUTECH is a TDZ established on the Middle East Technical University campus. METUTECH's existing company profile is based on software development and the electronics industry. There are a total of 3,300 employees working in METUTECH, 2,700 of whom are researchers in 240 firms, 90% of these firms are SMEs. There are also multinationals such as Cisco and Siemens
- More than 85% of the firms under the umbrella of ETUTECH are small and medium sized enterprises (SMEs) and 65% of these firms specialize in ICT. METUTECH was awarded the highest performing TDZ by the Ministry of Science, Industry and Technology in 2013.



- Bilkent Cyberpark is a TDZ established jointly by Bilkent University and its affiliate Bilkent Holding.
- Cyberpark has been operating under the Technology Development Zones legislation and is one of the biggest TDZs in Turkey in terms of area 100,000 sqm, number of tenant companies and the business volume in the zone. Bilkent Cyberpark has a research labs, patent support office, R&D start-up support office, capital support and human resources platform.



- ITÜ Advanced Research and Innovation TDZ (ITÜ ARI TDZ), is housed at Istanbul Technical University's Maslak campus. According to DDK's reports, ARI TDZ has a share of 75% of all the patents, 37% of all the exports and 45% of the R&D budget of all of Turkey's TDZs. It also has a share of 85% of the TTGV budget.

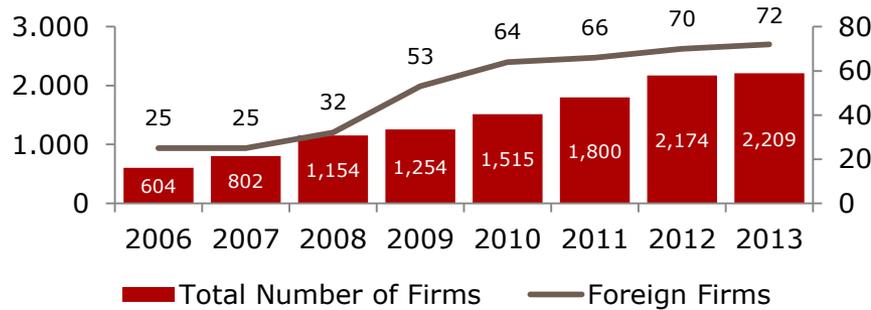


- Konya TDZ was established on the campus of Selçuk University. It is one of the fastest developing TDZs in Turkey with more than 100 tenant companies. Konya TDZ is one of the five TDZs in Turkey that are full members of IASP, the International Association of Science Parks.
- There are more than 100 domestic and foreign tenant companies. 20% of the tenant companies were established by academicians.

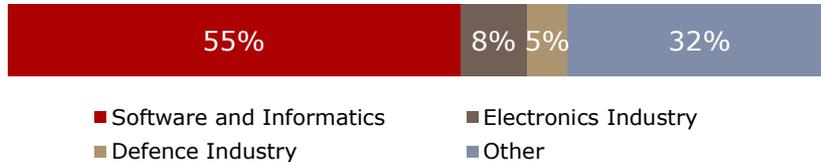


The number of TDZs has doubled and number of companies active in TDZs has quadrupled in the last 7 years

Figure 20: Total Number of Firms, Foreign and Domestic in TDZs

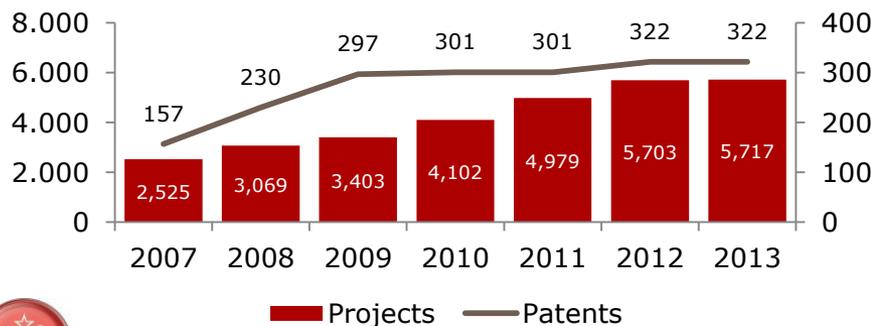


Sectors of Firms in TDZs

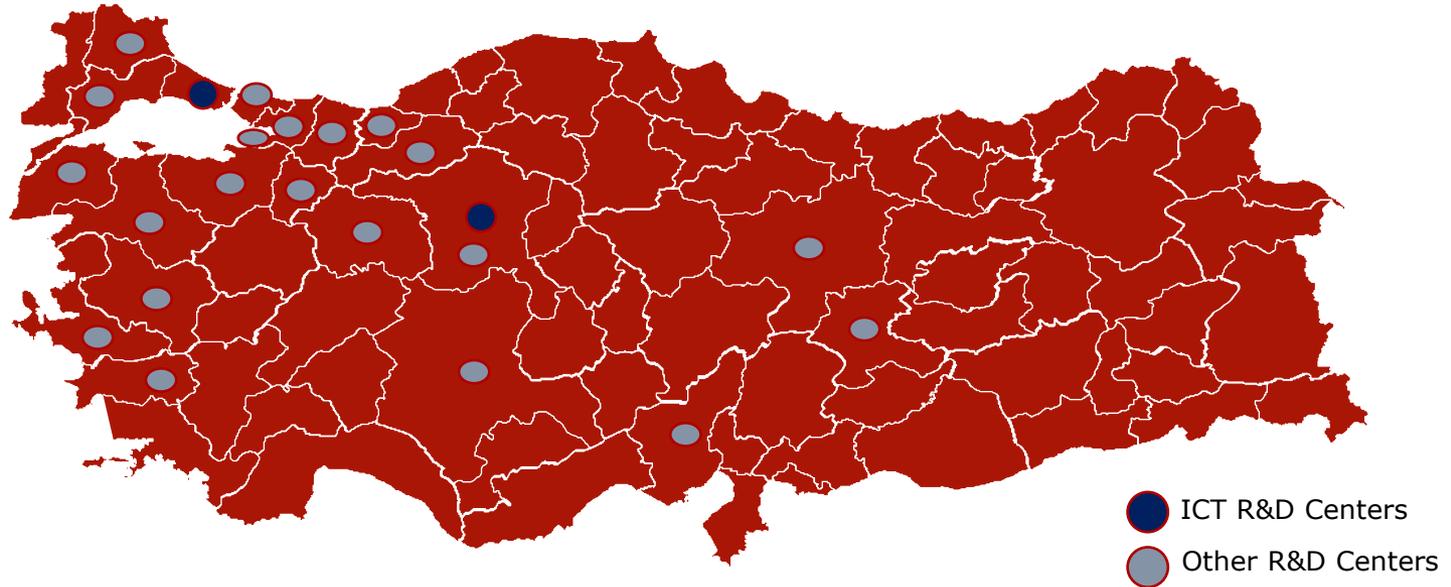


- Every year, on average 4 new TDZs are opened in Turkey. This trend of increasing the number of TDZs is expected to continue as Turkey proceeds towards its goals for the year 2023.
- 55% of the firms in TDZs are engaged in the software and informatics business. Other areas of focus are the electronics and defense industries.
- There are 72 foreign investors among the 2,209 firms in TDZs and their investments total about USD 683 million.
- The number of projects reached 5,717 in April of 2013 and the total for export reached USD 893 million at the end of 2012.
- Firms applied for 322 patents in TDZs.
- Employment in the TDZs consists of 15,960 for R&D and for 3,536 support personnel, for a total of 19,496 people employed altogether.

Figure 21: Total Projects and Patents from TDZs



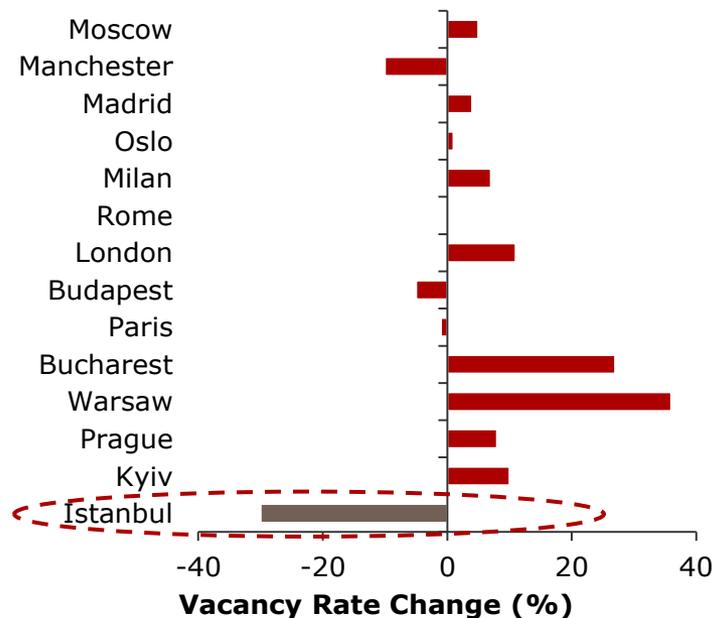
Besides TDZs, Research & Development centers make important contributions to innovation and technology development



- 163 firms have applied to establish R&D centers, 134 of these companies have been accepted and were given an R&D Center Certificate.
- 129 Research and Development centers are currently active in Turkey.
- There are 13 R&D centers in the information and communication technologies sector and they carry out around 10% of the total R&D activities.
- 14,837 people are employed in these centers with 1,784 working in the ICT sector.



With new office complexes under construction, Istanbul will be better equipped to satisfy demand



- The vacancy rates shows the percentage of all offices that are unoccupied and not rented at the end of first quarter of 2013. The office supply graph shows how many offices are built percentage of current offices.
- Istanbul performs better than all other European cities when it comes to office construction and in renting the newly built offices. Unoccupied offices went down 30% in the first quarter of 2013, whereas construction increased almost at the same rate.
- The estimations show that Istanbul has office availability ranging from 500 square meters to 1,250,000 square meters, indicating that it is a hot market for new investors in terms of office availability and infrastructure.
- The vacancy rate of current offices are between 7.1% to 12% and with new investments in construction, Istanbul will be more than able to satisfy the demand.

Source: DTZ Property Times



The key element for investment within the ICT sector is for telecommunication infrastructure

Overview

- In Turkey, broadband service come via ADSL, fiber and cable technologies. 98% of the population is covered by these services in Turkey.
- In addition to broadband infrastructure, mobile broadband services are of great importance since the use of mobile devices increases each year. In light of this, fiber cable investments are increasing.
- In Turkey, the 3G coverage ratio has reached 88% for some of mobile operators.
- More than TL 5.7 billion in investments were made in the industry in 2012.

Key Investment Statistics

Investment (TL million)	2011	2012	2013-Q1
Türk Telekom	1,372	1,431	152
Turkcell	894	947	117
Vodafone	800	589	228
Avea	800	757	60
Others	1,735	2,039	495
Total	5,601	5,762	1,052



Source: BTK

Investment Support and Promotion Agency of Turkey

IV. Turkey's Governmental Support Creates an Investment-Friendly Environment within the ICT Sector

A. Investing in Turkey's ICT Sector Is Easy and Advantageous

B. Turkey's Government, Public Agencies and NGOs Support the ICT Sector

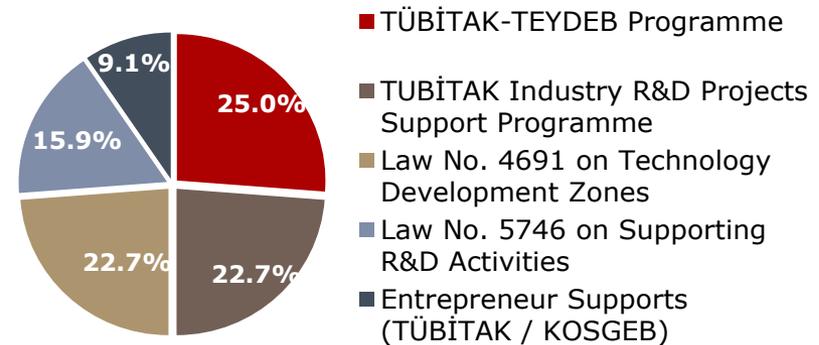


There are different incentive programs to support the industry

- In addition to the New Investment Incentive Program, ICT sector investments and initiatives are supported through several regulations and incentive programs.
- In 2012, 50% of ICT companies benefited from these incentives. The TÜBİTAK-TEYDEB Program's incentives have the largest total share.



Figure 22: Share of Total Incentives Granted



- Companies in Technology Development Zones (TDZs) are granted various supports and exemptions totaling TL 1.4 billion.

Some Incentives for TDZ Investors

- Income tax gain exemption
- Corporation tax gain exemption
- Income tax exemption for researchers, developers and R&D personnel
- Social security premium support
- Value added tax exemption

Figure 23: Total Amount of Support and Exemptions Provided to Companies in TDZs from 2001 to March 2012

Income and Corporate Tax Exemption	TL 448.87 million
VAT Exemption	TL 365.26 million
Employee Income Tax Exemption	TL 482.09 million
Social Security Premium Support	TL 95.30 million
Total	TL 1.44 billion

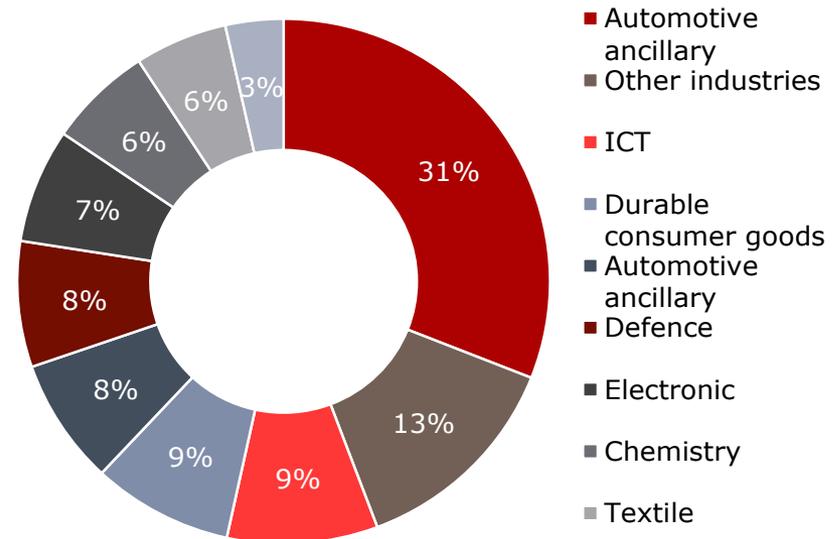


Source: Ministry of Science, Industry and Technology

There are more than 13 operating R&D centers established through law no. 5746

- The law no. 5746 supports and encourages development of technology for Turkish economy to become globally competitive through R&D and innovation, increasing product quality and standards, innovation in products and manufacturing, decreasing production costs, increasing productivity, commercializing technical knowledge, developing pre-competitive R&D cooperation between rival companies, increasing technology-intensive production and entrepreneurship, increasing the amount of FDI directed to R&D and innovation funding, and increasing employment for R&D personnel and qualified workforce.
- This law encompasses the support, incentives and exemptions given to R&D centers employing at least 50 R&D employees, R&D projects funded by public institutions or international funds, institutions that are in partnership with at least one R&D center (these institutions and R&D centers may operate in the same or different sectors), pre-competitive R&D collaboration projects, entrepreneurs supported by the Techno-enterprise Capital Support, and technology centers established by SME Development Administration in 12.4.1990 with the law 3624.

Figure 24: Percentage of operating R&D Centers broken down by fields of activity



Source: ISPAT

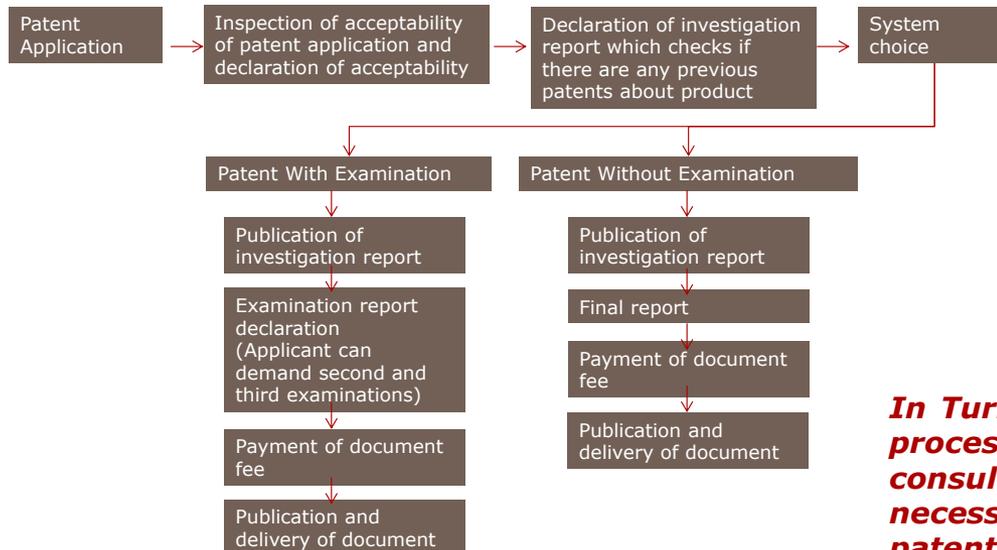
- The Turkish ICT sector has 13 operating R&D centers out of the total 142 in the country, all of which are based in Istanbul with the exception of one center in Ankara. The ratio of the number of ICT oriented R&D centers to the total number of R&D centers in Turkey is 9.2%.



In Turkey, companies can apply to both the International Patent System and the European Patent Convention through the Turkish Patent Institute

- Turkey is a member state of The International Patent System (PCT) and The European Patent Convention (EPC). The Turkish Patent Institute (TPI) is Turkey's official patent application institution and offers three types of patent applications.
- National Patent Application
- European Patent Application (valid for up to 40 countries)
- International Patent Application (valid for up to 147 countries)

Figure 25: The Patent Application Process in Turkey



Application for international patents (PCT) can be made in two different ways:

- It can be done through an online service at the World Intellectual Property Organization (WIPO). The procedure is not same as the national patent procedure. It has one universal procedure that is the same for all countries that are members of PCT.
- The application process can also be done with the help of the Turkish Patent Institute (TPI). It has the same procedures after the the investigation report has been created. After the report is generated, if the applicant desires, an interim review can be done. Then, the applicant chooses the countries where the patent will be active.
- For the EPC, two institutions are in charge of the application process in Turkey: The European Patent Office and the TPI. Procedures to patent a product are the same for the PCT except the time the countries where the patent will be in effect.

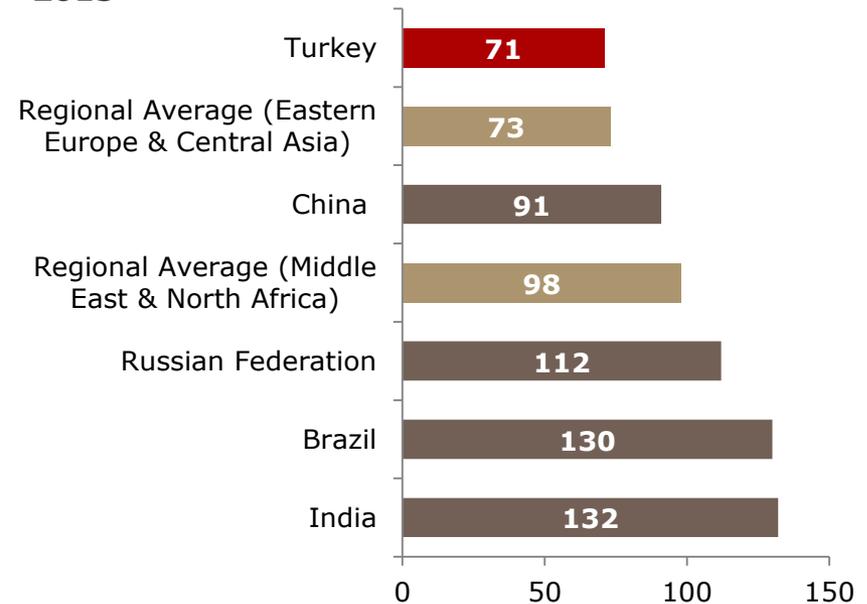
In Turkey, patent firms can help in the application process for any type of patent. They act as consultants that help applicants gather the necessary information and documents for patenting.



Starting a business in Turkey is easier compared to others in the region and BRIC countries

- In accordance with European Union, the Foreign Direct Investment Law came into effect in 2003. The objective of this law is to regulate the principles that encourage foreign direct investments; to protect the rights of foreign investors; to define investment and investors in line with international standards; to establish a notification-based system for foreign direct investments rather than screening and approval; and to increase foreign direct investments through established policies. This law establishes the treatment to be applied to foreign direct investments.
- According to *Doing Business 2013 Report* written by the World Bank, Turkey ranked 71st among 185 countries for ease of doing business. Turkey had a higher ranking compared to BRIC countries. The average of the regions close to Turkey, Eastern & Central Asia and the Middle East & North Africa were ranked 73rd and 98th respectively, below Turkey's ranking.
- With this law, unless stipulated by international agreements and other special laws:
 1. Foreign investors are free to make foreign direct investments in Turkey.
 2. Foreign investors shall be subject to equal treatment with domestic investors.

Figure 26: Ease of Doing Business Ranking, 2013



Source: Doing Business 2013, The World Bank



Turkey's public agencies set ambitious goals in 2011 to ensure Turkey becomes an information society with a fully developed ICT sector by 2023

2023 ICT Targets

Industrial Strategy of the Ministry of Science, Industry & Technology

- Increasing the number of companies that continuously improve their skills within the economy.
- Increasing the number of medium- and high-technology sectors in production and export.
- Transition to products with high added value in low-technology sectors.
- The aim is to increase the sector's share in the GDP from 2.9% to 8% in 2023.

Communication Strategy of The Ministry of Transport, Maritime Affairs & Communications

- Having 120 million mobile subscribers.
- Increasing number of broadband subscribers to 30 million.
- Providing internet connections for 14 million houses at a speed of 1000 Mbps
- Reaching an ICT sector size of USD 160 billion, requiring a market growth of approximately 15% each year.

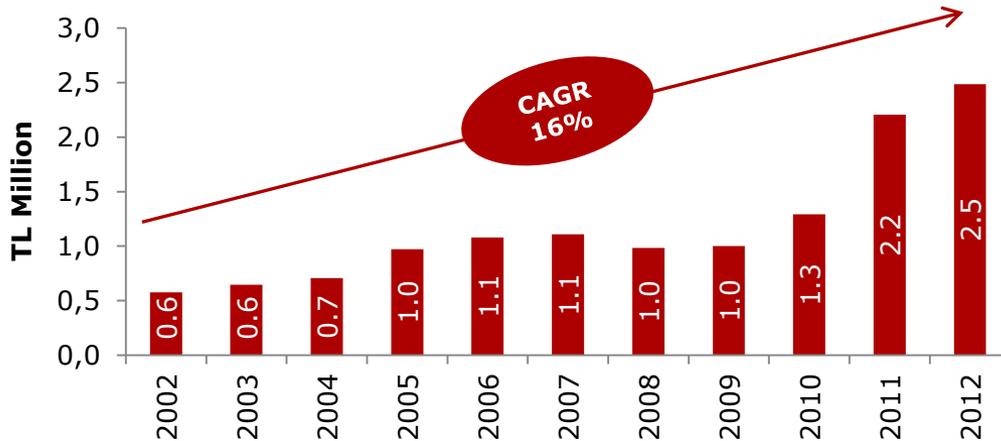
R&D Strategy of the Supreme Council of Science and Technology

- Increasing the number of researchers from 135,000 to 300,000.
- Reaching a number of 180,000 private sector researchers from 39,000.
- Increasing the R&D expenditure to GDP ratio to 3% from 0.85%.
- Increasing private sector R&D expenditure of the GDP ratio to 2%.



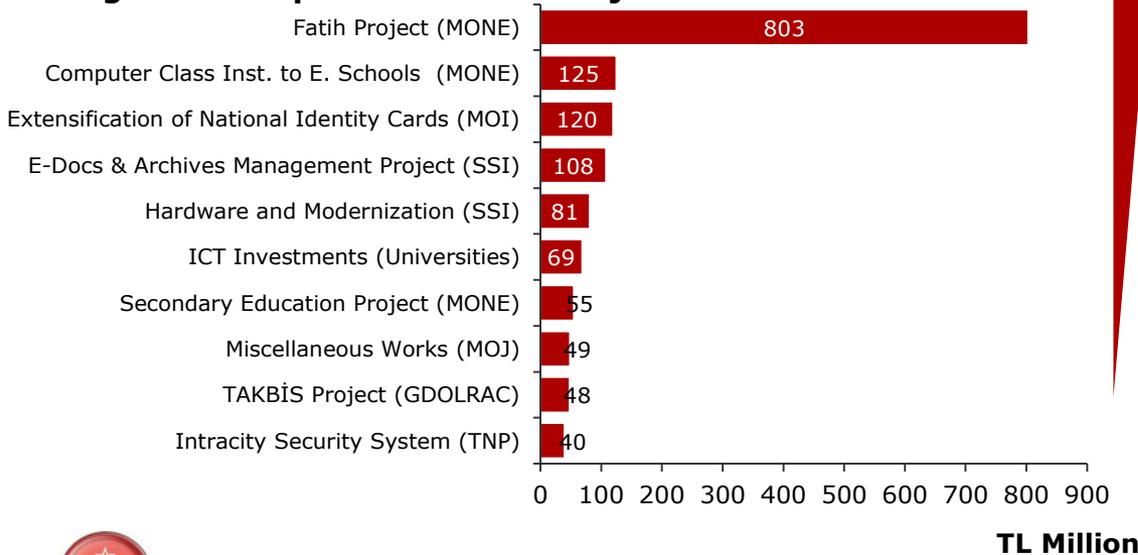
The FATIH Project leads ICT-related investments ahead of all of Turkey's public sector investments

Figure 27: Public Investments in ICT



- In the last decade, the total public investment in the ICT sector increased gradually. In 2012, it reached the amount of TL 2.5 billion. Investments to the ICT sector increased at a CAGR of 15.7% in last 11 years.

Figure 28: Top 10 Public ICT Projects in 2012



- In 2012, TL 1.5 billion was spent for 10 top ICT projects in the public sector. Investment shares for education, social security and the Ministry of the Interior related projects were 70%, 13% and 8%, respectively.
- The FATIH project has an investment value of TL 803 million and it equals 32.4% of the total investment in ICT sector.



The E-Devlet project plans to help make Turkey an information society providing online access to public services

- The E-Devlet project is run by the Ministry of Transport, Maritime Affairs and Communications on behalf of the Prime Ministry. Even though the project plan was created in 2004, it was put into action in 2008. The digital portal www.turkiye.gov.tr is referred to as the E-Devlet Kapısı (E-Government Portal).
- The information and communication infrastructure was built and run by Türksat A.Ş. in partnership with the Ministry.
- This project reflects the government's intention to make Turkey an 'information society'. The aim is to gather all necessary state utilities and make them accessible on one site.
- The main goal of the project is to effectively increase the access of public services to citizens, public & private enterprises and the like using information and communication technologies.
- The Ministry of Transport, Maritime Affairs and Communications is working on developing this project with the Internet Development Board.
- Transitioning to the new electronic ID system is part of this project.



15 Million Users

744 Services

100 Institutions

Service Examples

- Health Insurance Records
- Criminal Record Check
- Court Document Investigation
- Taxation, Debt and Loan Records Check, etc.



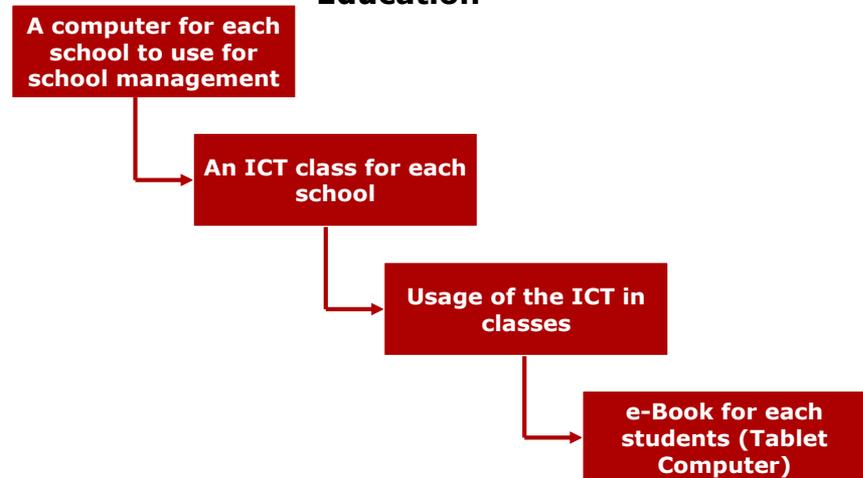
The Ministry of National Education's Movement to Increase Opportunities and Technology also known as the FATIH Project has the potential to transform the ICT sector in Turkey

- The Ministry of National Education's FATIH Project proposes a "Smart Class" project to be put into practice in all schools around Turkey. With this project, 42,000 schools and 570,000 classes will be equipped with the latest information technologies and turned into computerized education classes also known as Smart Classes.
- The FATIH project plans to turn every class into a Smart Class in all primary and secondary schools around Turkey.
- The FATIH project's estimated completion date will be in 5 years and will cost approximately TL 3 billion. Followed by the monitoring and evaluation phases.
- The project provides various ICT-related business opportunities for investors in software, hardware and in the advisory industry segments.

FATIH Project Components

- Providing Equipment and Software Substructure
- Providing Educational E-Content and Management of E-Content
- Effective Usage of ICT in Teaching Programs
- In-service Training of Teachers
- Conscious, Reliable, Manageable and Measurable ICT Use

Figure 29: Process for the Use of ICT in Education



Source: Ministry of National Education

The Ministry of National Education has other ICT investment plans to support the FATIH Project

- The FATIH project is supported by three side projects:

E-Book

This project aims to replace all printed books and supplementary materials with e-books.

E-School

The E-School project, launched in 2007, covers school management through its information system software including the entire process starting from a student's enrollment in school up to his/her graduation.

KursiyerNet

KursiyerNet is an e-learning portal project providing visual and audio computer education over the internet. It is considered the distance learning leg of the FATIH project.



4 major public authorities support the ICT sector in Turkey



The Ministry of Science, Industry and Technology

Formerly known as the Ministry of Industry & Commerce, since 2011 the Ministry of Science, Industry and Technology's main goal is to promote scientific thinking and to create a knowledge-based society. Maintaining a high tech, independent and sustainable production image for the country and motivating entrepreneurs with the Academia-Industry Corporation are a part of their long-term expected deliverables.

<http://www.sanayi.gov.tr/>



The Ministry of Transport, Maritime Affairs and Communication

The Ministry of Transport, Maritime Affairs and Communication is responsible for transport, information and communication services since 1939. Their 2013 budget was TL 10.7 billion. PTT and Turkey's only satellite and cable TV operator, TürkSat, work under the Ministry. In 2011, the Ministry established the Internet Improvement Board to work on strategies to increase the use and safety of the internet in Turkey.

<http://www.ubak.gov.tr/> -
<http://www.internetkurulu.org>



TÜBİTAK

The Scientific and Technological Research Council

The Scientific and Technological Research Council of Turkey was established in 1960. The Council represents Turkey in international research activities on both academic and industrial topics. Furthermore, TÜBİTAK organizes publications, scholarships and grants for scientific work done in Turkey for science and technology.

<http://www.tubitak.gov.tr/en>



The Information & Communication Technologies Authority

Information & Communication Technologies Authority (ICTA) is a regulatory authority established in January 2000. Creating delegations, electronic certificate service provider inspection and information technology services risk management are some of its duties. Having a TL 1.28 billion budget in 2012, ICTA also has international affiliations with the International Telecommunication Union and the European Conference of Postal and Telecommunications Administrations.

<http://eng.btk.gov.tr/>



Major NGOs in the ICT Sector

Name	Logo	Web Page	What They Do
Bilgi Güvenliđi Derneđi – Information Security Association		http://www.bilgiguvenligi.org.tr	Involved in technical, scientific, social and cultural activities in the fields of individual, cooperative, national and international information and communication security.
Biliřim Sektörü Derneđi – Information Sector Association		http://www.tubider.org.tr	With 655 members, the association maintains high business improvement standards through seminars and tries to address the political and financial problems of the sector.
İnternet Teknolojileri Derneđi – Internet Technologies Association		http://inetd.org.tr/	Serves as a platform for assessing current problems and foreseeing opportunities in open systems, free software, open source code and internet technologies.
Telkoder – Independent Telecommunication Operators Association		http://www.telkoder.org.tr	Works to keep the market liberal and competitive while maintaining collaboration between operators to increase activity outside of Turkey.



Major NGOs in the ICT Sector

Name	Logo	Web Page	What They Do
TÜTED – Telecommunication Businessmen Association	 <p>TÜM TELEKOMÜNİKASYON İŞ ADAMLARI DERNEĞİ</p>	http://www.tuted.org.tr/	An establishment that aims for fairness for both the consumer and sector personnel, taking action according to the regulations.
TESİD – Turkish Electronic Industry Association	 <p>TESİD TÜRK ELEKTRONİK SANAYİCİLERİ DERNEĞİ</p>	http://www.tesid.org.tr	Gathers industrial personnel, business people and scientists to create a more competitive, profitable and innovative industry.
Türkiye Bilişim Derneği – Informatics Association of Turkey	 <p>TÜRKİYE BİLİŞİM DERNEĞİ 1971</p>	http://www.tbd.org.tr/	Has created an environment for increasing the value added services in informatics and promoting R&D activities since 1971.
TÜBİSAD– Turkish Informatics Industry Association	 <p>TÜBİSAD INFORMATICS INDUSTRY ASSOCIATION</p>	http://www.tubisad.org.tr	Endeavors for cooperation within state agencies to maintain a healthy business climate and the relationship between the state and the business world.



Major NGOs in ICT Sector

Name	Logo	Web Page	What They Do
Yazılım Sanayicileri Derneği – Software Industrialists Association		http://www.yasad.org.tr/	Aims to satisfy almost all software needs of the country with domestic products, creates incentives for innovation, transforms its member companies into globally recognized companies and works to increase software export.
Mobil Servis Sağlayıcı İş Adamları Derneği – Mobile Service Provider Business Association		http://www.mobilsiad.org.tr/	Facilitates globalization and enhances competition of sector players in foreign markets by strengthening the perception of the industry in national and international markets, and develops relationships with public regulatory bodies and mobile service companies to ensure sectorial growth.
Türkiye Bilişim Vakfı – Informatics Foundation		http://www.tbv.org.tr/	The foundation is creating a universal legal infrastructure along with regulations to enable Turkey's development as an information society.
MOBİSAD – Mobile Communication Devices and IT Businessmen Association		http://www.mobisad.org/	An association of mobile device dealers. Works on sectorial issues such as devices bought outside of Turkey, tracking mobile devices and taxation.



V. Turkey's Competitive Edge in Various ICT Sub-Sectors

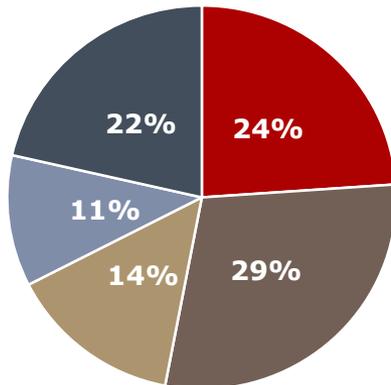
- A. Communication
- B. IT Services & E-Business
- C. The Software Market
- D. The Hardware Market



Revenue in the telecommunications sector increased approximately 14% from 2011 to 2012

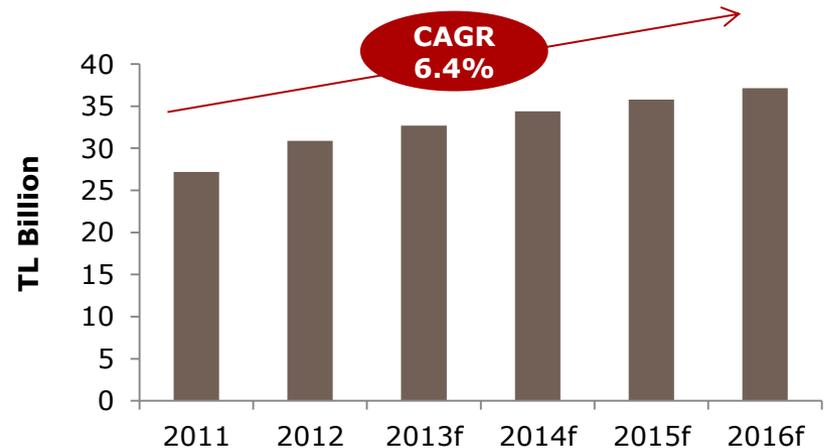
- The major mobile operators in Turkey are Turkcell, Vodafone and Avea. The Türk Telekom Group is the major fixed line operator with investments in both mobile and broadband services.. The total market volume has surpassed TL 30 billion in 2012.
- Turkcell is the leader in terms of total revenue in 2012. Other firms active in the sector have approximately one third of the total revenue in the market, which is TL 6.5 billion as of 2012.

Figure 30: Share of Total Revenue, 2012



■ Turk Telecom ■ Turkcell ■ Vodafone ■ Avea ■ Others

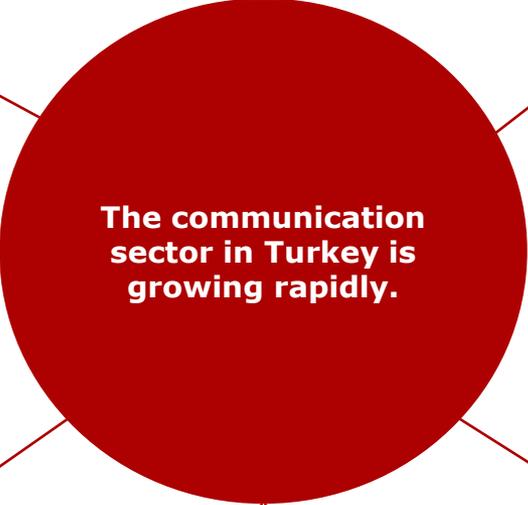
Figure 31: Development of Total Revenue in the Telecommunications Sector



Source: BTK, Deloitte Analysis using EIU growth rates
f: forecast



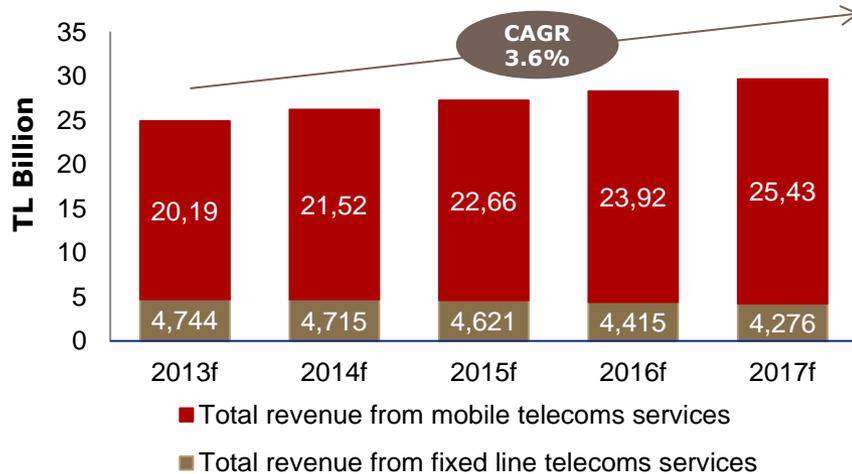
The communications sector in Turkey is growing rapidly in several areas

- 
- The communication sector in Turkey is growing rapidly.**
- Nearly 78% of fixed broadband subscribers in Turkey prefer offers providing up to 8 MBps download speeds.
 - The market share of alternative operators for local calls is 10.94%, while Türk Telekom has a market share of 89.06%. The market share for alternative operators for national calls is 20.86%, whereas Türk Telekom has a market share of 79.14%.
 - The number of 3G subscribers has reached 43.9 million.
 - The number of broadband subscribers, which had been 6 million in 2008, is now over 20 million as of March 2013.
 - The cable broadcasting services provider Türksat has 1,236,016 cable television subscribers and 542,908 digital cable television subscribers.
 - The total number of employees in the sector in the second quarter of 2012 is 36,865.



Although fixed line business is decreasing, fixed fiber optic cable investments in Turkey is increasing

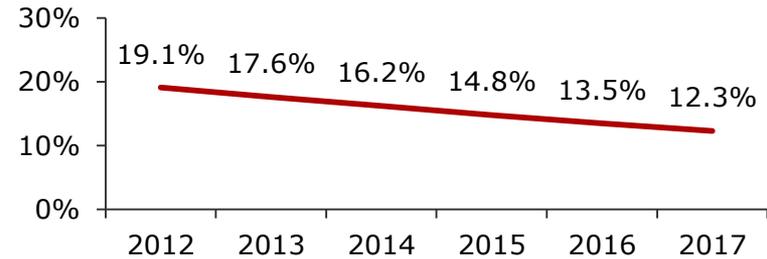
Figure 32: Revenue Forecasts for fixed line and Mobile Services



Source: EIU, BTK
f: forecast

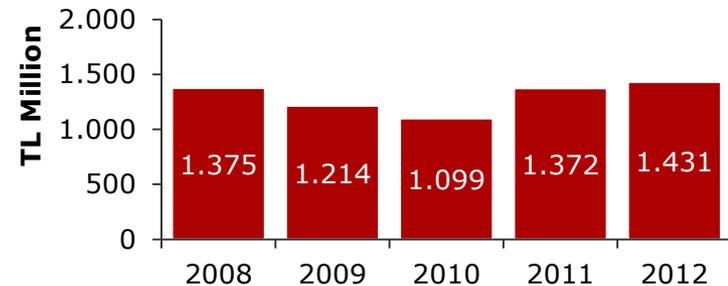
- The forecasts for the development of revenue indicate a steady decrease in total revenue from fixed line telecom services, whereas for in mobile telecom services the expectations demonstrate growth over the years. In total, the forecast for their combined revenue shows a CAGR of 3.6%
- With the liberalization process, 404,208 subscribers changed their fixed line service providers. Following Türk Telekom, the other main service providers are Superonline and Doğan İletişim.

Figure 33: Penetration Rate Forecasts of fixed line



- As of March 2013, the fixed line penetration rate was 17.9%. It is expected to decrease in upcoming years.

Figure 34: Türk Telekom Investments for Fiber Optic Infrastructure



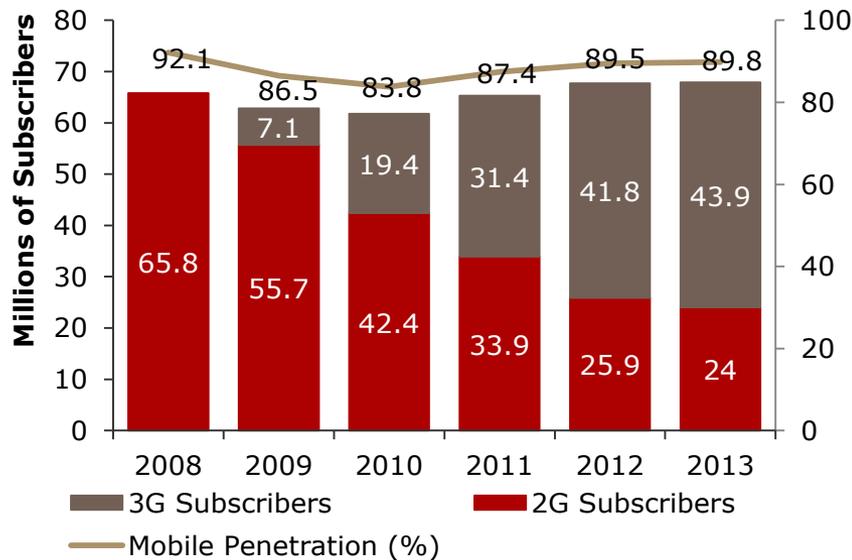
- Although the fixed line services business is decreasing, significant investments have been made by Türk Telekom to fiber optic infrastructure in the last five years.



Turkish consumers are very interested in mobile communication and mobile technologies

- The mobile telecommunication business has been developing rapidly over recent years. Turkish mobile phone users adapt quickly to new technologies. The number of 3G subscribers is developing and reached 43.9% of total subscribers in the first quarter of 2013.

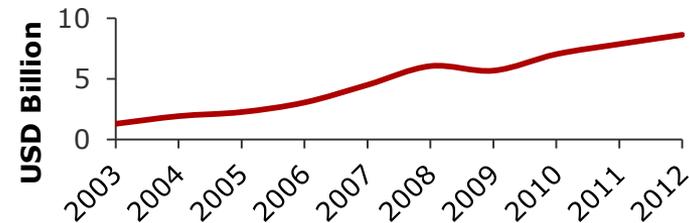
Figure 35: Percentage of Development for 2G and 3G Subscriptions



- The penetration rate for mobile devices in the first quarter of 2013 was 89.8%. If we exclude 0-9-year old population, the penetration rate corresponds to 107%.

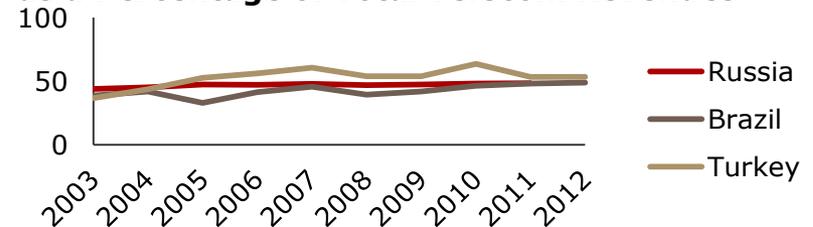
- Turkish consumers' great interest in mobile technology, particularly smartphones, has increased the product's market volume by 23.1% in the first quarter of 2013, making Turkey the most rapidly growing country for mobile technology among 20 European countries.

Figure 36: Total Demand for Mobile Phones and Other Communication Equipment



- Total demand for mobile phones and other communication equipment reached USD 8.6 billion and it exceeded the market demand of Poland, Belgium, the Czech Republic, Ukraine, Portugal, Denmark and Greece.

Figure 37: Mobile Telecommunication Revenues as a Percentage of Total Telecom Revenues



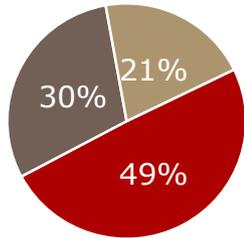
- The percentage of mobile revenues within the telecom sector exceeds 50%. In that regard, Turkey is performing better than Brazil and Russia.



Source: BTK, Euromonitor

Revenue growth for the mobile market in 2012 was 10.5%

Figure 38: Market Share by Number of Subscribers



Turkcell has the highest market share with 49% of the market. Total revenue in the market was TL 14.9 billion in 2011 and grew to TL 16.5 billion in 2012.

■ Turkcell ■ Vodafone ■ Avea

Figure 39: Total Revenue of Mobile Services

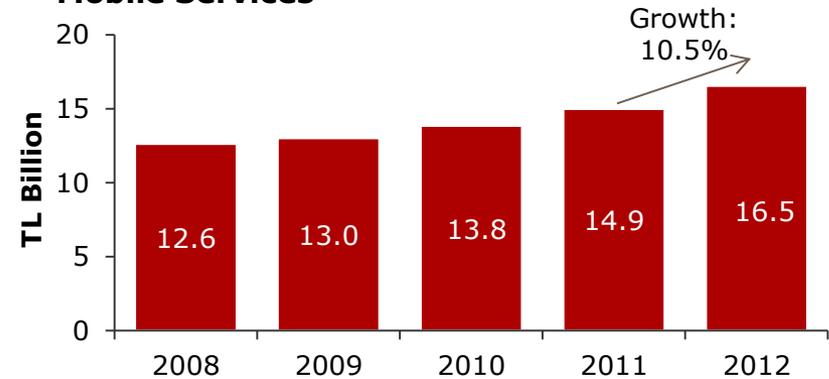
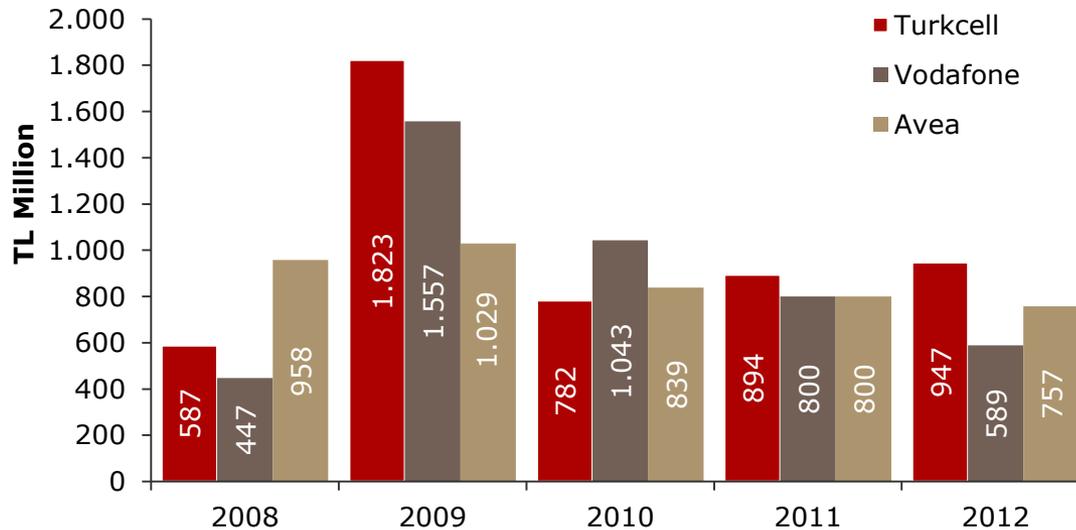


Figure 40: Investments by Operators



Market players in mobile telecommunication services have invested heavily in infrastructural and service-related improvements. 2009 was a year of large investments to capture the first 3G market. Companies competed against each other by investing in infrastructure to provide better service to customers. In the first quarter of 2013, the total amount invested by operators was TL 405 million.

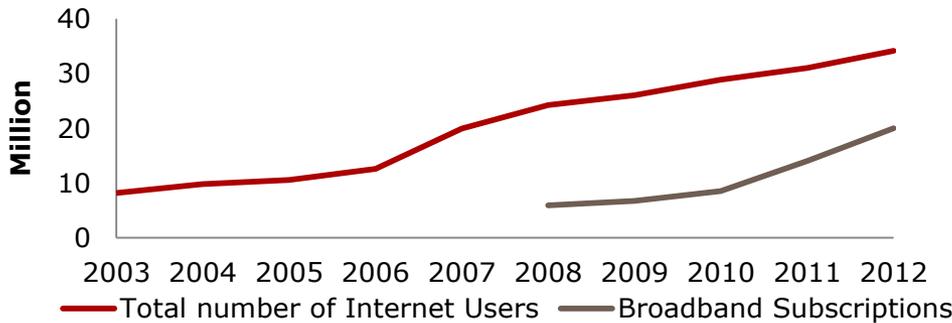


Source: BTK, ICTA Euromonitor Hurriyet

Access to the internet has been increasing along with broadband subscriptions in Turkey

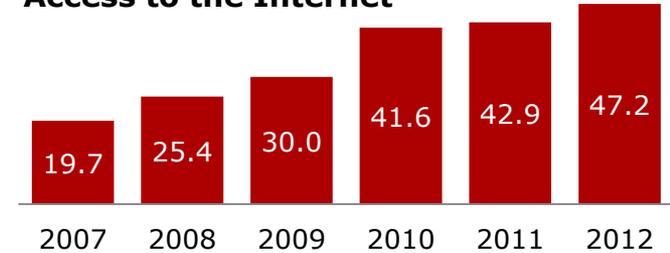
- As of April 2012, 47.6% of households were using the internet. This ratio was 42.9% in 2011. The rate of computer usage in individuals aged 16 to 74 is 48.7% and rate of the internet use in this age group is 47.4%. These rates were 46.4% and 45% in 2011.

Figure 41: Total Number of Internet Users



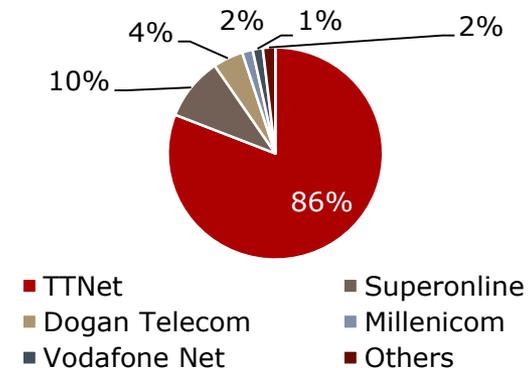
- 78.1% of fixed broadband subscribers in Turkey prefer offers providing up to 8 Mbps download speeds. 69.02% of users have mobile internet for their computer and have a data usage of 100 Mb and above. 29% of subscribers are between 0-50 Mb. The number of mobile broadband subscribers (computer and mobile handset) is around 12.3 million.
- The number of broadband subscribers, which had been 6 million in 2008, was over 20 million in the first quarter of 2013. The number of internet subscribers in Turkey increased 1.6% compared to the previous quarter thanks to the increase in number of fiber cable and especially, mobile internet subscribers. The annual growth rate for the total number of internet subscribers has reached 22.4%.

Figure 42: Percentage of Households with Access to the Internet



- Although other operators in Turkey are providing ADSL services, they are reliant on the Türk Telekom's ADSL infrastructure.
- TTNet has the biggest share in the internet ADSL market. Superonline, Doğan Telekom, Vodafone Net and Turknet follows.

Figure 43: Market Share of Internet Service Providers



Sources: ICTA , EIU, BTK

Investment Support and Promotion Agency of Turkey

There are opportunities in other areas in communication in Turkey

Infrastructure

Fiber Cables	Owned (km)	Rented (km)	Total (km)
Türk Telekom	169,353	0	169,353
Alternatives	37,732	5,958	43,690



This table shows the length of fiber cables that different service providers of broadband internet use. Alternatives column consists of more than ten service providers and the biggest market share is occupied by Türk Telekom. Providers also differentiate in services so that customers' needs can be satisfied. By number of subscribers, Superonline, Vodafone Net and Telnnet are market leaders.

Cable Broadcasting

Term	Cable TV	Cable Net	Cable Phone	IPTV
2012-Q4	1,251,097	500,658	63,469	155,895
2013-Q1	1,236,016	501,201	60,805	175,681



The number of subscribers to cable broadcasting services increased from quarter 4, 2012 to quarter 1, 2013.

Türkstat has the largest share in the market.

Satellite Communication

Term	Subscribers	Revenue (TL)
2012-Q1	10,877	38,068,203
2013-Q1	10,986	46,935,287



As compared to the first quarter of 2012, the same quarter in 2013 faced a growth in terms of revenue and subscribers in satellite communication.

Others (GMPCS & Information Services)

GMPCS service subscribers increased about 1,000 users from the last quarter of 2012 to the first quarter of 2013.

Guidance service usage and revenue remained steady and revenue fluctuated between TL 19 and 20 million. The biggest GMPCS provider is Teknomobil, whereas biggest guidance provider is BN Telekom.



Source: BTK

Investment Support and Promotion Agency of Turkey

There are three major FDIs in the telecommunications market and they are TeliaSonera, Alfa Group and Oger Telecom

TeliaSonera AB

- As the dominant mobile network operator in Sweden and Finland, TeliaSonera has operations in other countries in Northern and Eastern Europe, in Central Asia and Spain, with a total of 182.1 million mobile customers as of the first quarter of 2013.
- It is the third biggest company in this category. It is headquartered in Stockholm and their stock is traded on the Stockholm Stock Exchange and on the Helsinki Stock Exchange. TeliaSonera owns 38% of Turkcell, the leading mobile operator in Turkey. Turkcell owns 80% of BeST in Belarus and 55% of Astelit in Ukraine.

Alfa Group Consortium

- One of Russia's largest privately owned investment groups, with interests ranging from oil and gas to commercial banking investments. Alfa Group's portfolio of companies includes Alfa-Bank, TNK-BP, VimpelCom, X5 Retail Group, A1 Group, Alfa Capital Management, AlfaStrakhovanie Group, and Rosvodokanal Group. Its total assets were approx. USD 64.7 billion in 2012.
- Alfa Group has a 13.22% stake in Turkcell, Turkey's biggest mobile operator.

Oger Telecom

- On July 1, 2005, Oger Telecom was declared the winning bidder for the privatization of Türk Telekom with a 55% share for USD 6.55 billion - the biggest FDI in the history of Turkey.
- Oger Telecom recognizes Turkey as an important strategic market with considerable potential for long-term growth.
- Türk Telekom offers services to its customers in Turkey through its extensive fixed line telecommunications network, which covers almost 100% of the population.
- Their total investment for 2012 was TL 1.4 billion.

Source: TeliaSonera AB, Alfa Group Consortium



Major Players in Turkish Telecom Sector

Türk Telekom Group



- There are 9 firms within the Türk Telekom Group including, Türk Telekom, Avea and TTNET. Türk Telekom is the biggest subsidiary of the group.
- 37,524 people work for this group. 24,172 of them work for Türk Telekom.
- The group has 150,600 km of fiber infrastructure in Turkey.



55% of Türk Telekom was privatized in 2005 in return for USD 6.5 billion. The group is owned 30% by the Republic of Turkey Prime Ministry Undersecretariat of the Treasury, 55% by Oger Telecom of the United Arab Emirates and the rest is public shares.

AVEA



- Avea is an 89.99%-owned subsidiary of Türk Telekom.
- With 13.73 million subscribers as of March 2013, Avea is the third largest player in the Turkish mobile market.
- 1,947 people are employed by Avea.
- Avea invested TL 757 million in 2012 and it has TL 3.5 billion sales revenue. The average revenue per user is TL 21.6. Its EBITDA is TL 486 million.

TTNET



- Established in 2006, TTNET integrates the three main components of communications technologies: internet, TV and telephone.
- With 6 million ADSL retail subscribers, it has a TL 3 billion sales revenue and TL 36.8 average revenue per user in 2012.
- TTNET's product portfolio features rapid internet access via ADSL/VDSL 2, fiber internet access, WiFi wireless internet access, TTNET international WiFi access (in cooperation with iPass), G.SHDSL, Metro Ethernet, ATM and Frame Relay Internet Access services.



Major Players in Turkish Telecom Sector

TURKCELL

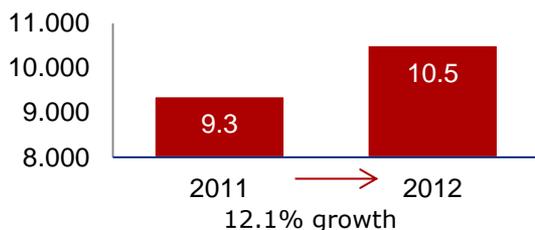


- Turkcell was founded in 1994 and began the GSM based mobile communication industry in Turkey.

Turkcell stocks began trading in both the Istanbul and New York Stock Exchange in 2000.

- As of March 2012, 14,250 people worked for Turkcell. It sustains its operations in 9 countries including Germany, Georgia, Moldova, Belarus, Ukraine, Turkey, Azerbaijan and Kazakhstan
- Turkcell supplies 84% of the population with 3G network and 99.2% of the population with 2G network. It has 69.2 million subscribers.

Total revenue (TL million)



- In 2012, the total revenue from subsidiaries rose to 17%.

- From 2011 to 2012, the net income growth of Turkcell was 76.9%.

VODAFONE TÜRKIYE



- In December 2005, Vodafone won an auction to buy Turkey's second-largest mobile phone company, Telsim, for USD 4.5 billion.

- Telsim had 25% of the market share with 9.7 million subscribers. In early January 2007, Telsim adopted Vodafone's dual branding and was named Telsim Vodafone, and on 1 April 2007, Telsim Vodafone Turkey dropped its former brand name and became Vodafone Turkey.
- As the second largest direct international investment in Turkey, the total investment of Vodafone Turkey, including acquisitions since 2006 has exceeded TL 11 billion.
- The network has been restructured, the base stations are being modernized and the total number of stations has increased by 81% throughout Turkey (6,013 in November 2006, 10,897 by June 2009).
- The main reasons for Vodafone's investment in Turkey were a young and dynamic population, economic and social stability, the competitive market environment, a strong and sound legal and regulatory framework, close ties with the EU and Turkey's candidature for EU membership.

Source: Turkcell, Vodafone Annual Report



Major Players in Turkish Telecom Sector

fixed line



Internet & Broadband



Mobile



Infrastructure



Cable



Satellite



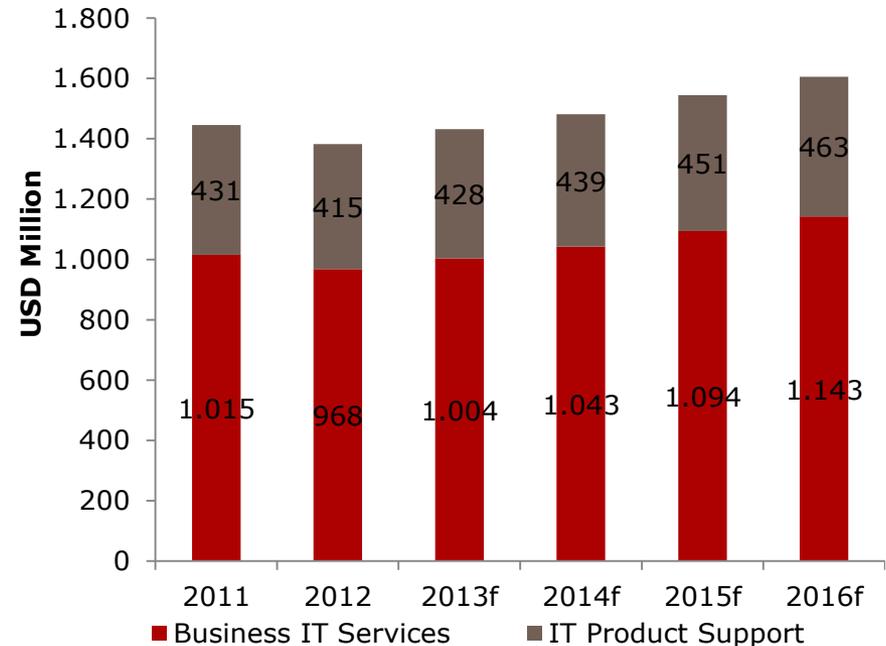
GMPCS & Satellite Guidance Services



In Turkey, 70% of IT services spending is on business IT services

- After the first internet connection between Ankara and Washington in 1993, IT services in Turkey developed with increasing speed as investments grew each year.
- There has been increasing software integration within the public domain, freeware and shareware programs over the years.
- Global companies like IBM, Hewlett Packard, Dell, Siemens, Cisco and NCR have invested in Turkey's IT services sector. Some international companies entered the market via acquisition, like Soitron's acquisition of Sekom.
- Spending on IT services reached USD 1.4 billion and is expected to grow further in the coming years. Business IT services form around 70% of the IT services sector, the rest is in IT product support.

Figure 44: Turkey's IT Services Spending Forecast

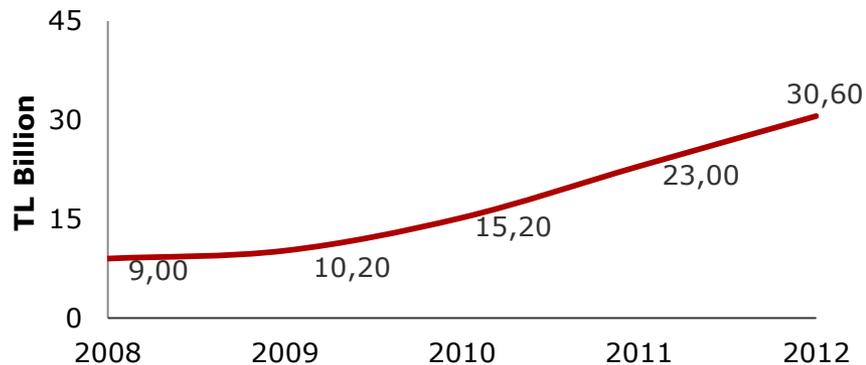


Source: Gartner



Growth in e-commerce is likely to continue because of the young & tech-savvy population

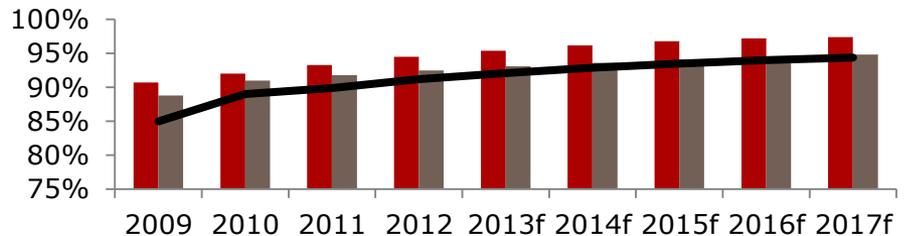
Figure 45: Size of E-Commerce Market*



- E-commerce is one of the fastest growing industries in Turkey and rapid growth is expected to continue in the coming years.
- Turkey, with 36 million internet users, is one of the top 20 countries for the number of internet users. It ranks 11th for internet usage.
- The e-commerce sector will keep expanding hand in hand with strong GDP growth, rising IT literacy, and improving internet infrastructure. Turkey's large population of young people is an important driver for the growth in the sector.

- The e-commerce sector grew CAGR 4% between 2008-2012. The growth mentioned created many opportunities for investors. Online market investments were USD 721 million in 2011 and has reached USD 943 million in 2012 with a growth rate of 30%. USD 448 million of the investments were search engine advertising investments and USD 374 million of them are display advertising investments.
- On-going technological developments and the population of young people will continue to support rapid expansion of the sector in Turkey. The expected increase in businesses using the internet, which is forecasted to be 95% by 2017, is a strong indicator for sector development overall.

Figure 46: Business Computer and Internet Users



- Businesses using a Computer
- Businesses using the Internet
- Businesses using the Internet by Fixed Broadband Access

Sources: Euromonitor, Interbank Card Center, Deloitte Analysis

f: forecast

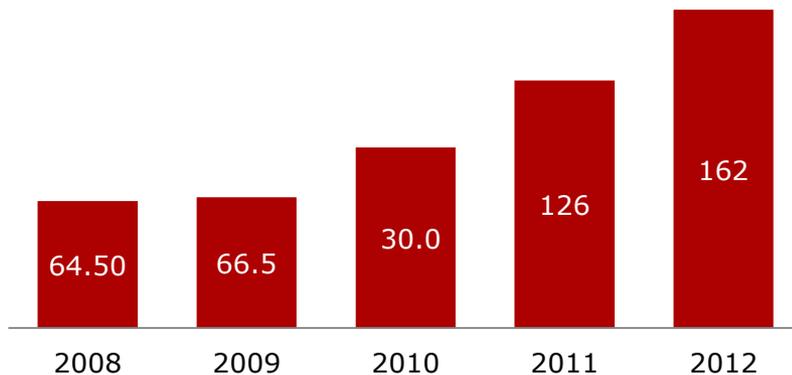
* E-commerce market size includes transaction made via pos machine, therefore includes items such as tax, insurance etc



E-commerce transactions are expected to reach USD 170 billion in 2018

- Turkish e-commerce is one of the fastest growing internet economies in the world. Istanbul is the capital of Turkish internet businesses and it attracts both investment and talent.
- There are four main driving forces behind this growth: credit card penetration, logistical infrastructure, high mobile internet usage and a population of young people aware of viral trends and social media. Turkey has a high credit card penetration rate of about 60% with 56 million credit card users as of September 2013.
- The volume of transactions exceeded 160 million with a 33% increase and an e-commerce market size above USD 30 billion with 29% growth compared to last year. Turkey has one of the fastest growing e-commerce sectors. In comparison, the growth rates for countries also in the field are: USA: 16.1%, UK: 17%, France: 22% and Germany: 8%.
- Airlines have the biggest share of the e-commerce sector in Turkey. Electronic devices and computers also have a significant share in the e-commerce sector. The most attractive properties of e-commerce, after overall ease of use, are free shipping, free replacements, and guaranteed delivery time.

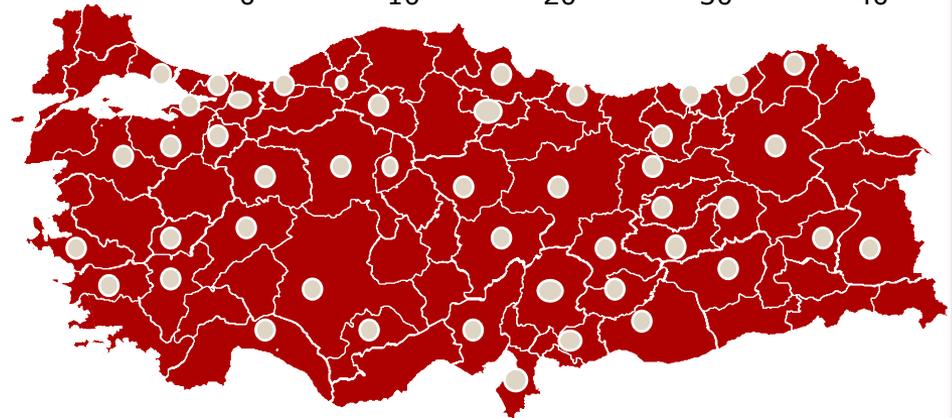
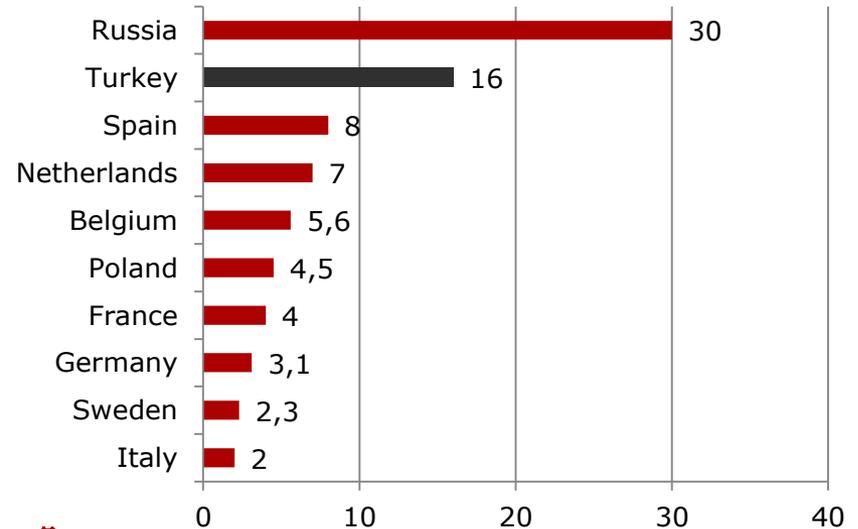
Figure 47: Volume of Transactions (in Millions)



The main drivers in the call center sector are comparatively low labor costs and expansion opportunities into different regions of Turkey

- The market size in Turkey is approximately TL 2.5 billion. There are 1,000 call centers of which 300 are for large and medium scale firms. The cost of investment in this sector is about TL 10,000/seat in 2012, which is very low compared to other sectors. 1 seat provides employment to 1-1.5 people.
- In other sectors, the associated costs for job creation for one person are 30 times higher than for call centers. In 2012, 67,000 people were employed in this sector and this number is expected to reach 100,000 by 2015. 50% of employees are high school graduates and the other 50% are university and/or associate-degree graduates. The average age of employees is 26 and 60% of these employees are women. There are also bilingual workers providing services in English, German, Arabic and Russian in some of these call centers.
- As seen on figure 48 , Turkey is one of the fastest growing countries in terms of customer service representatives in 2012.
- As of 2013, there are call centers in 43 cities. Most of the call centers in Turkey are located in Istanbul, Ankara and Izmir.
- Most of the new investments are in eastern provinces due to low OPEX, real estate and infrastructure costs.

Figure 48: 2012 Customer Service Representatives Growth Rate (%)



Source: Call Center Association



Emerging IT service practices such as cloud computing, cyber crime, data centers, mobility and analytics are high potential business lines

- According to ABI Research, the number of users accessing cloud based applications through mobile devices will reach 1 billion by 2014. Turkey will be a major player in this growing market.
- Infrastructure investments of firms dealing with cloud computing exceeded USD 11 billion in 2011. This high level of investment is occurring despite the relatively small number of cloud service suppliers, which was about 50 in 2008 and increased to 100 by the end of the 2011.
- In Turkey, the growth of cloud computing services is expected to be about 54% in 2013.
- 31% of firms and organizations were using cloud technology in 2011; this rate is about 28% in the Middle East and Africa. Turkey is a leader in this region. 40% of the companies are planning to adopt cloud and Turkey has the 4th-largest adoption rate in the world.
- The oil and gas sector and the public sector are eager to invest in cloud computing infrastructure.
- Telecom operators have started to provide cloud services and there are signs that the country could become an attractive destination for cloud facilities.
- Cyber crime has become a serious threat within the last decade. Turkey was listed 9th on the 2009 list of "countries with the most cyber crime" according to Business Week. There is a potential for the implementation of cyber security systems and cyber security consulting in Turkey.
- Mobile services including utilizing tablets and other portable devices that have access to internet (over 3G or broadband) are expected to grow with the privatization of major utilities, retail sector investment and banking technology implementation. Services for mobile devices are viewed as important business opportunities in the future.
- In the last decade, exploiting "Big Data" for business insights has been a major consideration for top management. In Turkey, the banking and telecommunication sectors are the forerunners of analytics implementation that utilize big data in companies for insights and fast decision making. In the future, analytics implementation is expected to grow in these sectors and to begin in others.
- There is limited number of data center operators in Turkey, but the sector is growing fast and becoming more and more multinational. The rise of cloud computing has created incentives for Turkish companies to head towards independent data centers instead of building their own, which can be very expensive.
- Turkey has the potential to attract data center investments due to its favorable location and as the major portion of OPEX in data centers arise from rental space and cooling, the eastern/northern provinces of Turkey are quite feasible from a cost perspective.



Sources: Forrester, Capital, Euromonitor

Investment Support and Promotion Agency of Turkey

Enterprise resource planning software implementation and technical support are other growing opportunities

- Demand for ERP systems are fairly high in Turkey because Turkish firms would like to keep up with the global business requirements.
- As the Turkish business world moves towards the implementation of ERP systems, opportunities increase for consulting firms that provide implementation and support services.
- Besides major software providers, many local and international consulting firms serve this market.
- Local consulting companies with niche competencies are being studied by global investors for investment and alliances.

Major ERP Implementing Companies in Turkey

- Accenture
- ABH
- Arete
- Bizcon
- BTC
- Deloitte
- Detaysoft
- Elsys (itelligence)
- IBM
- Innova
- KoçSistem
- Uniteam
- Mbis
- Experteam



Major Players & Investors

E-Business

Company



Overview

- Markafoni is the first web based retail club of Turkey. The annual return of Markafoni is USD 95 million. The average number of daily unique visitors is 254,712 and the number of daily page views is 2,037,696.
- Markafoni has two more brands named Naive and Viviane. Markafoni has 4 e-commerce websites, and they are - enmoda.com, zizigo.com, misspera.com and ucuzcu.com. They also blog about fashion news (blog.markafoni.com).
- It provides products and services to 8 other countries such as Poland and Ukraine. Parent company M1H-Allegro is active in 129 countries and has a 70% share of this company.

The logo for Trendyol features the word "trendyol" in a lowercase, sans-serif font. Below it, the tagline "dışverişin yeni yolu" is written in a smaller, lowercase font.

trendyol
dışverişin yeni yolu

- The annual return of Trendyol is about USD 40 million. The number of daily unique visitors is 225,714 and the number of daily page views is 1,805,712.
- It has 2 brands named Milla and Nottis and one more e-commerce website modagram.com.
- Trendyol has 5 million active members and a product is sold every 3 seconds at trendyol.com
- 800 people work at trendyol.com and modagram.com. In the last two years, USD 50 million was invested in Trendyol.

The logo for Sahibinden.com features the text "sahibinden.com" in a lowercase, sans-serif font, set against a yellow background with a torn paper effect.

sahibinden.com

- Sahibinden.com is an e-platform for trading and buying goods that vary from real estate and motorcycles to household items. It was launched in 2000 by entrepreneur Taner Aksoy.
- As of 2012, Sahibinden.com had 2.5 million active listings, 22 million visitors every month and over 2 billion monthly page views.



- GittiGidiyor.com is a Turkish e-shopping mall and a subsidiary of eBay.
- Gittigidiyor.com was founded in February 2001. eBay first acquired a minor share of the company in 2007, but later brought 93% of the company in 2011.
- The website has 6.4 million subscribers and more than 150 employees.



Source: Company websites

Major Players & Investors

IT Services

Company	Overview
 	<ul style="list-style-type: none"> • Netas has a proven track-record for 45 years and continues on in the field of information technology, supported by its experienced, best of breed research and development department. • Netas provides innovative end-to-end value added system integration and technology services in the fields of information and communication technologies (ICT). • Turkey's largest independent IT and technology solutions group since 1989. It has 12 branch offices and 46 business partners, a wide service network across Turkey and a strong team of more than 500 experienced and expert professionals. • Probil was acquired by Netas on October 1, 2011.
	<ul style="list-style-type: none"> • International Business Machines Corporation, IBM, is a multinational technology and consulting corporation. Their headquarters are in the United States. • They manufacture computer hardware and software, and offer infrastructure, hosting and information technology services too. • They've been working in Turkey as IBM Turk since 1938. • They provide business continuity and resiliency services, end user services, integrated communication services, security services, maintenance and technical support services, outsourcing services, etc. in Turkey.
	<ul style="list-style-type: none"> • One of Turkey's biggest, well-established information technology companies, KoçSistem Information and Communication Services was founded as Koç Commerce Office Equipment Co. in 1945. • KoçSistem's goal is to meet the IT-related expectations of its customers with reliable and innovative solutions. • In 2009, in order to provide an opportunity to test the products and solutions for the corporations which are planning technology investments, they created "KoçSistem Stage".



Source: Company websites

Major Players & Investors

IT Services

Company



Overview

- Türk Telekom is a formerly state-owned, now privatized, Turkish telecommunications company.
- Türk Telekom Data Center is a new data center which opened in Gayrettepe, Istanbul in 2011.
- TTVM reached a total 80 GBps capacity and 3,000 m² operating area with the installation of its new data center. Türk Telekom's first data center was installed in Ankara in 2005.

Vodafone Bulut Teknolojileri Üssü

- Vodafone Türkiye is now Turkey's second largest mobile communication company with 18.4 million mobile subscribers.
- Since 2011, Vodafone Türkiye's investments have exceeded TL 10 billion.
- To build Turkey's largest data center Vodafone Türkiye Bulut Teknolojileri Üssü, Vodafone Türkiye invested TL 80 million.
- Vodafone Türkiye's data center includes 3,000 m² area for its system room.
- After the latest data center, Vodafone Türkiye will create 6 data centers in the 3 largest cities of Turkey.

TURKCELL GLOBAL BİLGİ

- Turkcell Global Bilgi was established in 1999 as a Turkcell Group Company. As one of Turkey's leading customer relationship management centers, they operate with more than 10,000 employees and a capacity of 7,500 seats at total of 20 centers, with 15 in Turkey, 4 in Ukraine and 1 in Belarus.
- As the leader of the Turkish call center sector with a 45% market share, Turkcell Global Bilgi is listed among the top 500 enterprises in Turkey. Besides its broad experience in the telecom sector, Turkcell Global Bilgi combines expertise with a wide ranging customer portfolio in such areas as the public sector, retail, finance, IT and media/entertainment.



Source: Anadolu Ajansı, Company websites

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Foreign Direct Investments – M&A IT Business & Services

Figure 49: Number of M&A Deals



Source: Deloitte Analysis

- Turkey ranks as one of the world's most attractive destinations for FDI in e-commerce. Financial investors were active in a wide range of industries with a special focus on e-commerce, retail, services, manufacturing and internet and mobile services.

- The number of international capital companies in Turkey reached 32,604 by the end of 2012. According to data from the Turkish Ministry of Economy, there were 27,110 international capital companies and branches by the end of December, 2012.
- 259 M&A transactions were conducted in 2012. Among those, 16 of them were in the e-commerce sector. The e-commerce sector ranked 5th in terms of number of deals in 2012 with USD 66 Million.
- General Atlantic (USA) entered into a partnership with yemeksepeti.com to acquire a minority stake in the company.
- Perform Group (UK) made a deal with mackolik.com for 51% of the company.
- E-commerce, retail, manufacturing and services were the favorites of private equity firms. In terms of deal numbers, e-commerce was far and away the leader with 12 transactions, followed by manufacturing (7), retail (6) and services (5).
- Financial investors' interest in e-commerce and internet & mobile services is worth noting as these sectors reflect popular trends in Turkey.



Case Study: Netprice.com Invests in Akakce.com

- In May 2013, Japanese e-commerce investor Netprice acquired a 20% stake of the Turkish e-commerce platform Akakce.com for approximately USD 5 million. The assessed total value for the company was USD 20 million.

akakce.com

- Akakce.com allows its users to do price comparisons from e-retailers, virtual marketplaces and discounts sites for a particular product.
- Akakce.com started its operations in 2000 and has 4 million monthly visitors.



"Turkey's e-commerce sector has a solid foundation with a well-developed logistics network and payment systems in place. The country's positive economic indicators were also encouraging in making our decision to invest in the country."

Teruhide Sato, Netprice CEO, 2013



Source: www.akakce.com
www.invest.gov.tr



Sectorial Organizations: E-commerce

- There are some non-governmental organizations that coordinate e-commerce sector players such as ETID (E-Commerce Business Association) and ETICAD (E-Commerce Websites and Business Association). These associations are two of the biggest organizations in the e-commerce sector.

ETID

- ETID (E-Commerce Business Association) was founded at 2007 by some of Turkey's leading firms to provide feedback for legal regulations and education about the sector to improve the e-commerce market. Some of the co-founders involved in the association are hepsiburada.com, teknosa.com, ereyon.com.tr and genpa.com.tr
- Genpa, Gittigidiyor, Hepsiburada, Limango, Markafoni, PayPal, Sahibinden.com, Teknosa, Trendyol are some of the most important members and they also have a large share in the e-commerce market.



ETICAD

- ETICAD (E-Commerce Websites and Business Association) was established in 2011 to provide proper coordination and e-business facilities to companies in sectors such as software, logistics, banking marketing and social media.
- Some members of the association are Paypal, hepsiburada.com, Damat, MNG Cargo, GSStore, Fenerium, Kütahya Ceramic and Hürriyet, who are all significant players in the Turkish economy.



Source: ETID, ETICAD



Sectorial Organizations: Call Centers

Call Center Association

- The Call Centers Association has 38 members and they have an 80% share of the call center sector. It is the first and only non-governmental organization in this market. The purpose of this association is to provide suggestions for legal regulations and to actively engage in protecting the rights of the market players and their employees. It also updates members with the current news in the sector and coordinates governmental institutions and businesses.
- Moreover, in an effort to improve the service quality, they provide trainings and the association also grants certificates for employees.
- Their web address is www.cagrimerkezleridernegi.org



Success Story: Yemek Sepeti



- Yemeksepeti.com model consists of a website where different restaurant menus are presented. The customers visit the website, registers, specifies their location and orders food from the restaurant servicing their location.
- The restaurants receive the orders from yemeksepeti.com by fax, e-mail, etc. Payment is handled by customers directly to restaurants upon delivery, so no credit card data information is needed to make an order. The restaurants transfer a commission to yemeksepeti.com for each order.

- In 2008, 20% of company's shares were purchased by a German investor. At that time the website was receiving 10,000 orders per day. In 2010, yemeksepeti.com started to operate in Russia (Moscow and Saint Petersburg) and the UAE (Dubai).
- The first food chain that started to collaborate with yemeksepeti.com was Domino's Pizza. The main stipulation of yemeksepeti.com is that the prices for take away orders coming from a restaurant's own website should be equal to the price published on yemeksepeti.com.
- In 2012, General Atlantic, a private equity firm from the USA acquired a minority stake in yemeksepeti.com.



IT services cover a broad area with great opportunities in Turkey

Support Services

- Hardware/software support and installation, and IT training & education are the major support services provided in Turkey.
- Many of the major IT service companies in Turkey have a Call/Support Center that can be reached by phone. Some of these companies are Turkcell, Türk Telekom, Oracle, etc.
- IT training and education in terms of IT support services is an opportunity for businesses who wish to invest in this field.

Project Services

- Services like system integration, custom application development and IT consulting are included in this sub-section.
- Many companies functioning in the IT market in Turkey either have services like these or hire other (mostly international) consulting firms to give the best IT services to their clients. Some of these consulting firms are Accenture, Arete Consulting, Bizcon, Deloitte, etc.

Outsourcing

- Information technology outsourcing (ITO) is a business practice that involves the outsourcing of computer or internet related work to other companies. Eastern Europe has become a hub for ITO services, and major companies in Turkey have also started to provide and improve ITO services.
- Comprehensive ITO, discrete managed and remotely delivered hosting are some of the outsourcing services.
- Companies such as IBM and KoçSistem are two of the major providers in the Turkish IT sector.



Some of other major players in the market are

E-Business



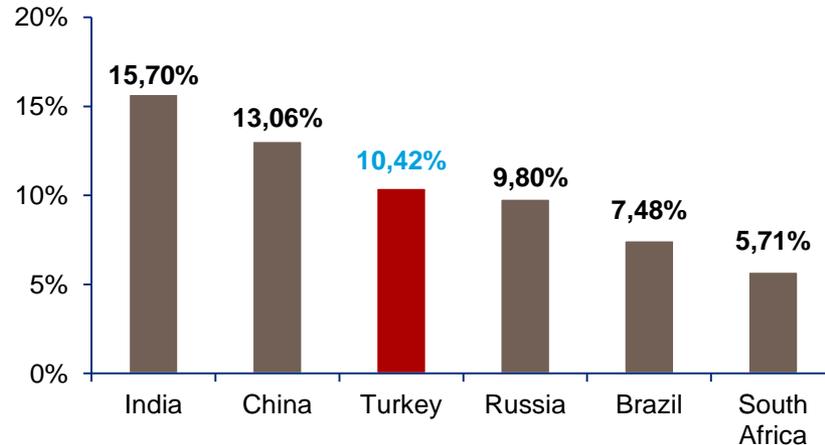
IT & Other Services



The software market is expected to have solid growth from 2012-2017

- The software industry is one of the rising stars in the Turkish economy with its capacity to generate great value and create employment opportunities even with limited amounts of investment.
- The software market is increasing in size parallel with the whole IT market. The market has reached the size of USD 0.7 billion in 2010 and expected to mount USD 1.2 billion in 2017.

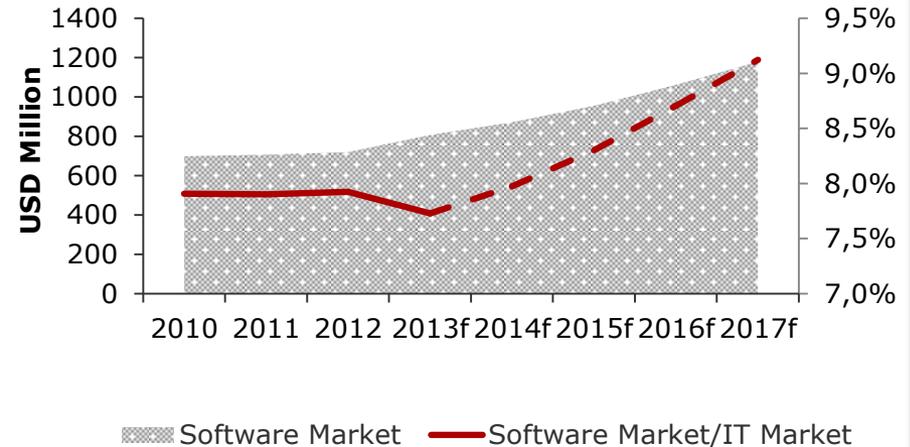
Figure 50: Software Market 2012-2017 CAGR Comparison



Source : EIU

- According to the forecasts of Economist Intelligence Unit (EIU), Turkey has displayed promise in its performance in the software market compared to the BRIC countries, enjoying a double digit growth rate over the period of 2012-2017 and outperforming some other flourishing economies like Russia, Brazil and South Africa.

Figure 51: Software Market Development



Source : ISI Emerging Markets
f: forecast

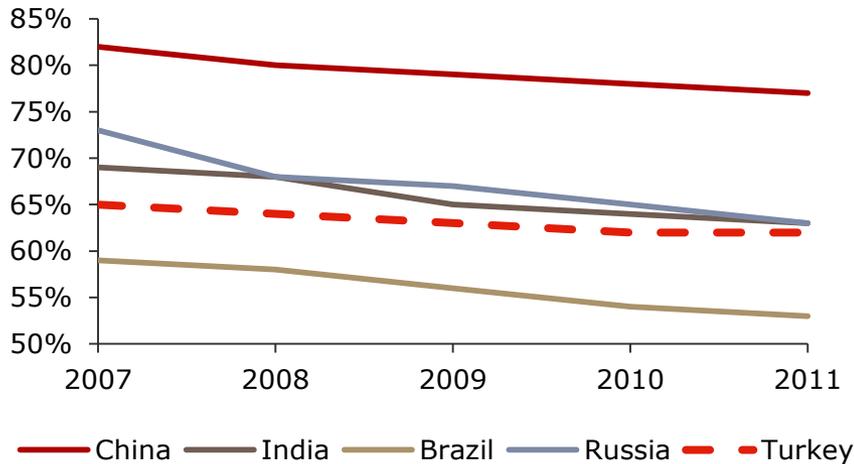
- It is important to note in the trend presented above that the software market is growing faster than the whole IT market.
- The software market is expected to grow by an annual rate of 7.7%, while the IT market is expected to grow by 5.6%. As a consequence, the share of the software industry in the IT market is projected to increase to 9.1% in 2017 compared to 7.7% in 2012.



The number of software firms is projected to triple by 2023

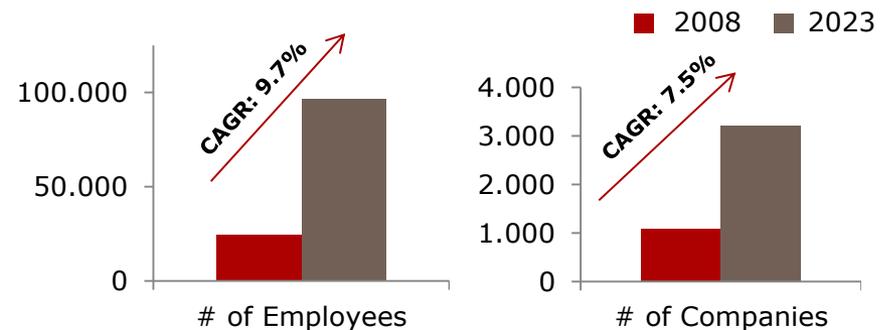
- Turkey has relatively lower software piracy rates compared to those of BRIC countries.

Figure 52: Software Piracy Rates



- On that issue, Turkey is making an effort to reduce this rate even more. A campaign was launched by the Ministry of Culture and Tourism and the Software and Information Industry Association in June 2010 founded an anti-piracy institution creating a common database to track piracy and also introduced legal enforcement against those who committed piracy, which would lead to imprisonment.
- In 2008, about 25,000 people were employed by companies operating in the software industry. According to TÜBISAD's outlook, these figures are expected to climb to 100,000 by 2023.

- Apart from the fact that this growth expectation in employment corresponds to a 10% CAGR, the outlook also expects the share of employment in the software sector as part of the total ICT market to increase to 24.1% from 17.6% in 2008.
- With regard to the number of companies in the software industry, TÜBISAD foresees 3,210 software companies in Turkey by 2023. In 2008, there were 1,081 software companies operating in the market.
- Many software sector investors choose to locate in TDZs and benefit from the tax exemptions and the other support available.
- Software companies form 55% of all companies in TDZs.
- TDZs provide a supportive atmosphere for newly established software companies. Hence, the companies in TDZs is expected to grow by CAGR 7.5% by 2023.



Source : TUBISAD, Report: «Atılım İçin Bilisim»

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The Turkish software market consists of large international firms and a fragmented market of local players

- There are numerous global players in the Turkish software market. Some of the notable ones are listed below.

					
USD 275 million, 5-year investment plan starting in 2006	Established in 2006	Five offices in Turkey	Established in 2011, was 65 th country office	Manages 79 countries from Turkey	3 offices in Turkey

- Apart from the international giants, local players make up a significant part of the market. Moreover, 62% of the fastest growing technology firms in Turkey were software firms compared to 47% in 2010.

Deloitte Fast 50 Technology 2012 Report states the top three software companies by revenue in 2012 were:

Koçsistem: EUR 191.8 million
Turkcell Teknoloji: EUR 52.4 million
Innova Bilisim: EUR 51.9 million

Deloitte Fast 50 Technology 2012 Report states the top three fastest growing software companies in 2012 were:

ElkoteK, Growth Rate: 13880%
Tektronik, Growth Rate: 11368%
FG Digital, Growth Rate: 4345%



Acquisitions are the main source of FDI in the software industry

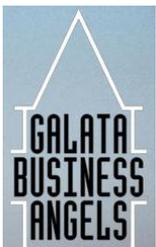
- The acquisitions related to the software industry from investments by foreign firms in 2012 are listed below. The deals are dominated by e-commerce acquisitions. The main software development deal was the investment of Diebold in Altus Bilişim.

Acquirer	Target	Sector
General Altantic	Yemek Sepeti	E-Commerce
Perform Group	Mackolik.com	E-Commerce
Soitron	Sekom	Technology
KPCB, Tiger Global Management	DMS Group(trendyol.com)	E-Commerce
Ru Net Holdings	lidyana.com	E-Commerce
Tiger Global Management	sporcum.com	E-Commerce
Diebold	Altus Bilişim	Technology
Tiger Global Management & Private Investor – Emre Kurttepli	malzemem.com	E-Commerce

*Angel Investors
Regulation Highlight:
Angel investors cannot invest individually in more than 20 different qualifying private venture companies during their 5 year license period.*

- Angel investors and venture capital firms play a critical role in the development of the sector. In Turkey, the activities of angel investors and venture capital firms are increasing. Some of the investors are Galata Business Angels, Earlybird, Young Turk Ventures, 212 Venture Capital and iLab.

Galata Business Angels



Galata Business Angels is a formal group of executives, entrepreneurs and angel investors who are interested in new, cutting edge, start-up companies. GBA members have founded companies such as AirTies, Yemeksepeti.com, Mynet.com, and Markafoni.com and have been senior executives at companies such as Apple, eBay, Maxim and Turkcell.

Earlybird

Earlybird is a venture capital partnership that invests in European companies with global ambitions. They invest across all price points, from a few hundred thousand up to EUR 15 million. Their portfolio spans all of Europe - from Istanbul to Stockholm. Peak Games has been an Earlybird investment since 2011.

EARLYBIRD



Source: Deloitte Analysis

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New requirements help sustain opportunities in enterprise applications, software-as-a-service and cloud computing

Enterprise Application Software

- With the new Turkish Commercial Code that took effect in 2013, which requires new businesses to be globally integrated, the demand in enterprise applications has risen significantly among Turkish firms.
- There are international and local software suppliers in the Turkish market. International software providers such as SAP, Oracle, Dynamics, JD Edwards, IFS and local firms such as Logo, Netsis and Uyumsoft provide solutions for the Turkish business world.
- SAP is the leader in ERP applications. In 2011, the company stated that it would quadruple its revenues by 2015. Besides SAP, Oracle is another major player in the market. Oracle manages its Business Intelligence Operations for the region of ECEMEA (East Central Europe Middle East Africa) from their office in Istanbul.
- In 2011, 1,500 people were working in this market. It is predicted that this number will reach to 5,000 in 4 years.

Software-as-a-Service and Cloud Computing

- Software services and products have evolved through the years so that instead of being capital intensive and having high maintenance costs, various offerings are available on the market on a pay-per-use basis.
- Not only software, but also platforms and infrastructure can be provided as a service rather than as a product.
- For example, BuluTT, a product offered by Türk Telekom allows enterprises to monitor their workplaces 7/24.



- As the convenience and effectiveness of these products spread throughout the business world in Turkey, there is no doubt that software-as-a-service and cloud offerings will be in demand.



There are diverse opportunities in the Turkish software market related to various sectors and the mobile market

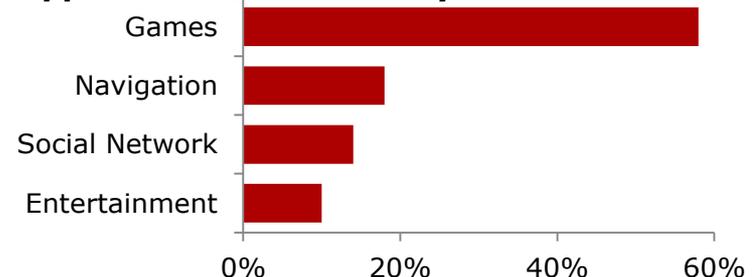
Public Sector Opportunities

- Public sector investments in information technologies provide opportunities for software market investors.
- The E-Devlet project is a large transformational project that depends on cutting-edge software solutions launched by the Turkish government to provide online service to its citizens. Development of new service areas for the project is a significant opportunity for the software market.
- Moreover, with FATİH project, numerous software applications will be developed in order to provide the necessary infrastructure. The project has already drawn attention from global software giants, such as Microsoft, Google, Intel, Apple, Blackberry and many others have also declared their interest in participating in the project.
- Besides these mega projects, there are various high-budget software infrastructure development projects in demand in the public sector.
- The Ministry of Labor and Social Security, the Ministry of Health, the Ministry of Interior, the Ministry of Energy and Natural Resources are some of the main public bodies that have already completed and still plan to have more software-based transformation projects.

Mobile Application Development

- Mobile application development is expanding in Turkey.
- 4 out of 10 smartphone users in Turkey download at least one application each month.
- Almost 60% of the applications downloaded in Turkey from the Apple Store are games. The rest is divided between navigational tools, social networking and entertainment applications. Therefore, major opportunities exist for investment in gaming solutions. Peak Games is a leading success story.

Apple Store Downloads by Genre



- There is big growth potential for the mobile application business in Turkey as well as the region around Turkey.
- Currently, local companies such as Pozitron and NexumBoğaziçi serve the market. Industry related applications of m-Banking and m-Health also offer opportunities.



Case Study: Free Application Development School - Microsoft Open Academy

Microsoft Open Academy

- Since 2011, Microsoft Open Academy is Turkey's first and only application development school and it is public, online and free of charge.
- The motivation behind this project was to offer opportunities for Turkish application developers and expand the application market in Turkey.
- The number of entrants to the Open Academy has already exceeded 82,000, while 8,736,466 minutes/145,608 hours of training has been given since its opening.
- Under the program, 12,564 people have received 27,297 participation certificates.
- The number of graduates from the Open Academy reached 1,343 in less than 2 years.



There are various success stories in the software market in the development of games and applications

Peak Games



- Peak Games is the largest and fastest-growing gaming company focused on the emerging markets of Turkey, the Middle East and North Africa.
- The firm ranks as the 3rd largest social gaming company as they drew 30 million active gamers to their online offerings.
- Peak Games had ten times more revenue in Q1 2012 compared with the same period in 2011.
- Apart from being a successful software company, Peak Games is an important step in Turkish entrepreneurial history as it was founded in November 2010 and rose to 3rd place for daily active users in less than three years.

Pozitron



- Originally founded in 2000, Pozitron transitioned its product portfolio and business model in 2005 to become the software company it is today. Since then, the company has focused on creating, integrating and securing next generation software and mobile solutions through cutting-edge technology.
- Pozitron products range from mobile banking and payments to m-commerce and mobile sales force solutions adopted by some of the largest institutions in the region which include ING Bank, Yapi Kredi Bank, İş Bank, Turkish Airlines, eBay Global, and Bilyoner.com.

Nexum Boğaziçi



- For over 10 years, Nexum Boğaziçi has offered services in custom software solutions, B2B, B2C solutions, CMS solutions, website and mobile site solutions, mobile application solutions, search engine optimization and more.
- Some of their customers in the past were Turkcell, Pfizer, Eczacıbaşı, TeknoSA, Mastercard, ASELSAN, yemeksepeti.com



The sustained achievements of Logo and Netsis are examples of local success stories in business software segment

Logo



- Established in 1984, Logo Business Solutions is one of the largest independent software companies in Turkey operating in 4 offices located in the major cities of Turkey as well as their international office in Frankfurt, Germany.
- In April 2013, 36% of company's shares were sold to the England-based private equity firm Mediterra Capital Partners for TL 48.2 million.
- Logo offers a variety of products including ERP and HR solutions for SMEs.

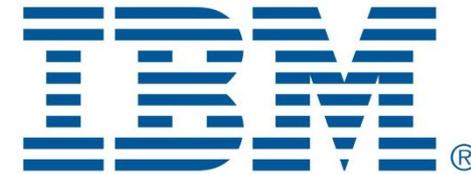
Netsis



- Netsis, founded in 1991, is a Turkish company developing corporate business software for many sectors.
- Netsis offers IT services for over 40,000 companies having more than 150,000 users, with a team of approximately 200 employees.
- The company offers solutions in CRM, supply chain management, production planning and channel management.



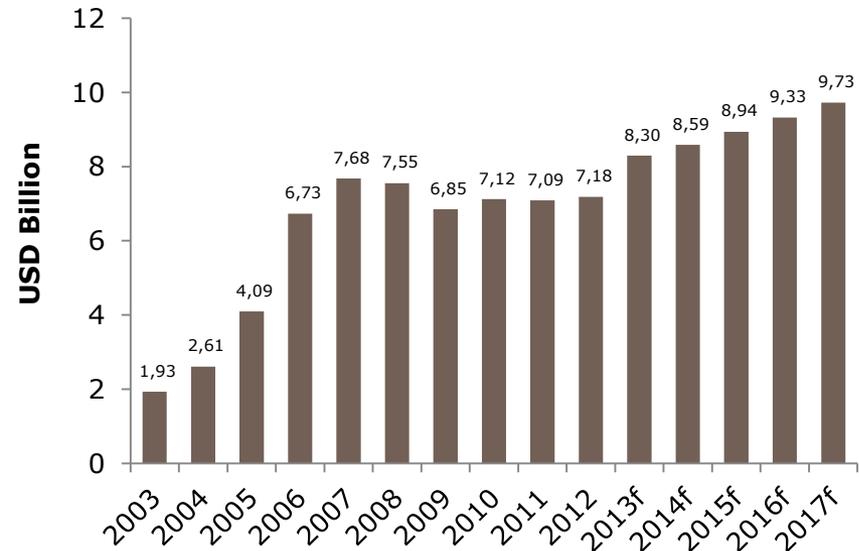
Some of the Major Players in Software Market



The hardware sector is essential to IT because of its dominance in the market

- There has always been a strong correlation between population growth and the growth of industries and market sizes. The Turkish population is increasing and Turkey's emerging middle class presents a high potential for the hardware market.
- IT hardware spending has drastically increased since 2003 and is forecasted to increase to about USD 10 billion in 2017. The Turkish IT market will be dominated by hardware, which accounted for more than two thirds of IT spending in 2012, with this dominance expected to continue until 2017 and beyond. Laptops are providing much of the growth in the PC category.
- In 2011, the main buyers were businesses, accounting for half of the total market share, whereas households spent 36% of the total market share. In addition, investment comprised 12% of the market share in 2011.

Figure 53: IT Spending on Hardware



Source: EIU
f: forecast

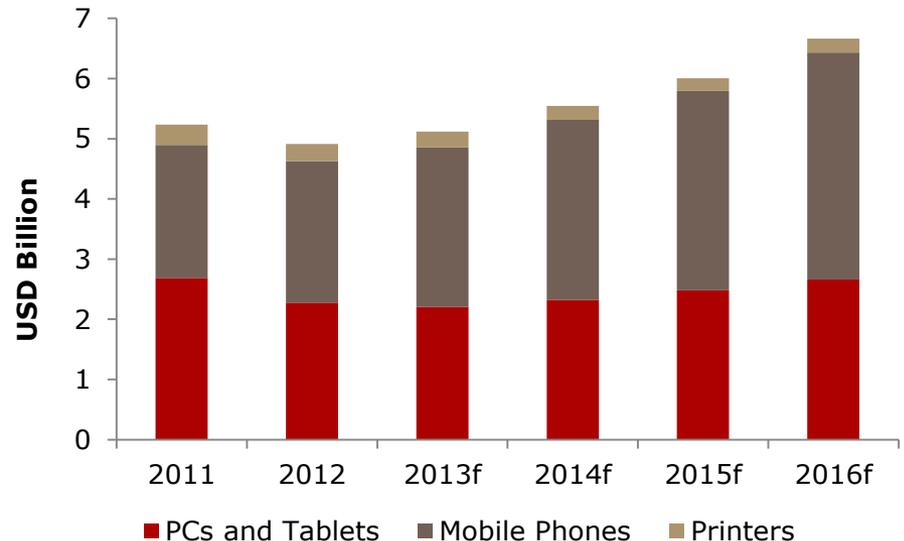
- Turkey's IT industry is receiving increasing interest from foreign investors. The hardware sector is dominated by international brands, due to their strong brand identities in the market.
- However, the market is moderately fragmented with 30 brands occupying 80% of the total hardware sector in Turkey.



Mobile phone, tablet and PC spending is expected to grow significantly

- In 2011, portable computers accounted for 72% of the retail sales volume for computers. Turkey is one of the fastest growing markets in Europe and it is again expected to be among the best performing emerging European markets in 2013.
- Small and medium sized businesses of more than 2.5 million present a huge potential for the hardware market. The majority of these businesses do not use computers. PC use among small businesses has been estimated to be around 35% and several campaigns have been launched to drive this higher.
- Device spending in Turkey expands with the increasing population of young people and GDP growth.

Figure 54: Devices Spending Turkey



Source: IHS Global Insight and Gartner
f: forecast

- Spending on devices like PCs and tablets, mobile phones and printers are expected to increase with a CAGR of 8% between 2012 and 2016.
- Mobile phones' growth will be a CAGR 12.5% between 2012 and 2016

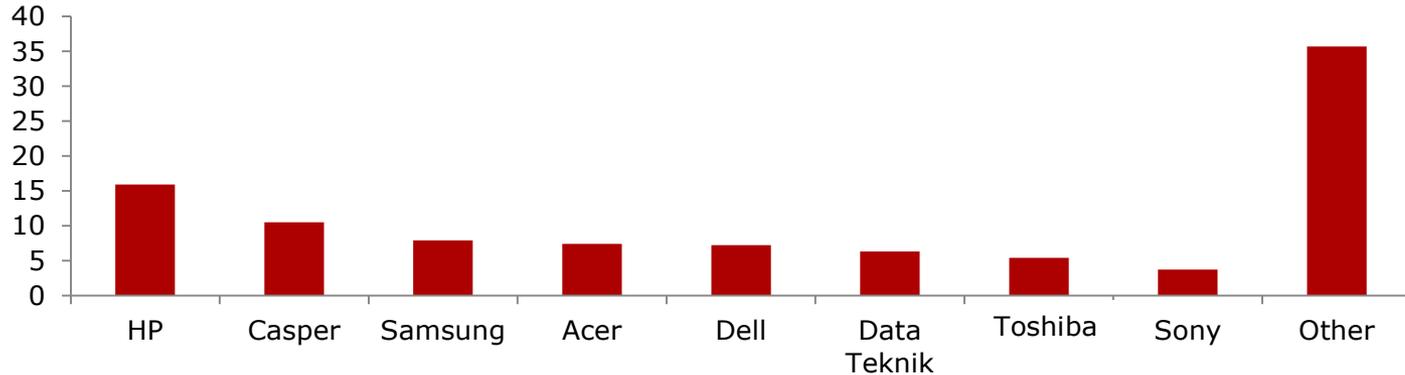


Source : Euromonitor, Gartner

Investment Support and Promotion Agency of Turkey

The hardware market is fragmented with many global and local players

Figure 55: Computers and Peripherals Market Shares, 2011 (%)



- There are many global players in the Turkish hardware market. Overall, the computer and peripheral market leader is HP with 15.9% retail volume in 2011.
- The sub-sector leaders of the hardware industry and their percentage of retail volume for 2011 are:
 - Desktops: Casper (20.1%)
 - Laptops: HP (21.3%)
 - Netbooks: Acer (16.6%)
 - Tablets and other portable computers: Samsung (28.9%)
 - Monitors: LG (20.0%)
 - Printers: HP (21.1%)
 - Other computer peripherals: Casper (11.3%)



The flourishing IT market lead the way for new FDIs in Turkey: The Foxconn Case

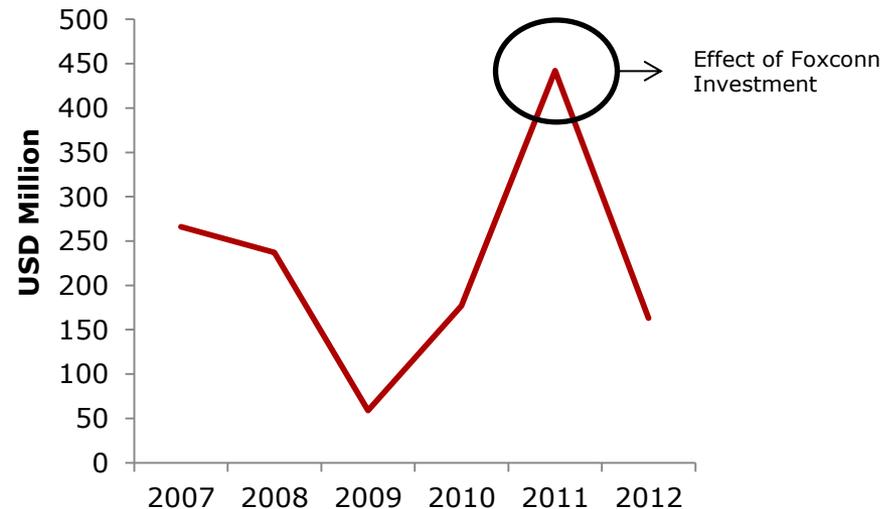
- Foxconn is a notable investor in Turkey's hardware market.
- Foxconn started to operate a plant in Çorlu with a capacity of 200,000 computer assembled per month. With this production volume, the plant is one of the three biggest plants HP has Europe. 90% of the production is aimed for export.

"Turkey's strong talent pool, strategic location and government support make it an ideal location for this operation to deliver products quickly and competitively."

Jim Chang, executive Vice President of Foxconn, 2009

FOXCONN®

Figure 56: FDIs in the Manufacturing of Computers, Electronic Electrical and Optical Equipment



Source: Central Bank of Republic of Turkey



Case: The Huawei R&D Center in Istanbul

- Huawei, a leading global information and communication technology solutions provider, opened its R&D center in Istanbul on the 27th of February 2010 in Istanbul.
- Having launched its Turkish operations when its Ankara office opened in 2002, Huawei continued to grow by opening support offices in Izmir, Diyarbakir and Trabzon in 2007, along with its local headquarters in Istanbul.
- Huawei plans to employ 500 Turkish engineers in three years, 350 will be placed in the R&D centers and 150 in technical support centers.
- R&D will be conducted on products and services such as:
 - Value-added services
 - Billing and charging
 - Contact center and customer relationship management
 - Software products
 - Wireless technologies (2G/3G)
 - All-IP, fixed mobile convergence (FMC)
 - Next generation networks (NGN)

Source: www.huawei.com
www.invest.gov.tr



"We will become a strong team full of innovative spirit through our Turkish R&D center and grow together towards a successful future in the global telecom industry."

Jiang Yafei, Vice President of Huawei, 2010

"...using Turkey's high-quality R&D resources and geographical advantage of being the intersection of Europe, Asia and Africa, we expect to optimize our R&D deployment, implement a global round-the-clock asynchronous R&D strategy and provide customers with better products and services in time..."

Huang Jian, R&D Executive of Huawei, 2010



HP and Casper are market leaders with impressive success stories in the hardware sector

Company



Overview

- Hewlett-Packard has been present in Turkey since 1989 with a team of more than 360 employees.
- HP has been the market leader from 2006 to 2011 in the computer and peripherals segment with an average share of 14.9%
- The world's leading manufacturer of computers and peripherals, Hewlett-Packard (HP) is establishing a plant in cooperation with the Taiwanese company Foxconn to manufacture computers in Tekirdağ's Çorlu district. Having an annual production capacity of 2.4 million units, the factory will triple the amount of computers produced in Turkey.
- HP expects to achieve a USD 1 billion turnover from its new investment, and will export 90% of its "Made in Turkey" branded PCs. The site, worth USD 60 million, will employ some 2,000 people.

Casper

- Casper follows HP with the second highest market shares, 11.4% on average, from 2006 to 2011 in the computer and peripherals segment. The Turkish computer manufacturing firm Casper foresees the huge potential of the millions of Turkish small and medium-sized enterprises (SMEs) who will start using computers in their businesses for the first time and these will help the company reach its goal of selling 1 million units in 2013.
- Casper employs 400 people at their production facility, and their products are sold at more than 2,000 sales points across Turkey.



Sources: HP, Investment Support and Promotion Agency of Turkey, Today's Zaman

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In Turkey, there are success stories in diverse fields of the hardware sector

In 2011, Toshiba registered one of the highest increases in retail volume sales in computers, as it offered a wider variety of products, targeting the mid-to-high end range. While its actual sales increased, its market share percentage fell slightly.

In 2011, iPad 2 was one of the key new product launches in computers. Despite high prices (TL 1,500- 2,300), the product's launch was successful, creating a buzz among Turkish consumers. Following the success of the first generation iPad, the demand for tablets grew steadily. Turkish consumers are increasingly well-informed about the benefits of tablets, compared to other portable computers.

In addition to regular advertising by HP, Exper and Casper, Mobee launched an aggressive advertising campaign to draw the attention of Turkish consumers to the lower prices of its tablets. The campaign was aimed at consumers who were not considering purchasing tablets because of their high prices. Positive feedback and reviews by users and critics allowed the brand to register positive sales figures in a short period.



The hardware sector in Turkey offers numerous opportunities including the nationwide high-tech education initiative, FATIH Project

- The growing economy of Turkey demands hardware for business requirements. Many firms are renewing and investing in hardware infrastructure including network systems, computers and tablets. Small and medium enterprises are expected to invest in computers parallel with the new business requirements of the mobile world.
- Everyday more companies are investing in mobile solutions, where they utilize tablets for their mobilized workforce.
- Investment in new data centers will require hardware investments.
- The investment from Foxconn will develop the competency of workforce and suppliers in the industry, providing a welcoming climate for new hardware production investments.
- Public agencies will provide major tenders for IT hardware investment.
- Development of smart energy technology will require investment in the IT infrastructure. With electricity and natural gas distribution companies' privatizations modern smart grid infrastructure including SCADA and smart metering systems will be established, which will be supported by the hardware market along with software and IT services markets.

FATIH Project

- The FATIH project in education is a mega-project that will support the hardware sector. The project requires tablets, interactive LCD panel boards and an internet network infrastructure for classrooms around Turkey.



- Major hardware components of the FATIH project for 570,000 classrooms:
 - One multi-function printer, one document camera for each school
 - One interactive board and wired internet connection for each classroom
 - One tablet PC for each teacher
 - One Tablet PC for each student



Some of the Major Players in Hardware Market

SONY Casper
make.believe



TOSHIBA



FOXCONN[®]



exper



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