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E-BUSINESS APPLICATIONS IN THE EUROPEAN UNION AND TURKEY

YÜKSEK LİSANS TEZİ

ÇAĞLA (TURA) AKKOL

İstanbul – 2008

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DANIŞMAN: Prof. Dr. S. Ümit Oktay Fırat

İstanbul – 2008

E-BUSINESS APPLICATIONS IN THE EUROPEAN UNION AND TURKEY

by

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ONAY SAYFASI

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ABSTRACT

E-business is the common ground where the technological developments and the economic value creation gather. The economy worldwide faces this new ten-year old term as a leading role player. E-business stands on the developments of the information and communication technologies (ICT) and the world wide web with sub-headings such as e-commerce and e-government. The most important thing however is to recognize their united importance in the daily life of both consumers (citizens are also regarded as consumers) and enterprises. How e-business is evolved over these years is another issue to consider in the face of coming years.

In this paper, the evolution of the e-business concept in the EU and Turkey is handled with the relevant regulations, laws and projects. This paper also contains a case study in Turkey where 25 enterprises out of Turkey's Top 500 Industrial Enterprises of the Year 2005 responded to a questionnaire prepared with 34 questions about the use and adoption of ICT. The criteria for these subjects have been taken from the EU's E-Readiness Benchmarking Criteria. In the light of the responses from these 25 enterprises it can be said that Turkey has still some way to fully become a knowledge-based society. More regulations and directives have to be put in force and the obstacles hindering the e-business should be removed. For a more detailed outlook an analyze with a bigger sample of respondents is needed.

ÖZET

E-iş terimi, teknolojik gelişmelerin ve ekonomik değer yaratmanın bir araya geldiği ortak noktadır. E-iş son 10 yıldır dünya ekonomilerinin hareketlerinde önemli bir role sahiptir. E-ticaret ve e-devlet bileşenlerini de kapsayan e-iş, bilgi ve iletişim teknolojilerindeki gelişmeler ve world wide web ayakları üzerinde durur. Önemli olan bu terimlerin, tüketici (vatandaşlar da tüketici olarak betimlenebilir) ve işletmelerin günlük yaşamında bıraktığı etkileri fark etmektir. E-işin şu zamana kadar olan gelişimini incelemek çok önemlidir.

Bu çalışmada e-iş tanımının yıllar içinde Avrupa Birliği ve Türkiye'de ilgili regülasyonlar, kanunlar ve projelerle gelişimi anlatılmıştır. Ayrıca bir anket çalışması yapılmıştır. Bilgi ve iletişim teknolojilerinin adaptasyonu ve kullanımıyla ilgili sorular da içeren 34 soruluk bu anketi, Türkiye'nin En Büyük 500 Firması 2005 listesinden 25 işletme cevaplamıştır. Anketteki kriterler Avrupa Birliği E-Readiness Benchmarking kriterlerinden alınmıştır. Bu 25 işletmeden gelen cevaplar ışığında yapılan analize göre Türkiye'nin tam anlamıyla bilgi toplumu haline gelmesi için daha yol katetmesi gerektiği söylenebilir. Gerekli kanunların bir an önce çıkarılması ve e-işin önündeki engellerin kaldırılması gerekmektedir. Bundan sonra bu konuda yapılacak alan çalışmalarda daha büyük bir örneklem kullanılarak daha detaylı ve daha geniş tabana yayılan sonuçlar elde edilebilir.

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LIST OF ABBREVIATIONS

DG	Director General
DPT	Devlet Planlama Teşkilatı
EBI	E-Business Readiness Index
EDI	Electronic Data Interchange
EFT	Electronic Funds Transfer
EIU	Economist Intelligence Unit's
EU	European Union
E-Business	Electronic Business
E-Commerce	Electronic Commerce
E-Government	Electronic Government
FP7	Seventh Research Framework Program
ICI	Istanbul Chamber of Industry
ICT	Information and Communication Technology
IETF	Internet Engineering Task Force
IPSC	Institute for the Protection and Security of the Citizen
ISD	Information Society Department
ISS	Information Society Statistics
JTIs	Joint Technology Initiatives
NGOs	Non-governmental Organizations
N/A	Not applicable
OECD	Organization for Economic Co-operation and Development
SMEs	Small and Medium Enterprises
SPO	State Planning Organization
S-HTTP	Secure Hyper Text Transfer Protocol
SSL	Secure Socket Layer
TDZ's	Technology Development Zones – Technoparks
TURKSTAT	The Turkish Statistical Institute
UNPAN	United Nations Public Administration Network
WTO	World Trade Organization

INTRODUCTION

Electronic Business (e-business) is a fact of today's and future's business life and it's an important and ever growing aspect. More and more business procedures and transactions are done online. As companies discover the importance of using e-business applications, they are implementing new automatization systems and also improving the existing ones according to the daily needs. At the same time the importance of being connected to the suppliers and customers have gained more weight. E-business covers electronic commerce (e-commerce), as it is more than just doing transactions and payments online. It also covers the way of doing business between companies, third parties and governments.

The European Union (EU) has stressed the importance of e-business, e-commerce and electronic government (e-government) and has taken steps to secure their improvement and sustainability. Getting Europe online was the first step taken by the EU with the implementation of The eEurope 2002 Action Plan. The plan was to get Europe online as well as creating new jobs and services. Although the infrastructure part of the action plan was materialized, the creating jobs part did not. Therefore more actions had to be taken on both community and national levels, and the EU kept its persistance at becoming a knowledge-based economy on the basis of Lisbon Strategy. The EU has prepared many actions and regulations, which also had to be implemented on the national level by the member states.

Turkey, on the other hand, has taken steps on both national and european levels. The first e-governmental project was initiated in 1998 and since then several legislations and regulations have taken their place in the constitution. In 2002 an urgent action plan was put into force throughout Turkey to enforce the progress of being an e-society. The implemented e-Transformation Turkey Project consisted of short-term and long-term action plans, which have been realized in time. The use and adoption of ICT are two aspects of e-business life, which have to be considered as crucial and always be observed.

Turkey has taken steps to align its e-society path with that of the EU's, and joined eEurope+ Action, which ended by 2003 and succeeded by i2010 Initiative.

It is also very important to measure e-commerce, since there is always a need for some scales to see where the companies as well as the countries are in the area of e-business. In order to obtain sufficient and reliable information, the EU has put a benchmarking system into force. The criteria in this system are called The E-Readiness Benchmarking Criteria, divided into two groups as Adoption of ICT and Use of ICT. Both groups have 6 different criteria underneath, which have evolved with the upcoming needs in time. The answers to these criteria are gathered by national-wide questionnaires and phone calls throughout the whole Europe and are classified and analyzed to an end-data by EUROSTAT, the EU's official statistical institute. This way the EU can observe the information about its improvement and progress in this area and take actions for further progress.

This thesis consists of three chapters and a conclusion. The first chapter gives an insight into the concept of e-business. The terms e-business, e-commerce, e-government and their relation with each other are explained. As we know there are several obstacles in the way of doing business online, I tried to give detailed information to what might be preventing businesses and consumers from buying/selling online. These problems are gathered under 4 categories, as financial problems, legal limitations, infrastructure lackings and consumer distrust. Further into the chapter the progress of e-business in the EU is shown, along with deeper information about e-business benchmarking criteria and e-readiness index.

The second chapter gives information about the e-transformation in Turkey as well as its e-government, since it has a big impact on e-business and is also quite developed in Turkey. The progress of e-business is also handled with important aspects. Lastly a general overview of e-business in Turkey and the EU is given with several comparisons.

The third chapter is solely dedicated to a case study done in Turkey. For this study the method questionnaire was used. It has 34 questions with several different types of questions. The aim of this research is to observe the level Turkey has in the area of e-business. The survey was sent out to the enterprises in the list of Turkey's Top 500 Industrial Enterprises, chosen by the Istanbul Chamber of Industry of the Year 2005. A total of 25 enterprises have responded and the data retrieved is analyzed.

1. THE CONCEPT OF E-BUSINESS & E-BUSINESS IN THE EU

1.1 E-BUSINESS

1.1.1 E-Commerce

The term electronic commerce is now known and used widely around the world. Mainly we can define e-commerce as the trade of any service by means of internet and electronic, mobile and digital channels.

A paper released by the WTO Secretariat (WT/GC/W/90) on 14 July 1998 defines e-commerce as follows: In the realm of services trade, electronic commerce can be defined as comprising three different types of transaction, all of which require consideration:

- The provision of Internet access services themselves – meaning the provision of access to the net for businesses and consumers;
- The electronic delivery of services, meaning transactions in which services products are delivered to the customer in the form of digitized information flows;
- The use of the Internet as a channel for distribution services, by which goods and services are purchased over the net but delivered to the consumer subsequently in non-electronic form.[1]

In April 2000, OECD member countries endorsed two definitions of electronic transactions (electronic orders), based on narrower and broader definitions of the communications infrastructure. According to the OECD definitions, the method by which the order is placed or received, not the payment or the channel of delivery, determines whether the transaction is an Internet transaction (conducted over the Internet) or an electronic transaction (conducted over computer-mediated networks). In 2001, the OECD

[1] For more information see "WTO Agreements And Electronic Commerce", WT/GC/W/90, WTO, 14 July 1998, (98-2779) http://mypage.bluewin.ch/GATSDataProject/WT_GC_W_90.htm , 15.04.08

developed guidelines for interpreting the definitions of electronic commerce and encouraged member countries to take such guidelines into account when developing their questionnaires.

The broad definition is that an electronic transaction is the sale or purchase of goods or services, whether between businesses, households, individuals, governments, and other public or private organizations, conducted over computer-mediated networks. The goods and services are ordered over those networks, but the payment and the ultimate delivery of the good or service may be conducted on or off-line.

The narrow definition is that an Internet transaction is the sale or purchase of goods or services, whether between businesses, households, individuals, governments, and other public or private organizations, conducted over the Internet. The goods and services are ordered over those networks, but the payment and the ultimate delivery of the good or service may be conducted on or off-line.[2]

Measuring electronic commerce is difficult for a number of reasons including defining what constitutes electronic commerce, the speed of its growth and evolution and the fact that in many cases firms conduct both electronic commerce and traditional commerce simultaneously. Quantifying the value associated with electronic commerce activities can be challenging since many of its key qualities - convenience, variety and ease of access to information - are difficult to measure. This leads to a situation where it appears unlikely that official statistical offices will be able to provide accurate statistics on electronic commerce and quantitative insight into the nature of this activity will have to rely on private providers of data which suffer from a number of shortcomings, not the least of which is a transparent definition of what is meant by electronic commerce.[3]

According to Dr. Jean-Philippe Chetcuti, e-commerce is characterized by the following features. It is:

- Potentially virtual - the presence of an enterprise in another country may be wholly based on the hosting of a web-site on a server located there.

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[2] For more information see "Measuring The Information Economy 2002", OECD,

[3] See "Measuring Electronic Commerce" in "Glossary of Statistical Terms, Electronic Commerce", OECD, 1997 on http://stats.oecd.org/glossary/detail.asp?ID=4721 15.04.08

- Disintermediated and less labour intensive - the main enterprise no longer requires intermediaries in foreign countries to be able to conduct business there. Moreover, e-business activities require far less human intervention, if any, than that otherwise required to trade by in a traditional manner.
- Global - the scope of market-penetration is unlimited and knows no borders;
- Anonymous - business is transacted on a non-face to face basis and therefore the seller and the consumer may not know each other.[4]

European Union believes that e-commerce has the potential to bring significant benefits to consumers. It can provide greater choice, promote competition among suppliers, and allow businesses to develop new relationships with their customers for mutual advantage. It also has the potential to play a large part in the development of the cross-border shopping dimension of the internal market. While e-commerce is growing, obstacles to consumer confidence remain.

By providing common rights for consumers and establishing obligations for retailers throughout Europe, the Distance Selling Directive and the Distance Marketing of Financial Services Directive aim to ensure consumer confidence in distance selling, including e-commerce.[5]

Promoting the development of electronic commerce is one of the key factors in the effort to make the European Union the most competitive and dynamic knowledge-based economy in the world.

Directive 2000/31/EC created the basic legal framework for electronic commerce in the Internal Market. The Directive removes obstacles to cross-border online services in the European Union and provides legal certainty to business and citizens alike. The work of the European Commission in the context of this legal framework consists of ensuring:

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[4]The Challenge of E-commerce to the Definition of a Permanent Establishment: The OECD's Response, Dr Jean-Philippe Chetcuti, 2002, http://www.inter-lawyer.com/lex-e-scripta/articles/e-commerce-pe.htm#_Toc535050188, 14.04.2008

[5]See European Union Glossary, http://ec.europa.eu/consumers/rights/e-shopping_en.htm, 19.04.08

- That information society services benefit from Internal Market principles of free movement of services and freedom of establishment in an enlarged European Union.
- Monitoring and follow-up of Directive 2000/31/EC, including regular reports on its application.
- That both the existing and the new Member States correctly implement and apply the legal framework for electronic commerce as provided by Directive 2000/31/EC.
- Appropriate follow-up to complaints concerning information society services.
- General monitoring of legal, technical and economic developments of electronic commerce and the internet.[6]

E-commerce will become more and more accepted by both businesses and customers, who have still doubts about using internet for purchasing goods or delivery of services. It will affect the society as a whole in which everybody can trust and enjoy the benefits of doing business on the global World Wide Web. This will also have a positive effect on SMEs, with them gaining easier access to the markets and making benefits of the worldwide market along with the large firms.

1.1.2 E-Government

"e-Government" refers to the use by government agencies of information technologies (such as Wide Area Networks, the Internet, and mobile computing) that have the ability to transform relations with citizens, businesses, and other arms of government. These technologies can serve a variety of different ends: better delivery of government services to citizens, improved interactions with business and industry, citizen empowerment through access to information, or more efficient government management.

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[6] The EU Single Market Website, http://ec.europa.eu/internal_market/e-commerce/index_en.htm, 14.04.2008

The resulting benefits can be less corruption, increased transparency, greater convenience, revenue growth, and/or cost reductions.

Analogous to e-commerce, which allows businesses to transact with each other more efficiently (B2B) and brings customers closer to businesses (B2C), e-government aims to make the interaction between government and citizens (G2C), government and business enterprises (G2B), and inter-agency relationships (G2G) more friendly, convenient, transparent, and inexpensive.[7]

e-Government is the use of Information & Communication Technologies (ICTs) to make public administrations more efficient and effective, promoting growth. E-government is the use of information and communication technologies in public administrations combined with organizational change and new skills in order to improve public services and democratic processes and strengthen support to public policies.

E-government enables the public sector to maintain and strengthen good governance in the knowledge society. This means:

- A public sector that is open and transparent: governments that are understandable and accountable to the citizens, open to democratic involvement and scrutiny. An inclusive public sector that is at the service of all.
- A user-centered public sector will be inclusive, that is, will exclude no one from its services and respect everyone as individuals by providing personalized services.
- A productive public sector that delivers maximum value for taxpayers' money. It implies that less time is wasted standing in queues, errors are drastically reduced, more time is available for professional face-to-face service, and the jobs of civil servants can become more rewarding. [8]

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[7] The World Bank. http://go.worldbank.org/M1JHE0Z280 23.08.07

[8] European Union Website, "E-Government". http://ec.europa.eu/information_society/activities/egovernment_research/focus/modernisation/index_en.htm 23.08.07

Hundreds of billions of euros could be saved for European taxpayers every year as a result of administrative modernization in the 25 EU Member States, outlined today in the European Commission's e-Government Action Plan. Information and communication technology is the key to modernizing government services: making them more efficient and more responsive. 100% take-up of electronic invoicing and electronic public procurement is predicted to save 300 billion euros every year.

E-Government initiatives in Europe have already resulted in significant saving of time and money in some Member States. Public service eProcurement in Italy resulted in savings of €3,2 billion by 2003 (for example an average saving of 34% on PCs). Portugal has reported savings of 30% through electronic public procurement.

When citizens travel or when they move they want easy access to services. EU governments have agreed to facilitate this process by establishing secure systems for mutual recognition of national electronic identities for public administration web-sites and services. The Action Plan foresees a full implementation by 2010. The Commission will help make this happen by supporting wide-scale cross-border demonstrators, identifying common specifications for electronic ID management during 2007 and by reviewing the rules of electronic signatures in 2009.[9]

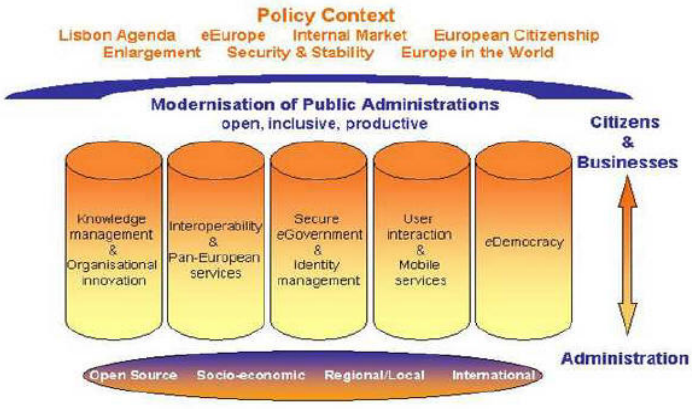

Figure 1: EU R&D Focus on e-Government[10]
Source: Europe Union Website

9 i2010 Information Space Innovation & Investment in R&D Inclusion, IP/06/523, 2006. http://porvoo9.gov.si/IP-06-523_EN.doc 21.06.07

[10] European Union Website, "E-Government".

As seen in the above Figure 1, the objective of EU R&D in e-Government is to contribute to the modernization of public administrations or 'better government'. This means a public sector that is open and transparent and reinforces democratic processes; that is inclusive by providing services for all, and for each person as an individual; and that delivers value for taxpayers' money by being productive and providing high quality public services.

The policy context conditions the e-Government policy, as described in the September 2003 e-Government Communication. It consists of key policy areas such as the Lisbon Agenda for economic, social and environmental renewal in Europe, the related eEurope 2005 Action Plan, enlargement, the EU's security and stability policy, and the Internal Market policy.[11]

1.2 TYPES OF E-BUSINESS

The Internet has completely reshaped customer relationships. The rise in the dot-com usage has formed new business models, then the traditional business enterprises realized that in order to survive, they too had to move over to internet to reach the customers and satisfy their expectations about goods and services. Electronic business existed for a longer time before reaching its peak level lately. The communication between firms and third parties were made over media tools. The content and conditions for it are however changed. For electronic business to run smoothly some regulations must be taken into consideration. E-commerce and e-business models are affected by physical, economic and social situations. These situations may even vary from country to country, depending on their financial and commercial laws. This situation led to the separation between B2C and B2B. B2B sales needed special pricing, corporate contracts

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http://ec.europa.eu/information_society/activities/egovernment_research/focus/index_en.htm 23.08.07

[11] European Union Website, "E-Government". http://ec.europa.eu/information_society/activities/egovernment_research/focus/policy_context/index_en.htm 23.08.07

and distribution channels for companies. B2C companies are more consumer-focused. On B2C pages the customers want to find reviews, ratings and forums including common interests. You will see below the types of e-commerce amongst business, customer and government sides. Here only the three most common used ones will be explained, namingly B2B, B2C and G2C as seen in Table 1.

Table 1: Types of e-business

	Business	**Customer**	**Government**
Business	**B2B**	**B2C**	**B2G**
Customer	**C2B**	**C2C**	**C2G**
Government	**G2B**	**G2C**	**G2G**

1.2.1 Business-To-Business (B2B)

Business-to-business is a marketing model, in which businesses sell and buy goods or services and do all kinds of financial transactions online between themselves. Firms search in product-price catalogs, order and pay online. The relation between firms can be horizontal and/or vertical, vertical meaning the relations with suppliers, affiliates and distributors.

E-procurement and e-marketplace are some application examples of this model type. E-procurement (Electronic Procurement) is either the business-to-business or Business-to-Consumer purchase and sale of supplies and services through the Internet as well as other information and networking systems, such as electronic data interchange

(EDI) and Enterprise Resource Planning (ERP). An important part of many B2B sites, e-procurement is also sometimes referred to by other terms, such as supplier exchange. Typically, e-procurement Web sites allow qualified and registered users to look for buyers or sellers of goods and services. Depending on the approach, buyers or sellers may specify prices or invite bids. Transactions can be initiated and completed. Ongoing purchases may qualify customers for volume discounts or special offers. An eMarketplace, or electronic marketplace, is a community of buyers and suppliers. More specifically, it's an electronic community that integrates the procurement systems of buyers with the fulfillment systems of suppliers, creating a single standard process for transacting business. The efficiencies gained by using: 1) one process for multiple business relationships and 2) a web-based solution instead of paper, phone and fax, make joining an eMarketplace very attractive to companies as they seek to reduce unnecessary costs.[12]

B2B brings many advantages to the firms, whose businesses is interlaced with many layers. It enables faster and clearer communication among firms, as well as faster, easier and cost-effective transactions. Lower costs results in lower prices and less errors in work. One problem with this model though is that it needs first costly implementation of e-business systems, which have to be compatible both with the old systems and with the system of the third parties.

1.2.2 Business-To-Consumer (B2C)

Business-to-consumer electronic commerce (B2C) is a form of electronic commerce in which products or services are sold from a firm or company to a consumer. B2C is the commerce model, where the transactions occur directly from seller to consumer, mostly retailing. For example; book/car selling or ticket reservation for

12 Wikipedia, "Definiton of E-procurement".
http://en.wikipedia.org/wiki/E-procurement 07.05.2007

planes/trains. In addition to online retailers, B2C has grown to include services such as online banking, travel services, online auctions, health information and real estate sites.

The major difference between B2B (Business to Business) and B2C (Business to Customer) in internet terms is the role of the B2B website. B2B concerns itself primarily with supply chain management. These are portals that allow businesses to deal directly with their suppliers and distributors online. Allowing electronic transfer of orders, invoicing and even payments. Wholesalers, distributors and manufacturers fall in this category.

B2C websites are intermediary portals to link customers to suppliers. Some of the major ones are ebay, an auction site. Yell, an internet version of yellow pages and ZDNet a technology market place. All of these businesses exist primarily on the internet. They are what is known as e-businesses (electronic businesses). All of them can be classified under one general heading, market places. A B2B site deals primarily with other businesses, not the general public, a B2C site sells directly to the end user. B2B sites normally handle a lot more than just sales of products, they are a portal to conduct business transactions.[13]

B2C e-commerce has the following advantages:

- Shopping can be faster and more convenient.
- Offerings and prices can change instantaneously.
- Call centers can be integrated with the website.
- Broadband telecommunications will enhance the buying experience.
- Service is better due to freedom of place and time (chance of selling all over the world).
- Continuous online selling 24/7.

The two main challenges faced by B2C e-commerce are building traffic and sustaining customer loyalty. Due to the winner-take-all nature of the B2C structure, many smaller firms find it difficult to enter a market and remain competitive. In addition, online

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13A-K Strategic Business Solutions, "What Is The Difference Between B2B and B2C?". http://www.akstrategic.com/b2b-or-b2c.html 07.05.07

shoppers are very price-sensitive and are easily lured away, so acquiring and keeping new customers is difficult. There is the risk o cyberphobia, which prevents people from completely trusting and buying online.[14]

1.2.3 Government-To-Consumer (G2C)

Government to Consumer (G2C) is a new area of e-business models, therefore the content of it is still new and partially formed. This includes government's duties towards its citizens (customers) to be taken up on a technological level, where their identity and private data have to be protected. The taxation of the transactions over the internet and processes alike can be put together. Every issue regarding e-signature, accreditations, the standards of e-commerce, level of infrastructure services and encryption of data falls under this category, due to the problems regarding law and justice arising from the rapid technological developments.

1.3 PROBLEMS REGARDING E-BUSINESS

As we know, every technological advance brings more problems with it along with the benefits. Electronic business is not different either. With the implementation of an e-business program in the firms' IT infrastructure, the firms face many challenging problems. These problems do not only occur in Turkey, but also in the other countries, which apply this new type of commerce to their markets. USA, being the first and the biggest e-commerce user, has been trying to find solutions to these problems from the beginning and has gone further in improvements regarding technological infrastructure and conditions of law than most of the other countries.

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14 Wikipedia, "Definiton of Cybercrime".
http://en.wikipedia.org/wiki/Business-to-consumer_electronic_commerce 07.05.07

E-commerce has the potential to make the less advanced countries get advanced in shorter periods of time and therefore forcing them to improve their necessary infrastructure, so that they can compete with the world at the same level. When e-commerce activities take more place in such countries, the prosperity gap with the advanced countries will eventually get smaller. These countries also face the problems of the early days of applying e-commerce, where we can name them as financial problems, legal limitations, infrastructure lackings, consumer distrust. These problems are addressed and worked on by the authorities seperately.

1.3.1 Financial Problems

Setting up a viable internet connection and maintaining it cost a considerable amount of money. Whereas an end-user needs a computer, a modem, an internet connection and a service provider; the companies need much more to keep their work efficient. Even for the end-user this is costly. The company, who has a long-period plan of e-commerce has more issues to consider. Sometimes the companies do not take into consideration the amount of time and money to fully implement the application and to fulfill the project, which they come to a halt in the middle-way to achieving their goal. The e-business process can be either handled in the company or by outsourcing, both of which has its own advantages and disadvantages. The high connection costs in Turkey have been one of the obstructive issues regarding e-business so far.

One of the leading financial problems is the problem of paying online. Credit cards are the most used ways to pay for buying a service or a good. Potential online customers still have the fear of online paying, because there have been many cybernetic abuse of credit cards or personal identity information. There have been attempts and innovative products to prevent this problem from occuring.

Another problem the companies are facing is the taxation problem. Due to the newness of e-commerce in most of the countries, the relevant law system has not been constituted. This leads to many problems regarding the collection taxes from the buying and selling of goods online, which are not solid to be seen with the eye or to be taken into hand. This calls for an urgent constitution of tax policy and law. The international

payments have to be taken under observation and must be aligned with the current law and customs systems.

1.3.2 Legal Limitations

The problems regarding internet websites, like the right to prevent the access to some of them, when it is deemed dangerous by the law are still in discussion. Internet and the knowledge within, regardless of their truth, are immense. The governments of all countries are still trying to invent and publish new laws according to the new circumstances. The laws are in fact are taken into consideration, when a new abuse or a new use of internet occurs, therefore the laws regarding the internet, its vast content and connection security are not still fully formed. There are problems regarding privacy data and identity protection. This topic is still not fully supported by the government. The system of taxing of the communication systems, servers and the services is still vague.

These limitations also affect electronic commerce, while the participants, whether they are firms, customers or the governments, are still reluctant to use this means of commerce in as a big part of their work. The legal gaps still exist, and it is not really clear where to go, when there is a problem regarding this issue and if these people have enough authority to solve the problems. There is also a lack of legal and technical regulations, which can realize a high service quality and high data interaction security. It's therefore important for especially developing countries to initiate national policies, which will improve internet communication services along with satisfying the needs of private sector and customers.

1.3.3 Infrastructure Lackings

As we know the main things the electronic business needs are a reliable connection, a computer, which can keep a big amount of data and a phone line. These things are directly related to the communication infrastructures and information technologies, which change rapidly nowadays. In this respect it is getting more important to keep up with the changes, in order to present a secure and reliable environment for

electronic business. This is where the problem starts. The governments are especially in the developing countries lagging behind such technological changes. Every action online is made over the telecommunication infrastructure and this has to be improved and supervisioned periodically. This infrastructure must not be blocked, and be open everytime data needs to send over. Technical standards for communication infrastructure and security themes must be put in place to create a secure environment for data transaction.

1.3.4 Consumer Distrust

Taking everything from upper sections into consideration, it is obvious why a customer would feel unsure about using electronic means for shopping. Although many e-commerce websites have put up security defenses and firewalls and many other security layers, most people still do not shop online. Another reason for customers' lack of interest in buying online is that, when the goods they have paid for arrives as a different or damaged goods, they do not know where they should go to. Furthermore there is the language barrier, which refrains most people from buying and selling online.

Cybercrime is a term used broadly to describe criminal activity in which computers or networks are a tool, a target, or a place of criminal activity. Another way to define cybercrime is simply as criminal activity involving the information technology infrastructure, including illegal access (unauthorized access), illegal interception (by technical means of non-public transmissions of computer data to, from or within a computer system), data interference (unauthorized damaging, deletion, deterioration, alteration or suppression of computer data), systems interference (interfering with the functioning of a computer system by inputting, transmitting, damaging, deleting, deteriorating, altering or suppressing computer data), misuse of devices, forgery (ID theft), and electronic fraud.[15]

There is a protocol called SSL, short for Secure Sockets Layer, a protocol developed by Netscape for transmitting private documents via the Internet. SSL uses a

[15] Wikipedia, "Definiton of Cybercrime". http://en.wikipedia.org/wiki/Cybercrime 23.04.2007

cryptographic system that uses two keys to encrypt data − a public key known to everyone and a private or secret key known only to the recipient of the message. Both Netscape Navigator and Internet Explorer support SSL, and many Web sites use the protocol to obtain confidential user information, such as credit card numbers. By convention, URLs that require an SSL connection start with https: instead of http:. Since its introduction in 1994, SSL has been the de facto standard for e-commerce transaction security, and it's likely to remain so well into the future. SSL encrypts data, like credit cards numbers (as well other personally identifiable information), which prevents other people from stealing customer's information for malicious intent. This takes place also in web browsing, e-mail, Internet faxing, instant messaging and other data transfers. A person would know that he is on an SSL protected page when the address begins with "https" and there is a padlock icon at the bottom of the page.

Another protocol for transmitting data securely over the World Wide Web is Secure HTTP (S-HTTP). Whereas SSL creates a secure connection between a client and a server, over which any amount of data can be sent securely, S-HTTP is designed to transmit individual messages securely. SSL and S-HTTP, therefore, can be seen as complementary rather than competing technologies. Both protocols have been approved by the Internet Engineering Task Force (IETF) as a standard.[16]

There is also another possibility for paying online. Electronic money (also known as electronic cash, electronic currency, digital money, digital cash, digital currency or scrip) refers to money which is exchanged only electronically. Typically, this involves use of computer networks, the internet and digital stored value systems. Electronic Funds Transfer (EFT) and direct deposit are examples of electronic money. It is a system that allows a person to pay for goods or services by transmitting a number from one computer to another. Like the serial numbers on real dollar bills, the digital cash numbers are unique. Each one is issued by a bank and represents a specified sum of real money. One of the key features of digital cash is that, like real cash, it is anonymous and reusable. That is, when a digital cash amount is sent from a buyer to a vendor, there is no way to

[16] http://www.webopedia.com/TERM/S/SSL.html 23.02.2007
http://www.webopedia.com/DidYouKnow/Internet/2005/ssl.asp 23.04.2007

obtain information about the buyer. This is one of the key differences between digital cash and credit card systems. Another key difference is that a digital cash certificate can be reused. To obtain such a certificate, a customer must have an account at the bank; when he purchases digital cash certificates, the money is withdrawn from his account. He transfers the certificate to the vendor to pay for a product or service, and the vendor deposits the cash number in any participating bank or retransmits it to another vendor. For large purchases, the vendor can check the validity of a cash number by contacting the issuing bank.[17]

1.4 E-BUSINESS IN THE EUROPEAN UNION

European Union believes that e-business is much more than e-commerce – buying and selling on-line. Companies are increasingly using Information and Communication Technologies (ICTs) to link their business processes and systems together:

- Internally: hooking departments together to provide better products and more responsive services more efficiently;
- With those of their suppliers, distributors and other partners, increasing efficiencies even further;
- With public authorities, reducing red tape in both public and private sectors
- With their customers, allowing them to respond more directly to market trends and sell worldwide.

E-business therefore allows new forms of partnership, and improves both the way companies work and the products and services they offer. While the resulting innovation is creating jobs and economic growth around the world, the opportunities are particularly attractive in Europe, as eBusiness allows many companies - particularly SMEs - to benefit from the Single Market for the first time. National legal systems across Europe

[17] http://en.wikipedia.org/wiki/Electronic_money 23.02.2007
http://www.webopedia.com/TERM/D/digital_cash.html 23.04.2007

therefore have to take these opportunities into account, with a European approach required on issues as diverse as taxation, copyright, consumer protection and privacy. Similarly, many of the technological and organizational challenges raised by eBusiness can best be met through European cooperation.[18]

1.4.1 eEurope 2005 Action Plan

The eEurope 2002 Action Plan, which was endorsed by the Feira European Council in June 2000, focused on connectivity, i.e. getting Europe on-line. The final report on eEurope 2002 showed that the majority of its 65 targets had been met. Nearly all business and schools were connected to the internet; the number of households connected had nearly tripled and Europe had the fastest research network in the world.[19]

The 2002 Action Plan succeeded in getting Europe online, but failed to get the European citizens to use it for creating services and jobs. Therefore a new action plan, namely The eEurope 2005 Action Plan was formed, adopted in May 2002. This action plan was mostly focused on "the widespread availability and use of broadband networks throughout the Union by 2005 and the development of Internet protocol IPv6 … and the security of networks and informtaion, eGovernment, eLearning, eHealth and eBusiness.[20]

The action plan consisted of four tools to reach its goals. Firstly, policy measures to ensure that the legislations at the national and European level are not colliding, causing difficulties among the member states. Secondly, the exhange of good practises, where one can learn from another's experience. Thirdly, monitoring the progress of achieving the goals by a benchmarking system. And lastly using an overall coordination of existing policies to create synergy between the objectives.

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[18] See eBusiness in the EU, Europe's Information Society Thematic Portal, http://ec.europa.eu/information_society/tl/ecowor/ebusiness/index_en.htm 10.01.2008

[19] See eEurope 2002 Final Report, COM(2003) 66 and eEurope 2002: Progress made in Achieving the Targets SEC(2003) 407.

[20] Barcelona European Council, Presidency Conclusions, paragraph 40, http://europa.eu.int/en/Info/eurocouncil/index.htm 10.01.2008

In order to reach these goals, the EU has proposed the following actions. The Commission aligned with the Member States would determine and monitor relevant legislations. In order to strengthen the SMEs, taking actions in the field of e-business is important. The EU Member States have decided to develop the European-wide e-skills, after having finished the analyses throughout the Europe to determine the level of internet and computer usage by the end of 2003. Again by this time, the private sector should have secured online services like transactions, payment and signatures. This would lead to a seamless and secure facility for electronic business and mobile commerce. To solve the online disputes, the Member States will establish an online disputes resolution system, working together with private sector and consumer organizations. The Commission will try to find new development areas for the European companies along with the ".eu" domain name.[21]

1.4.1.1 eSignatures and ePayments

This Directive lays down the criteria that form the basis for legal recognition of electronic signatures by focusing on certification services. These comprise the following:

- Common obligations for certification service providers in order to secure transborder recognition of signatures and certificates throughout the European Community;
- Common rules on liability to help build confidence among users, who rely on the certificates, and among service providers;
- Cooperative mechanisms to facilitate transborder recognition of signatures and certificates with third countries.

The Directive defines two new ideas:

the advanced electronic signature, which meets the following requirements:

[21]See Communication of 28 May 2002 from the Commission to the Council, the European Parliament, the Economic and Social Committee and the Committee of the Regions - eEurope 2005: An Information Society For All http://eur-lex.europa.eu/LexUriServ/LexUriServ.do?uri=COM:2002:0263:FIN:EN:PDF

- It is uniquely linked to the signatory;
- It is capable of identifying the signatory;
- It is created using means that the signatory can maintain under their sole control;
- It is linked to the data to which it relates in such a manner that any subsequent change in the data is detectable.

the qualified certificate, which must in particular include:

- An indication that it is issued as a qualified certificate;
- The identification of the certification service provider;
- the name of the signatory;
- Provision for a specific attribute of the signatory to be included if relevant, depending on the purpose for which the certificate is intended;
- Signature-verification data corresponding to signature-creation data under the control of the signatory;
- An indication of the beginning and end of the period of validity of the certificate;
- The identity code of the certificate;
- The advanced electronic signature of the issuing certification service provider.

The certificate must also be issued by a certification service provider, which must meet the specific requirements laid down in the Directive.

The main provision of the Directive states that an advanced electronic signature based on a qualified certificate satisfies the same legal requirements as a handwritten signature. It is also admissible as evidence in legal proceedings.

In addition, an electronic signature may not legally be refused simply because:

- It is in electronic form;
- It is not based on a qualified certificate;
- It is not based upon a qualified certificate issued by an accredited certification service provider;
- It is not created by a secure signature-creation device.

Member States must ensure that a certification service provider which issues a qualified certificate is liable vis-à-vis any person who reasonably relies on the certificate for:

- The accuracy of all information in the qualified certificate;
- Compliance with all requirements of the Directive in issuing the qualified certificate;
- Assurance that the holder identified in the qualified certificate held, at the time of the issuance of the certificate, the signature-creation device corresponding to the signature verification device given or identified in the certificate;
- In cases where the certification service provider generates the signature-creation device and the signature-verification device, assurance that the two devices function together in a complementary manner.

The certification service provider must not be liable for damage arising from use of a qualified certificate that exceeds the limitations placed on it.[22]

1.4.1.2 Data Protection

Directive 95/46/EC is the reference text, at European level, on the protection of personal data. It sets up a regulatory framework which seeks to strike a balance between a high level of protection for the privacy of individuals and the free movement of personal data within the European Union (EU). To do so, the Directive sets strict limits on the collection and use of personal data and demands that each Member State set up an independent national body responsible for the protection of these data.

This Directive applies to data processed by automated means (e.g. a computer database of customers) and data contained in or intended to be part of non automated filing systems (traditional paper files).

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[22] See Directive 1999/93/EC of the European Parliament and of the Council of 13 December 1999 on a Community framework for electronic signatures

It does not apply to the processing of data:

- By a natural person in the course of purely personal or household activities;
- In the course of an activity which falls outside the scope of Community law, such as operations concerning public security, defence or State security.

The Directive aims to protect the rights and freedoms of persons with respect to the processing of personal data by laying down guidelines determining when this processing is lawful. The guidelines relate to:

- The **quality** of the data: personal data must be processed fairly and lawfully, and collected for specified, explicit and legitimate purposes. They must also be accurate and, where necessary, kept up to date;
- The **legitimacy** of data processing: personal data may be processed only if the data subject has unambiguously given his/her consent or processing is necessary:
    - For the performance of a contract to which the data subject is party or;
    - For compliance with a legal obligation to which the controller is subject or;
    - In order to protect the vital interests of the data subject or;
    - For the performance of a task carried out in the public interest or;
    - For the purposes of the legitimate interests pursued by the controller;
- Special **categories** of processing: it is forbidden to process personal data revealing racial or ethnic origin, political opinions, religious or philosophical beliefs, trade-union membership, and the processing of data concerning health or sex life. This provision comes with certain qualifications concerning, for example, cases where processing is necessary to protect the vital interests of the data subject or for the purposes of preventive medicine and medical diagnosis;
- **Information** to be given to the data subject: the controller must provide the data subject from whom data are collected with certain information relating to himself/herself (the identity of the controller, the purposes of the processing, recipients of the data etc.);

- The data subject's **right of access** to data: every data subject should have the right to obtain from the controller:
    - Confirmation as to whether or not data relating to him/her are being processed and communication of the data undergoing processing;
    - The rectification, erasure or blocking of data the processing of which does not comply with the provisions of this Directive in particular, either because of the incomplete or inaccurate nature of the data, and the notification of these changes to third parties to whom the data have been disclosed.
- **Exemptions and restrictions**: the scope of the principles relating to the quality of the data, information to be given to the data subject, right of access and the publicising of processing may be restricted in order to safeguard aspects such as national security, defence, public security, the prosecution of criminal offences, an important economic or financial interest of a Member State or of the European Union or the protection of the data subject;
- **The right to object** to the processing of data: the data subject should have the right to object, on legitimate grounds, to the processing of data relating to him/her. He/she should also have the right to object, on request and free of charge, to the processing of personal data that the controller anticipates being processed for the purposes of direct marketing. He/she should finally be informed before personal data are disclosed to third parties for the purposes of direct marketing, and be expressly offered the right to object to such disclosures;
- **The confidentiality and security of processing**: any person acting under the authority of the controller or of the processor, including the processor himself, who has access to personal data must not process them except on instructions from the controller. In addition, the controller must implement appropriate measures to protect personal data against accidental or unlawful destruction or accidental loss, alteration, unauthorised disclosure or access;
- The **notification** of processing to a supervisory authority: the controller must notify the national supervisory authority before carrying out any processing operation. Prior checks to determine specific risks to the rights and freedoms of

data subjects are to be carried out by the supervisory authority following receipt of the notification. Measures are to be taken to ensure that processing operations are publicised and the supervisory authorities must keep a register of the processing operations notified.

Every person shall have the right to a judicial remedy for any breach of the rights guaranteed him by the national law applicable to the processing in question. In addition, any person who has suffered damage as a result of the unlawful processing of their personal data is entitled to receive compensation for the damage suffered.

Transfers of personal data from a Member State to a third country with an adequate level of protection are authorised. However, they may not be made to a third country which does not ensure this level of protection, except in the cases of the derogations listed. The Directive aims to encourage the drawing up of national and Community codes of conduct intended to contribute to the proper implementation of the national and Community provisions. Each Member State is to provide one or more independent public authorities responsible for monitoring the application within its territory of the provisions adopted by the Member States pursuant to the Directive.[23]

1.4.1.3 Digital Rights Management

The Conventions of Paris (protection of industrial property) and Bern (protection of literary and artistic works) form the basis of the WIPO Treaties. Subsequent treaties extended the protection offered by taking account of technical developments and new fields of interest (e.g. the information society).

The WIPO Copyright Treaty (WCT) and the WIPO Performances and Phonograms Treaty (WPPT) aim to update international protection of copyright and

[23] See European Parliament and Council Directive 95/46/EC of 24 October 1995 on the protection of individuals with regard to the processing of personal data and on the free movement of such data [Official Journal L 281 of 23.11.1995]

related rights in the Internet age, by supplementing the provisions of the Bern Convention to adapt them to the digital environment.[24]

This Directive aims to adapt legislation on copyright and related rights to technological developments and particularly to the information society. The objective is to transpose at Community level the main international obligations deriving from the two Treaties concerning copyright and related rights, adopted in December 1996 in the framework of the World Intellectual Property Organization (WIPO).

The Directive deals with three main areas: reproduction rights, the right of communication and distribution rights.

Reproduction rights

Member States are to provide for the exclusive right to authorize or prohibit direct or indirect, temporary or permanent reproduction by any means and in any form, in whole or in part:

- For authors, of the original and copies of their works,
- For performers, of fixations of their performances,
- For phonogram producers, of their phonograms,
- For the producers of the first fixation of films, in respect of the original and copies of their films,

for broadcasting organizations, of fixations of their broadcasts, whether those broadcasts are transmitted by wire or over the air, including by cable or satellite.

Right of communication

Member States are to provide authors with the exclusive right to authorise or prohibit any communication to the public of the originals and copies of their works, including the making available to the public of their works in such a way that members of the public may access them from a place and at a time individually chosen by them.

[24] See Council Decision of 16 March 2000, on the approval on behalf of the European Community of the WIPO Copyright Treaty and the WIPO Performances and Phonograms Treaty

The same applies as regards the making available to the public of protected works in such a way that members of the public may access them from a place and at a time individually chosen by them:

- For performers, of fixations of their performances,
- For phonogram producers, of their phonograms,
- For the producers of the first fixation of films, in respect of the original and copies of their films,
- For broadcasting organizations, of fixations of their broadcasts - regardless of the method of transmission.

Distribution rights

The Directive harmonizes for authors the exclusive right of distribution to the public of their works or copies thereof. This distribution right is exhausted where the first sale or other transfer of ownership in the Community of a copy is made by the rightholder or with his consent.

The Directive lays down a number of exceptions to the right of reproduction and the right of communication (Article 5).

The Member States are obliged to provide legal protection against the circumvention of any effective technological measures covering works or any other subject-matter. This legal protection also relates to "preparatory acts" such as the manufacture, import, distribution, sale or provision of services for works with limited uses. Nevertheless, for some exceptions and limitations, in the absence of voluntary measures taken by rightholders, the Member States are to ensure the implementation of an exception or limitation for those who may benefit from it. The Member States may also take such measures with regard to the exception for private use, unless reproduction for private use has already been made possible by rightholders in accordance with the economic damage test. The Member States are required to provide appropriate sanctions and remedies in respect of infringement of the Directive. All works and subject-matter covered must be protected by the Member States' copyright law or meet the criteria for protection laid down in Community law by 22 December 2002. There are amendments to Directives 92/100/EEC on rental right and lending right and 93/98/EEC harmonizing the

term of protection to the extent necessary in order to transpose into Community law the new international obligations in the field.

Commission Recommendation of 18 May 2005 on collective cross-border management of copyright and related rights for legitimate online music services [Official Journal L 276, 21.10.2005] affirms that the absence of an EU copyright license has been one of the obstacles to the development of new, Internet-based music services. So this Recommendation therefore proposes measures to improve the EU-wide issue of copyright licences for online services. These improvements are necessary because new Internet services (webcasting, on-demand music downloads, etc.) require a licence that covers their activities throughout the EU.[25]

1.4.2 i2010 Initiative

i2010 is the EU policy framework for the information society and media. It promotes the positive contribution that information and communication technologies (ICT) can make to the economy, society and personal quality of life. The i2010 strategy was launched by the European Commission in June 2005 and will be in place until 2010. It builds on the eEurope initiative, which came to an end in 2005.

The i2010 strategy has three aims:

- To create a Single European Information Space, which promotes an open and competitive internal market for information society and media services,
- To strengthen innovation and investment in ICT research,
- To support inclusion, better public services and quality of life through the use of ICT.

To achieve those aims there are various actions such as regulation, funding for research and pilot projects, promotion activities and partnerships with stakeholders.

[25] See European Parliament and Council Directive 2001/29/EC of 22 May 2001 on the harmonization of certain aspects of copyright and related rights in the information society.

Given the importance of ICT for today's economy, i2010 is a key element of the Lisbon Strategy for growth and employment.[26]

A Single European Information Space

The first objective of i2010 is to establish a Single European Information Space offering affordable and secure high-bandwidth communications, rich and diverse content and digital services. The Commission aims to address four main challenges:

- Increase the speed of broadband services in Europe;
- Encourage new services and on-line content;
- Enhance devices and platforms that "talk to one another";
- Make the internet safer from fraudsters, harmful content and technology failures.

In order to create the Single European Information Space the Commission intends to:

- Review the regulatory framework for electronic communications; this includes defining a strategy for efficient spectrum management;
- Create a consistent internal market framework for information society and media services by:
    - Modernising the legal framework for audio-visual services, starting by revising the " Television Without Frontiers " Directive (2005);
    - Making any necessary adaptations to the Community acquis affecting information society and media services (2007);
    - Promoting fast and efficient implementation of the existing and updated acquis.
- Continue to support the creation and dissemination of European content such as the eLearning and eContentplus programs and their successors;
- Define and implement a strategy for a secure European Information Society, mainly by raising awareness of the need for self-protection, being vigilant and monitoring threats, and responding rapidly and effectively to attacks and system failures;

[26] http://ec.europa.eu/information_society/eeurope/i2010/index_en.htm 10.01.2008

- Identify and promote targeted actions on interoperability, particularly digital rights management.

Innovation and investment in research

In order to boost innovation and investment in ICT research, the Commission aims to encourage world-class performance in research and innovation in ICT and close the gap with Europe's leading competitors by:

- Increasing Community ICT research support by 80% by 2010 and inviting Member States to do the same;
- Prioritising the key technology pillars of the 7th Framework Program for research and technological development (FPRD), such as technologies for knowledge, content and creativity, advanced and open communication networks, secure and dependable software, embedded systems and nanoelectronics;
- Launching research and deployment initiatives to overcome key bottlenecks such as interoperability, security and reliability, and identity management, that require both technological and organizational solutions;
- Defining complementary measures to encourage private investment in ICT research and innovation (2006);
- Making specific proposals on an "information society for all" in the Community Strategic Guidelines on Cohesion 2007-13;
- Defining e-commerce policies aimed at removing technological, organizational and legal barriers to ICT adoption with a focus on small and medium-sized enterprises (SMEs);
- Developing tools to support new patterns of work that enhance innovation in enterprises and adaptation to new skill needs.

Inclusion, better public services and quality of life

The Commission wishes to boost social, economic and territorial cohesion by establishing an inclusive European information society. It intends to promote growth and jobs in a manner that is consistent with sustainable development and that prioritises better public services and quality of life. To achieve its aim of an inclusive information society,

offering high-quality public services and improving quality of life, the Commission plans to:

- Issue policy guidance on e-accessibility and broadband coverage to make ICT systems easier to use for a larger number of people (2005);
- Propose a European initiative on e-inclusion, addressing issues such as equal opportunities, ICT skills and regional divides (2008);
- Adopt an Action Plan on e-Government as well as strategic guidelines to encourage the public services to use ICT; launch demo projects to test, at an operational scale, technological, legal and organizational solutions to bringing public services on-line;
- Launch three flagship ICT initiatives relating to quality of life: caring for people in an ageing society, safer and cleaner transport (and, in particular, the "intelligent car") and digital libraries to encourage cultural diversity.

Governance

The Commission intends to develop proposals and update the regulatory frameworks for electronic communications, and information society and media services. It also proposes using the Community's financial instruments to stimulate investment in strategic research and to overcome bottlenecks obstructing widespread ICT innovation. Lastly, it aims to support policies to address inclusion and quality of life.

Member States, through the National Reform Programs, have committed themselves to adopting information society priorities in line with the Integrated Guidelines for growth and jobs by mid October 2005. They aim to:

- Ensure rapid and thorough transposition of the new regulatory frameworks affecting digital convergence with an emphasis on open and competitive markets;
- Increase the share of ICT research in national spending to develop modern, interoperable ICT-enabled public services;
- Use investment to encourage innovation in the ICT sector;

- Adopt ambitious targets for developing the information society at national level.[27]

1.4.3 Requisite Policy Demands

e-Business developments can have implications for several policy areas. Relevant considerations in this context can be grouped around two main objectives: promoting ICT adoption and counteracting ICT-induced flaws or market failure.

Promote ICT adoption

Policies aiming at accelerating the adoption of ICT and e-business practices among companies, particularly among SMEs. This is based on the assumption that ICT is a key driver of productivity and competitiveness. This includes, for example, the following policy areas and types of initiatives:

- Innovation and technology policy: creating incentives and a favourable environment for enterprises to innovate; stimulating the development of ICT tools (e.g. for SMEs); promoting interoperability and standardisation processes (and advocating attention to the requirements of SMEs in this context);
- Education and labour market policies: ensuring an adequate supply of e-skills in the market, enhancing the managerial understanding of e-business issues in SMEs, supporting employee training and train-the-trainer measures;
- Role model of the public sector: recognising the role model of the public sector in ICT adoption, e.g. by using public e-procurement;
- Awareness raising policies: initiatives directly promoting ICT uptake, e.g. the organization of SME workshops, the collection and dissemination of best practice examples, and the facilitation of working with business advisors;
- Industrial policy: initiatives to encourage cooperation among SMEs, the formation of networks and clusters;

[27] See Communication from the Commission of 1 June 2005 to the Council, the European Parliament, the European Economic and Social Committee and the Committee of the Regions - "i2010 - A European Information Society for growth and employment" [COM (2005) 229]

Counteract ICT-induced 'flaws' or market failure

Policy interventions to counteract undesirable effects on the aggregate level from deployment of ICT in business. This includes a broad range of policy areas, for example competition policy (with the objective of counteracting market concentration).

The following table summarizes policy implications from e-business developments that have been identified in e-Business W@tch sector studies in 2006. While some of the goals and types of initiatives proposed are relevant for specific sectors only, others are valid for most sectors (e.g. promoting interoperability).

Table 2: Policy implications arising from e-business[28]

Policy objective	Suggested actions	Possible initiators
Improve the skills base in SMEs and ensure supply of e-skills in the market	* Promote the managerial understanding of e-business in small enterprises, recognising that only about 15-30% of SMEs actually employ ICT practitioners * Help SMEs to better understand organisational aspects of e-business, not just to focus on technology * Provide unbiased information on how to assess cost-benefits of e-business, e.g. by benchmarking ICT solutions for SMEs * Counteract e-business skill-shortages in the market, e.g. by promoting multi-stakeholder partnerships in ICT training programmes * Facilitate knowledge transfer between research centres and enterprises * Provide incentives for ICT training of employees * Create opportunities for dialogue between SMEs and ICT service providers	* Business support agencies * Competence centres * Chambers of commerce * Other intermediaries * Member States (via their e-business programmes)
Promote inter-operability and standardisation within and between sectors	* Launch projects to improve standards for e-business processes, with a particular focus on SME requirements * Support research projects on interoperable solutions * Promote relevant industry initiatives * Encourage adequate representation of SMEs in standardisation processes * Assess the suitability of industry-specific standards for cross-sector interoperability	* International/ national standardisation bodies * European Commission * Member States * Industry associations
Encourage networking and cooperation among SMEs	* Encourage initiatives for networking and cooperation, e.g. through competence centres * Stimulate the participation of SMEs in business networks and clusters	* Sector associations * Business intermediaries * Competence centres
Create a favourable regulatory environment	* Address legal uncertainties with regard to cross-border e-invoicing * Facilitate compliance with quality and safety issues (in particular in the food industry)	* European Commission * Member States
Recognise the role model of the public sector	* Use public e-procurement and e-invoicing to stimulate the adoption of these applications among companies which are suppliers to the public sector	* European Commission * Member States * Regional governments
Innovation and technology innovation	* Create incentives for innovation, recognising the specific role of ICT in this context * Promote the development of "SME friendly" e-business applications * Enhance security and knowledge protection in e-business transactions * Promote the exchange of companies' experience with emerging technologies, such as RFID	* European Commission * Member States * Regional governments * Business intermediaries
Competition policy	* Ensure competition in the ICT industry in order to enhance the development of affordable ICT solutions for SMEs * Monitor implications of e-business on concentration, e.g. among tourism intermediaries	* European Commission

[28] European Commission, DG Enterprise & Industry: e-Business Watch, The European e-Business Report 2006/2007 Edition, January 2007.

The European Commission launched e-Business W@tch in late 2001 to monitor the adoption, development and impact of electronic business practices in different sectors of the economy in the European Union and beyond. The initiative is rooted in the eEurope Action Plans of 2002 and 2005. The 2005 Action Plan set the goal "to promote take-up of e-business with the aim of increasing the competitiveness of European enterprises and raising productivity and growth through investment in information and communication technologies, human resources (notably e-skills) and new business models". e-Business W@tch has been an important instrument for the European Commission to assess the developments and progress in this field.

1.4.4. The e-Business Scoreboard 2006

The e-Business Scoreboard approach was developed by e-Business W@tch in 2004. It is a compound index that condenses data on ICT adoption and e-business activity, enabling comparisons across different sectors, countries or size-bands. An organization should be viewed from four perspectives, and metrics (and targets) are to be defined for each perspective. The e-Business Scoreboard looks at ICT use by enterprises from four (inter-related) perspectives. The Scoreboard consists of 16 component indicators, which represent the metrics for these perspectives, which can be found in Figure 2. Component indicators (CI) can be aggregated on several levels. The e-Business Scoreboard take into account the percentages (diffusion rates) from all sectors (size-bands, …) and shows how a specific sector (size-band, …) differs from the all-sector-average.

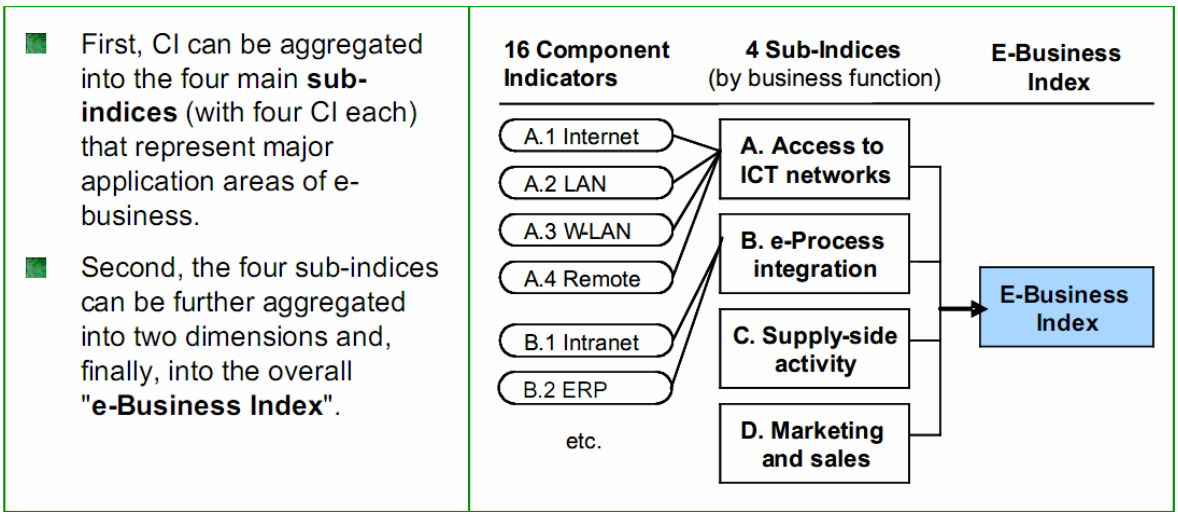

Figure 2: Component Indicators (CI)

Indexes simplify multi-dimensional concepts. To correctly assess the validity and shortcomings of the Scoreboard and its overall index, the following notes should be taken into account:

- Weighting: Results are influenced by the selection of the underlying weighting scheme for component indicators. If employment-weighted figures are used,

e-business activity in large firms is emphasized. If indicators are weighted by the number of enterprises (irrespective of their size), the situation in smaller firms is emphasized.

- Component indicators: The selection of component indicators may have a bias towards manufacturing activities, as some indicators can be more relevant for manufacturing than for service sectors (e.g. ERP use).
- Relative comparison: The Scoreboard results do not represent absolute measures of e-business activity, but depend on the respective set of sectors (or countries, ...) that are compared to each other, because figures express standard deviations from the average of the respective set.

1.5 E-BUSINESS BENCHMARKING

Promoting the development of electronic commerce is one of the key factors in the effort to make the European Union the most competitive and dynamic knowledge-based economy in the world. Directive 2000/31/EC created the basic legal framework for electronic commerce in the Internal Market. The Directive removes obstacles to cross-border online services in the European Union and provides legal certainty to business and citizens alike. The work of the European Commission in the context of this legal framework consists of ensuring:

- That information society services benefit from Internal Market principles of free movement of services and freedom of establishment in an enlarged European Union.
- Monitoring and follow-up of Directive 2000/31/EC, including regular reports on its application.
- That both the existing and the new Member States correctly implement and apply the legal framework for electronic commerce as provided by Directive 2000/31/EC.

- Appropriate follow-up to complaints concerning information society services. general monitoring of legal, technical and economic developments of electronic commerce and the internet.[29]

1.5.1 The 2005 European E-Business Readiness Index

New business models and new ways of working are transforming the industrial world into a knowledge-economy. The productive use of information and communication technologies (ICT) to support both internal and external business processes -what is usually described by the term "electronic business" (e-business)- is widely acknowledged as an important catalyst in this process. But only if accompanied and supported by organizational changes, will ICT help enterprises to increase their efficiency and productivity, thus leading to an improvement of European competitiveness. Therefore, e-business has to be considered as a critical factor in achieving the Lisbon Strategy goals.

Information and communication technologies (ICT) are powerful drivers for economy-wide productivity, growth and jobs. The ICT sector contributes to a quarter of the EU's GDP growth and investment.

To assist policy-makers in Europe to prepare for adequate policy responses in support of eEurope and i2010 and to monitor their effectiveness, clear targets should be set, based upon a sound analysis of the real problems and challenges. The eEurope 2005 benchmarking indicators, adopted by the European Council in December 2002, included two specific indicators to measure the development of e-business in Europe. The first is "percentage of enterprises' total turnover form e-commerce" and the second is a composite indicator (index) that has been developed to reflect the companies' level of readiness to engage in the more complex e-business environment. Composite indicators are used to describe complex issues, which cannot be measured by a single indicator.

This index bringing together the adoption of ICT and its usage for various business processes including commercial transactions. Directorate-General for Enterprise and Industry has supported since 2001 EUROSTAT and National Statistical Institutes for

[29] See Directive 2000/31/EC of the European Commission

development of pan-European enterprise surveys on the use of ICT and e-business. The data collected by these yearly surveys was also used to develop measures on the e-business and ICT adoption and ICT uptake. The data collection was voluntary in the beginning but has been designated a legal base in 2004 (Regulation 808/2004) and covers from 2006 onwards whole European Union. Additionally, EEA countries and candidate countries may participate to surveys.

The "E-Business Readiness Index" (EBI) is a composite indicator with two sub-measures: ICT adoption by enterprises and ICT Use by enterprises. Both of these two sub-measures consist each of 6 indicators, which measure various aspects of ICT adoption and ICT use. The raw data for the basic indicators are expressed as percentages: 11 indicators are percentages of enterprises and one indicator (a4) is percentage of employees. Joint Research Centre (JRC) of the European Commission has developed expertise on composite indicators and has tested and analysed yearly the E-Business Readiness Index.

The index has proven to be a useful tool for gauging country progress and a useful mechanism for benchmarking e-business adoption and use by firms against other comparative business. The higher a country's e-business readiness score, the better its position to adopt and use ICT.

1.5.1.1 Adoption of ICT – Indicators

Table 3: 2005 e-business readiness index: list of basic indicators for adoption of ICT

Code	Indicators
A1	Percentage of enterprises that use Internet
A2.	Percentage of enterprises that have web/home page
A3.	Percentage of enterprises that use at least two security facilities at the time of the survey
A4	Percentage of total number of persons employed using computer with their normal work routine
A5	Percentage of enterprises having broadband connection to internet
A6	Percentage of enterprises with LAN and using Intranet and Extranet

1.5.1.2 Use of ICT – Indicators

Table 4: 2005 e-business readiness Index: list of basic indicators for use of ICT[30]

Code	Indicators
B1	Percentage of enterprises that have purchased products / services via the internet, EDI or any other computer mediated network where these are >1 % of total purchases
B2.	Percentage of enterprises that have received orders via the internet, EDI or nay other computer mediated network where these are >1 % of total turnover
B3.	Percentage of enterprises whose IT systems for managing orders or purchases are linked automatically with other internal IT systems
B4	Percentage of enterprises whose IT systems are linked automatically to IT systems of suppliers or customers outside their enterprise group
B5	Percentage of enterprises with Internet access using the internet for banking and financial services
B6	Percentage of enterprises that have sold products to other enterprises via a presence on specialised internet market places

[30] See "The 2005 European e-Business Readiness Index", European Commission, DG Joint Research Centre, Institute for the Protection and Security of the Citizen (IPSC), Econometrics and statistical support, November 7, 2005

For more information: OECD and JRC have together prepared a guide for building Composite Indicators. (Handbook on Constructing Composite Indicators: Methodology and User Guide. Authors: Nardo, M. M. Saisana, A. Saltelli and S. Tarantola (EC/JRC), A. Hoffman and E. Giovannini (OECD), OECD Statistics Working Paper JT00188147, STD/DOC(2005)3.
http://www.olis.oecd.org/olis/2005doc.nsf/LinkTo/std-doc(2005)3)

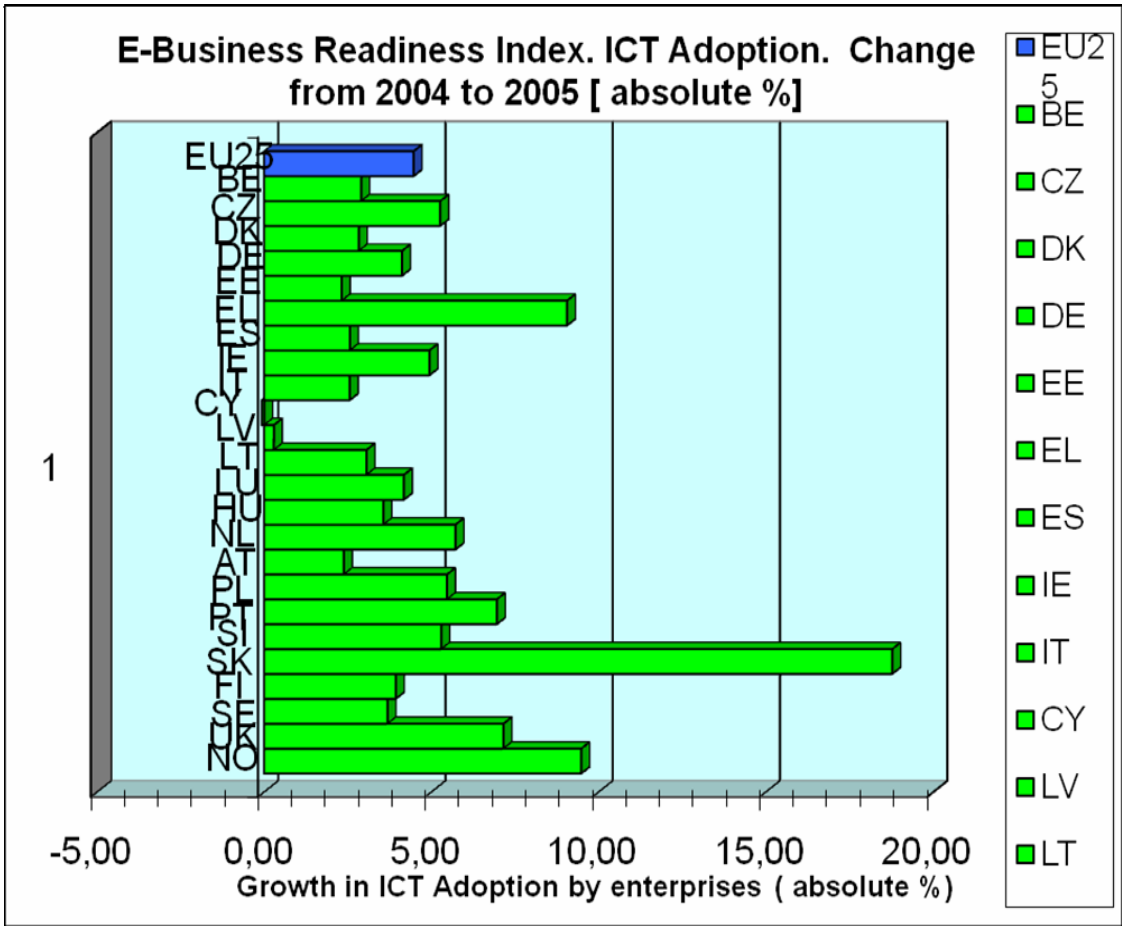

Figure 3: E-Business Readiness Index - Year-to-year trends. Changes from 2004 to 2005. ICT Adoption. Budget allocation weighted index (eBSN)

Data source: EUROSTAT 2003-2006, latest update 2006-12-11. Index analysis and testing by Joint Research Centre of European Commission

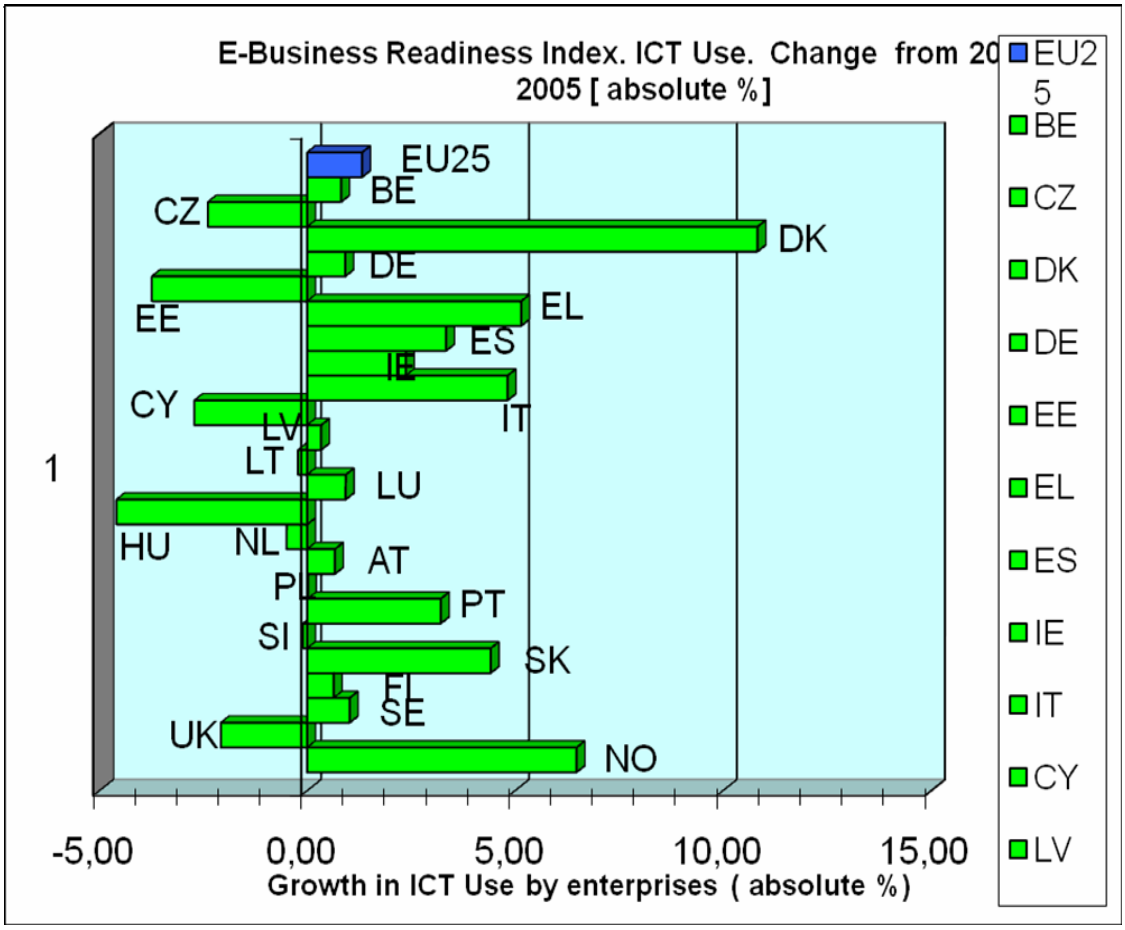

Figure 4: E-Business Readiness Index - Year-to-year trends. Changes from 2004 to 2005. ICT Use. Budget allocation - weighted index

Data Source: EUROSTAT 2003-2006, latest update 2006-12-11. Index analysis and testing by Joint Research Centre of European Commission

1.5.2 Benchmarking i2010

A Communication on the Commission's new i2010 strategy was adopted on June 1. i2010 – European Information Society 2010 aims to exploit opportunities for economic growth and jobs in Europe by promoting an open and competitive digital economy. It is a key element of the renewed Lisbon Strategy and offers a comprehensive strategy for the ICT and media sector. The Commission will monitor progress through an

annual European Information Society Progress Report. The report will assess developments and impact and will indicate where additional measures may be needed.

Given the tight link between i2010 and the Lisbon process, it is important to establish a correspondence between benchmarking and i2010 indicators and the integrated guidelines relevant to ICT:

Guideline 7. Increase and improve investments in research and development, in particular in the private sector, with a view to establishing a European area of knowledge.

Guideline 8. Facilitate all forms of innovation, Member States should facilitate the uptake of ICT and related changes in the organization of work in the economy.

Guideline 9. Facilitate the spread and effective use of ICT and build a fully inclusive information society

Guideline 16. Expand, improve and connect European infrastructures and complete priority cross-border projects

Guideline 21. Promote flexibility combined with employment security and reduce labour market segmentation through: …geographic mobility; the promotion and dissemination of innovative and adaptable forms of work organization.

Guideline 24. Adapt education and training systems in response to new skill requirements through: better identification of occupational needs and key competences, and anticipation of future skill requirements.

Growth and Investment in the ICT sector

Convergence should result in higher growth in the ICT sector which makes a major contribution to the EU economy both directly and indirectly. In terms of direct contribution, EU25 data show that the ICT sector represents just over 5% of EU GDP and has systematically grown faster than the rest of the economy. Investment by the sector will give more precise indications on its contribution to innovation and readiness to develop the technologies which will bring about convergence. The impact of these developments on employment is hard to predict, but should be monitored in the Lisbon perspective.

Section 8: Indicators on growth of ICT sector

- Share of the ICT sector in the economy measured as proportion of GDP and of total employment.
- Growth of the ICT sector measured as % change of value added at current and constant prices.

The Commission will explore if investment in the ICT sector can be measured annually and if the data can also be extended to include the Content sector.[31]

Adoption of ICT by businesses

ICT uptake by businesses has so far focused mainly on e-readiness, connectivity, and e-Commerce. While these core indicators will be kept, the scope of the analysis will be increased to look in more detail at the impact of internet related technologies on business processes and capture the wider adoption of advanced e-Business solutions. Markets are offering innovative solutions for business with a wide range of options for networking in enterprises: use of web services, emergence of grid and utility computing, development of mobile applications for businesses. Such developments provide input to assess re-organization of business processes and efficiency gains derived from the use of ICT.

ICT uptake and e-Business will be monitored through a basket of core indicators that will be collected either annually or every second year in the Enterprise Survey. These core indicators have been chosen for their policy relevance, reliability and their ability to capture likely substantial changes in business decisions in the next five years. Core indicators will measure basic connectivity, ICT adoption, e-Commerce and some selected aspects of e-Business: most of them come from the existing Community Survey indicators to ensure continuity.

[31] EUROSTAT Structural Business Survey (SBS), EUROSTAT National Accounts and the 60 industry database (University of Groningen). The sector is defined by NACE classification as proposed in OECD WP (DSTI/ICCP/ISS(2002)2.

Section 10: Indicators on basic connectivity and ICT adoption

- Percentage of persons employed using computers connected to the Internet, in their normal work routine [eEurope indicator B.1]
- Percentage of enterprises with a LAN and using an Intranet or Extranet. [eEurope indicator H a6/b4]
- Percentage of enterprises with broadband access (also listed in Section 2 on broadband take up). [eEurope indicator J.2/H.a5]
- Percentage of enterprises using open source operating systems [new indicator]

Source: Community Enterprise Surveys

The indicators measure to what extent enterprises are connected (B1 and J.2/H.a5), whether they use this connection for internal purpose or to liaise with the business world. They represent a significant step beyond the simple internet connectivity or web presence which is already close to saturation in EU15.

e-Commerce

Core e-commerce indicators should be able to capture the growth of activity which appears to be recovering from the slump that followed the burst of the internet bubble. To track the importance of e-commerce for the businesses, a first measure is given by the numbers of enterprises selling and purchasing online. The 1% threshold already contained in the previous benchmarking exercise should be kept in order to avoid an overestimation of e-commerce. The community survey is the only source providing an estimate of turnover from e-commerce, therefore a special effort is needed to get the best estimate of the phenomenon. In the light of this a broader definition of e-commerce should be used, including not only transactions made on the internet, but also those performed by other computer mediated networks.[32]

[32] Transactions made on networks other than the internet (like private networks used together with the EDI standards) should be included, in order not to underestimate the turnover from e-commerce, even if the results of the EUROSTAT survey on the relevance of indicators for benchmarking seem to identify this item as a negative priority.

e-Business

Indicators:

- Integration of internal business processes: percentage of enterprises whose internal business processes are automatically linked [eEurope indicator H-b3 - revised]
- Integration with suppliers and/or customers: percentage of enterprises whose business processes are automatically linked to those of their suppliers and/or their customers [eEurope indicator H-b4 - revised]
- Use of software solutions for improving relations with customers: % of enterprises using software solutions, like CRM (customer relation management), oriented at improving relations with clients [new indicator]
- Percentage of enterprises sending and/or receiving e-invoices [new indicator]
- Percentage of enterprises selling on the internet and offering the capability of secure transactions: percentage of enterprises that make sales on the internet and whose online sales system offers the capability of secure transactions [new indicator]
- Percentage of enterprises using advanced e-signatures in the relations with their suppliers and/or their clients [new indicator]

Source: Community Enterprise Survey

The rationale for the above indicators is that e-Business consists of the empowerment of business processes in enterprises by using IT solutions and in particular those related to web-based technologies; the section is coherent with this definition by focusing on the following:

- The integration of internal business processes;
- The integration on both sides of the value chain in the streamlining of external business processes;
- The use of CRM software as one of the main instruments of a broader business strategy aimed at building more effective relations with clients.

- The exchange of e-invoices with business partners as a tool for speeding up transactions and as a result of external business integrations;

In addition to that, it is important to look at the adoption of solutions and technology that increases the security of transactions as lack of trust is a major obstacle to e-business development. Two aspects will be monitored. Firstly, the percentage of enterprises offering systems that allow secure transactions and secondly, the percentage of enterprises using advanced e-signature in their relations with suppliers and/or customers.

Indicators on use of e-Government services by businesses will be kept as a key indicator under the third policy priority.[33]

1.5.3 Community Survey 2008

General outline of the survey "Community Survey On ICT Usage And E-Commerce In Enterprises 2008" has been prepared by EUROSTAT as a model (in the below Figure 5), which has the sampling unit as enterprise and survey period of first quarter of 2008. The enterprise size is determined as enterprises with 10 or more persons employed. The geographic scope is enterprises located in any part of the territory of the Country, the layout of the questionnaire to be defined by the country.

[33] i2010 Benchmarking Framework, i2010 High Level Group, Issue No:1, April 2006. This paper outlines the framework containing the list of 2010 benchmarking indicators for 2006-2010.

COMMUNITY SURVEY ON ICT USAGE AND E-COMMERCE IN ENTERPRISES 2008 Model Questionnaire (Version 3.3 of 16 April 2007)			
(Questions relating to the i2010 Benchmarking Indicators are marked with an asterisk *)			
Module A: Use of computers and computer networks			
A1.	**Did your enterprise use computers, in January 2008?** (Filter question)	Yes	No --> Go to X1
A2.	**How many persons employed used computers at least once a week, in January 2008? - *Optional*** If you can't provide this value, **Please indicate an estimate of the percentage of the number of persons employed who used computers at least once a week, in January 2008. - *Optional***	Number ------ %	
A3.*	**Was your enterprise using an internal computer network (e.g. LAN - Local Area Network) in January 2008?** (Filter question)	Yes	No --> Go to A5
A4.*	**Did your enterprise use wireless access within its internal computer network (e.g. wireless LAN), in January 2008?**	Yes	No
A5.	**Did your enterprise have in use an internal home page (Intranet), in January 2008?** (Filter question)	Yes	No --> Go to A7
A6.	**In January 2008, was your enterprise using such systems for sharing the following information? *Optional***	Yes	No
	a) The general policy or strategy of the enterprise		
	b) Internal company newsletters or daily news		
	c) Day-to-day / working documents (e.g. for meeting)		
	d) Manuals, guides or training material		
	e) Product or services catalogues		
A7.	**In January 2008, did your enterprise use dedicated applications for employees to access human resources services (e.g. see open job positions, request annual leave, view or download payslips, or other services)?**	Yes	No
A8.*	**In January 2008, did your enterprise have an extranet (a website or an extension of the Intranet with access restricted to business partners)?**	Yes	No
A9.*	**Did your enterprise have in use, in January 2008, third party free or open source operating systems, such as Linux ? (i.e. with its source code available, no copyright cost, and the possibility to modify and/or (re)distribute it)**	Yes	No

Module B: Access and use of the Internet (Scope: enterprises with Computers)			
B1.	**Did your enterprise have access to the Internet, in January 2008?** (Filter question)	Yes	No --> Go to C1
B2.*	**How many persons employed used computers with access to the World Wide Web at least once a week, in January 2008?** If you can't provide this value, **Please indicate an estimate of the percentage of the number of persons employed who used computers with access to the World Wide Web at least once a week, during January 2008.**	Number ------ %	
B3.*	**Did your enterprise have the following types of external connection to the Internet, in January 2008?**	Yes	No
	a) Traditional Modem (dial-up access over normal telephone line) or ISDN connection		
	b) DSL (xDSL, ADSL, SDSL etc) connection		
	c) Other fixed internet connection (e.g. cable, leased line (e.g. E1 or E3 at level 1 and ATM at level 2), Frame Relay, Metro-Ethernet, PLC - Powerline communication, etc.)		
	d) Mobile connection (e.g. e.g. analogue mobile phone, GSM, GPRS, UMTS, EDGE, CDMA2000 1xEVDO)		
B4.	**Did your enterprise use the Internet for the following purposes, in January 2008? (as consumer of Internet services)**	Yes	No
	a) Banking and financial services		
	b) Training and education		
B5.*	**Did your enterprise use the Internet for interaction with public authorities, during 2007?** (Filter question)	Yes	No --> Go to B7
B6.*	**Did your enterprise use the Internet to interact with public authorities in the following ways, during 2007?**	Yes	No
	a) For obtaining information		
	b) For obtaining forms, e.g. tax forms		
	c) For returning filled in forms, e.g. provision of statistical information to public authorities		
	d) For treating an administrative procedure (e.g. declaration, registration, authorisation request) completely electronically without the need for additional paper work (including payment if required)		
	e) For submitting a proposal in a public electronic tender system (e-procurement) (in the system itself and not by email)		
B7.	**Did your enterprise have a Website or Home Page, in January 2008?** (Filter question)	Yes	No --> Go to B9
B8.	**Did the Web Site provide the following facilities for your enterprise, in January 2008?**	Yes	No
	a) Product catalogues or price lists		
	b) Possibility for visitors to customise or design the products		
	c) Online ordering or reservation or booking, e.g. shopping cart		
	d) Online payment		
	e) Personalised content in the website for regular/repeated visitors		
	f) Advertisement of open job positions or online job application		
B9.*	**Was your enterprise, in January 2008, using a digital signature in any message sent, i.e. using encryption methods that assure the authenticity and integrity of the message (uniquely linked to and capable of the signatory and where any subsequent change to the message is identifying detectable)?**	Yes	No

Module C: Automated Data Exchange (Scope: enterprises with Computers)				
Automated data exchange between the enterprise and other ICT systems outside the enterprise means: – exchange of messages (e.g. orders, invoices, payment transactions or description of goods) – via the internet or other computer networks – in an agreed format which allows its automatic processing (e.g. XML, EDIFACT etc.) – without the individual message being manually typed.				
C1.*	**In January 2008, was your enterprise using such automated data exchange?** (Filter question)	Yes	No --> Go to C5	
C2.	**Was automated data exchange used for the following purposes?**	Yes	No	
	* a) Sending orders to suppliers			
	* b) Receiving e-invoices			
	* c) Receiving orders from customers			
	* d) Sending e-invoices			
	* e) Sending or receiving product information (e.g. catalogues, price lists, etc.)			
	* f) Sending or receiving transport documents (e.g. consignment notes)			
	g) Sending payment instructions to financial institutions			
	h) Sending or receiving data to/from public authorities (e.g. tax returns, statistical data, [national examples], etc.)			
C3.	**Were the following formats used for the automated data exchange? *Optional***	Yes	No	Don't know
	a) EDIFACT or similar standards (e.g. EANCOM, ANSI X12)			
	b) XML based standards, for example ebXML, RosettaNet, UBL, papiNET			
	c) Proprietary standards agreed between you and other organisations			
Go to question D1				
C4.	**Were the following issues reasons for the enterprise not to use automated data exchange? *Optional***	Yes	No	Don't know
	a) No interest in using it, because it isn't relevant for the business			
	b) Lack of expertise in-house for its implementation			
	c) Return on the investment too low or not clear			
	d) Lack of appropriate software for the specific sector/size of the enterprise			
	e) Difficulty with agreeing common standards with business partners			
	f) Uncertainty of the legal status of the messages exchanged			

Module D: Sharing electronically information on the Supply Chain Management (Scope: enterprises with Computers)			
Sharing electronically information on the supply chain management means: – exchanging all types of information with suppliers and/or customers in order to coordinate the availability and delivery of products or services to the final consumer; – including information on demand forecasts, inventories, production, distribution or product development; – via computer networks, not only the Internet but also other connections between computers of different enterprises. – it can be from you to your suppliers/customers or the other way around. This information may be exchanged via websites or via automated data exchange (recall definition in module C), but it excludes normal e-mail messages manually written.			
D1.	**In January 2008, was your enterprise regularly sharing electronically information on the supply chain management with your suppliers or customers?** (Filter question)	Yes	No --> Go to E1
D2.	**Was your enterprise regularly sharing electronically the following information with its <u>suppliers</u>, in January 2008?**	Yes	No
	a) Inventory levels, production plans or demand forecasts		
	Optionally, the 3 items may be collected separately:		
	a1) Demand forecasts		
	a2) Inventory levels		

	a3) Production plans		
	b) Progress of deliveries (i.e. distribution of raw materials or finished products)		
D3.	**Was your enterprise regularly sharing electronically the following information with its <u>customers</u>, in January 2008?**	Yes	No
	a) Inventory levels, production plans or demand forecasts		
	Optionally, the 3 items may be collected separately:		
	a1) Demand forecasts		
	a2) Inventory levels		
	a3) Production plans		
	b) Progress of deliveries (i.e. distribution of raw materials or finished products)		
D4.	**Were the following methods used for the electronic exchange of this information, in January 2008?**	Yes	No
	a) Websites (yours, those of your business partners or web portals)		
	b) Automated data exchange (XML, EDIFACT, etc.)		

Module E: Automatic share of information within the enterprise (Scope: enterprises with Computers)				
Sharing information electronically and automatically between different functions of the enterprise means any of the following: – Using one single software application to support the different functions of the enterprise; – Data linking between the software applications that support the different functions of the enterprise – Using a common database or data warehouse accessed by the software applications that support the different functions of the enterprise; – Automated data exchange between different software systems (recall definition in module C);				
E1.*	**In January 2008, when your enterprise received a sales order (either electronically or not), was the relevant information about it shared electronically and automatically with the software used for the following functions?**	Yes	No	
	a) Your management of inventory levels			
	b) Your accounting			
	c) Your production or services management			
	d) Your distribution management			
E2.*	**In January 2008, when your enterprise sent a purchase order (either electronically or not), was the relevant information about it shared electronically and automatically with the software used for the following functions?**	Yes	No	
	a) Your management of inventory levels			
	b) Your accounting			
E3.*	**In January 2008, did your enterprise have in use an ERP software package to share information on sales and/or purchases with other internal functional areas (for example, finance, planning, marketing, etc.)?**		No	Don't know
E4.*	**In January 2008, did your enterprise have in use any software application for managing information about clients (so called CRM) that allows it to:**	Yes	No	
	a) Capture, store and make available to other business functions the information about its clients?			
	b) Make analysis of the information about clients for marketing purposes (setting prices, make sales promotion, choose distribution channels, etc.)?			

Module F: e-Commerce (Scope: enterprises with Computers)			
e-Commerce means: - the placement of orders, where an order is a commitment to purchase goods or services, - via computer networks, not only the Internet but also other connections between computers of different enterprises, - where payment and delivery does not have necessarily to be done via computer networks. e-Commerce may be done via websites or via automated data exchange between enterprises, but it excludes normal e-mail messages that are written individually by hand.			
Orders received via computer networks (Sales)			
F1.*	**Did your enterprise receive orders for products or services via computer networks (excluding manually typed e-mails), during 2007?** (Filter question)	Yes	No --> Go to F5
F2.*	**Please state the value of the turnover resulted from orders received electronically (in monetary terms, excluding VAT), in 2007.** If you can't provide this value, **Please indicate an estimate of the percentage of the total turnover resulted from orders received electronically, in 2007.**	National Currency ------ ------ %	
F3.*	**Please indicate what percentage represented orders received via each one of the following ways, out of total turnover, in 2007.** ***Optional***		
	a) via a website	'------' %	
	b) via automated data exchange (XML, EDIFACT, etc.) over the internet	'------' %	
	c) via automated data exchange (XML, EDIFACT, etc.) over other computer networks	'------' %	
F4.*	**Was your enterprise using a secure protocol, such as SSL and TLS, for the reception of orders via Internet, in January 2008?**	Yes	No
Orders placed via computer networks (Purchases)			
F5.*	**Did your enterprise send orders for products or services via computer networks, during 2007 (excluding manually typed e-mails)?** (Filter question)	Yes	No --> Go to G1
F6.*	**Please indicate for 2007 the percentage of orders that were sent electronically in relation to the total purchases' value (in monetary terms, excluding VAT).** Alternative Question:	Less than 1% 1% or more and less than 5% 5% or more and less than 10% 10% or more and less than 25% 25% or more	
	Please state the value of the purchases resulted from orders that were placed electronically (in monetary terms, excluding VAT), in 2007. If you can't provide this value, **Please indicate an estimate of the percentage of the total purchases that resulted from orders placed electronically, in 2007.**	National Currency ------ ------ %	

Module G: Perceived benefits of the use of ICT (Scope: enterprises with Computers)					
The **implementation of an ICT project** refers to the introduction of a new or updated ICT (e.g. a new/updated software application or a new/updated hardware) or a change in the use of an existing ICT. **Examples** of ICT projects are: a new or a restructured website, a new internal homepage, the starting of using automated data exchange or the starting of receiving orders via computer networks.					
G1.	**In January 2008, to what degree have ICT projects implemented in the last 2 years caused improvements in the following areas, compared to the previous task handling?** If your enterprise has not had any ICT projects, please tick all boxes 'not applicable'. ***Optional***	Minor / None	Moderate	Significant	Don't know / Not applicable
	a) Reorganisation and simplification of work routines				
	b) Release of resources				
	c) Higher earnings for the enterprise				
	d) Development of new products and services				

Module X: Background information (X1-X5) available in some countries from SBS and thus not to be included; latest available information should be provided		
X1.	**Main economic activity of the enterprise, during 2007**	
X2.	**Average number of persons employed, during 2007**	
X3.	**Total purchases of goods and services (in value terms, excluding VAT), for 2007**	
X4.	**Total turnover (in value terms, excluding VAT), for 2007**	
X5.	**Location (Convergence/ non-Convergence region), in 2007**	

Figure 5: EUROSTAT model questionnaire for the Community Survey on ICT Usage and e-Commerce in Enterprises - 2008[34]

[34] EUROSTAT model for a Community Survey on ICT Usage and e-Commerce in Enterprises 2008, (Model Questionnaire Version 3.3), EUROSTAT, reached on 19.05.2008 http://ec.europa.eu/enterprise/ict/policy/ebi/2008-ict-entr-survey-model-questionnaire-v-3-3-2007-04-16.pdf

Table 5: Component indicators of the e-Business Scoreboard 2006

(Definitions for indicators weighted by employment)[35]

A. ICT infrastructure and basic connectivity		
A.1	**Internet** connectivity	the percentage of employees working in enterprises that are connected to the internet, with a supplementary indicator for the type of internet connection in terms of bandwidth. Enterprises that are connected with broadband (via DSL, cable, direct fibre or wireless broadband) are computed with a factor of 1.0, enterprises connected via analogue dial-up modem or ISDN with a factor of 0.5. The maximum value of 100 would be returned if all employees work in enterprises with broadband connections.
A.2	Use of **LAN**	the percentage of employees from a sector working in enterprises that have connected computers with a Local Area Network (LAN)
A.3	Use of a **Wireless LAN**	the percentage of employees working in enterprises which use a Wireless LAN.
A.4	**Remote access** to the company's computer network	the percentage of employees from a sector working in enterprises where it is possible to access data from the company's computer system from a remote location.
B. Internal business process automation		
B.1	Use of an intranet	the percentage of employees working in enterprises that use an intranet.
B.2	Use of an **ERP** system	the percentage of employees working in enterprises that have implemented an ERP (enterprise resource planning) system.
B.3	Use of online technology to **track** working hours and/or production time	the percentage of employees working in enterprises that use online technologies (other than e-mail) to track working hours and/or production times.
B.4	Companies sending or receiving **e-invoices**	the percentage of employees working in enterprises that send and/or receive e-invoices.
C. Procurement and supply chain integration		
C.1	Companies placing >5% of their **orders to suppliers online**	the percentage of employees working in enterprises saying that they place orders to suppliers online on the web or via other computer mediated networks, for example via EDI based connections to their suppliers, and that these online orders account for at least 5% of their total orders.
C.2	Use of **specific ICT** solutions for e-procurement	the percentage of employees working in enterprises that use specific IT solutions to support the selection of their suppliers and/or procurement processes.
C.3	Companies **linking their ICT system with suppliers**	the percentage of employees that work in enterprises whose ICT system is linked with those of suppliers.
C.4	Companies managing **capacity and inventory online**	the percentage of employees working in enterprises that that use technologies to manage capacity and inventory online.
D. Marketing and sales processes		
D.1	Use of **CRM** software systems	the percentage of employees working in enterprises that use a CRM (customer relationship management) software to organise data about their customers electronically.
D.2	Companies receiving >5% of **orders from customers online**	the percentage of employees working in enterprises saying that they accept orders from customers online on the web or via other computer-mediated networks, and that these online orders account for at least 5% of their total orders received.
D.3	Use of **specific ICT** solutions to support marketing and sales processes	the percentage of employees working in enterprises that uses specific IT solutions to support marketing and sales processes.
D.4	Companies **linking their ICT system with customer**	the percentage of employees that work in enterprises whose ICT system is linked with those of customers.

[35] See "The European e-Business Report 2006/2007 Edition, January 2007." A.g.e

2. E-TRANSFORMATION IN TURKEY

2.1 HISTORY

Initiated in 1998, the Internet tax project of the Ministry of Finance 'VEDOP' is one of the first eGovernment projects. VEDOP started as a country-level automation project for tax offices, by the Ministry of Finance.

The central population management system 'MERNIS' is initiated in 1998. The data entry for approximately 120 million persons is completed in 1999 and software development in 2000. Implementation starts in the same year, where every Turkish citizen was given a unique 11-digit ID number.

In December 2002, the government initiates the Urgent Action Plan to remedy long lasting economic problems and to improve social and economic welfare in the country. One of the basic components of this plan is the "e-Transformation Turkey Project", aiming to move Turkey to the Information Society. High level responsibility for all aspects of the project belongs to one of the Deputy Prime Ministers designated as the e-Minister and coordination to the State Planning Organization (SPO).[36]

2.1.1 E-Transformation Turkey Project - Short Term Action Plan (2003-2004)

The government took power in December 2002, and introduced the Urgent Action Plan (UAP) to help solve the problems on the most needed areas of interest. This Plan takes place in the core of 58th and 59th Governments' Program and the first implementation period has been completed in December 2003. As a part of this Urgent Action Plan's Public Management Reform Section, e-Transformation Turkey Project was declared as a high-priority project. e-Transformation Turkey Project aims to foster the evolution and to coordinate information society activities with a coordination unit established solely for this aim. To clarify the objectives and principles about the project, a

[36] "eGovernment Factsheet – Turkey – History", http://www.epractice.eu/document/3525 , 19.01.2008

Prime Minister's Circular, dated February 27, 2003 has been issued. According to this Circular, the objectives of e-Transformation Project are as follows:

- Policies, laws, and regulations regarding ICT will be re-examined and changed if necessary, with respect to the EU acquis; eEurope+ Action Plan, initiated for the candidate countries, will be adapted to Turkey.
- Mechanisms that facilitate the participation of citizens to decision-making process in the public domain via using ICT will be developed.
- Transparency and accountability for public management will be enhanced.
- Through increased usage of ICT, good governance principles will be put in place in government services.
- Spreading the usage of ICT.
- Public IT projects will be coordinated, monitored, evaluated and consolidated if necessary in order to avoid duplicating or overlapping investments.
- Private firms will be guided according to the above-mentioned principles.

After the launch of the project, policy and coordination responsibility is delegated to the newly established Information Society Department of the State Planning Organization (SPO) in February 2003. In January 2003, the Central Population Management System Project 'MERNIS', on automating census events and storing census information, becomes operational.

On 4 December 2003, the Short Term Action Plan, drawn in the framework of the e-Transformation Turkey Project and covering 2003-2004, is approved by the government and published with a Prime Minister's Circular. There are 73 action items under 8 sections, and of those 23 refer to eGovernment, among which some can be noted as follows:

- Determining e-Government applications and ICT inventory
- Determining the principles for procurement specifications and contracts of public ICT projects
- Accomplishing pilot applications for public Internet access centers
- Spreading best practices of e-Government services

- Merging Tax, Citizenship and Social Security ID numbers
- Joining juristic persons under a single identification number system
- Integrating and sharing all real estate address information under an Address Registration System regardless of the end-user
- Performing a preliminary study for establishing the Turkish Geographical Information System
- Developing an Agricultural Information System
- Providing taxpayers with online declaration and payment options for realized taxes[37]

2.1.2 E-Transformation Turkey 2005 Action Plan

In April 2005, the e-Transformation Turkey 2005 Action Plan is published as a follow-up of the Short Term Action Plan 2003-2004. This plan contains 50 actions, 19 of which are related to e-government. Some of the actions planned to be taken are as follows.

- e-Government Portal
- Public e-procurement platform
- Turkey investment portal
- Social Security Information Systems
- Civil Servant Information System
- Public Information Systems Disaster Recovery Management
- Data Sharing for Interoperability
- Determining standards of electronic services provided by Local Administrations[38]

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[37] See the "e-Transformation Turkey Project, Short-Term Action Plan 2003-2004".
http://www.bilgitoplumu.gov.tr/yayin/eDTRStap.pdf
See the "Contribution of Turkey to eEurope+ Progress Report", SPO, UNPAN, January 2004, at
http://unpan1.un.org/intradoc/groups/public/documents/UNPAN/UNPAN025637.pdf , 19.01.2008

[38] See the "e-Transformation Turkey Project, 2005 Action Plan", SPO, ISD, March 2005

2.1.3 Turkish Information Society Strategy 2006-2010

On 25 May 2005, the contract for the preparation of the National Information Strategy of Turkey is signed between the State Planning Organization and the Peppers and Rogers Group. The strategy will cover 2006-2010 periods and have an action plan to be implemented by the public entities.

Information Society Strategy 2006-2010 covers the steps that are needed to be taken in order to reach the targets of being a knowledge-based society. The main objectives of the Information Society Strategy are as follows:

- Re-engineering of business processes in the public sector, and ensuring modernization in public administration organization and functioning,
- Effective, fast, easy-to-access and efficient service delivery to citizens and businesses by the public sector
- Ensuring that citizens can benefit at the highest level from the opportunities of information society; reducing the digital divide; increasing employment and productivity,
- Ensuring effective and widespread use of information and communication technologies (ICT) by enterprises to create a higher value added,
- Ensuring growth and positioning of the ICT sector as a globally competitive one through the establishment of a competitive environment for the provision of widespread, high quality and affordable services.[39]

2.1.4 Turkish Information Society Strategy Action Plan

The Information Society Strategy covering 2006-2010 periods will be carried 7 fundamental strategic priorities. The actions included in the Action Plan have been identified by focusing on the strategic priorities and objectives.

1. Social Transformation; “ICT Opportunity for all”
2. ICT Adoption by Businesses; “Competitive advantage to businesses through ICT”

[39] See the “Information Society Strategy 2006-2010”, SPO, July 2006

3. Citizen-focused Service Transformation; “Delivery of public services at high standards”

4. Modernization in Public Administration; “Public administration reform supported by ICT”

5. A Globally Competitive IT Sector; “IT sector active as an international player”

6. Competitive, Widespread and Affordable Telecommunications Infrastructure and Services; The opportunity of high quality and affordable broadband access to all segments of the society”

7. Improvement of R&D and Innovation; “New products and services in conformity with the demands of global markets”

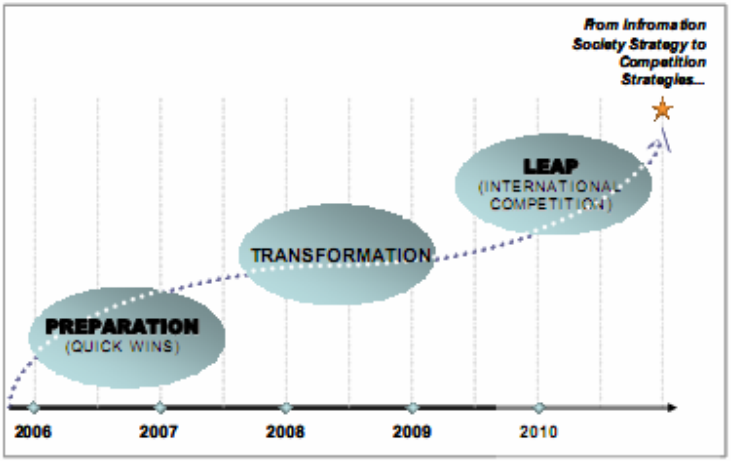

Figure 6: Implementation phase

Data source: “Turkish Information Society Strategy Action Plan”

Monitoring of the process covers the measurement of progress based on previously specified indicators and the routine comparison of the results with the targets. The Turkish Statistical Institute (TURKSTAT) will consolidate and report to SPO the data compiled directly by itself or received from public institutions. SPO will submit the evaluation report to the e-Transformation Turkey Executive Board by comparing these

data to the targets. The e-Transformation Turkey Executive Board will then identify the necessary measures to be taken in the light of these assessments.[40]

Table 6: Current and estimated situation in Turkey[41]

	Current	2010
Social transformation:		
internet user penetration (%)	14	51
broadband subscriber penetration (%)	2	12,5
number of public internet access points	na	4.500
Diffusion of ICT to the business sector:		
enterprises having computer (%)	87	95
enterprises with broadband access (%)	20	70
Citizen oriented public service provision:		
electronic public service provision (%)	na	70
transactions realised electronically (%)	na	33
provision of 20 basic public services of EU (%)	53	100
user satisfaction (%)	na	80

	Current	2010
Modernization of public management:		
electronic public procurement (%)	na	90
savings on current expenditures (%)	na	9
online back-office services (%)	na	100
Positioning of Turkey in globally competitive IT sector:		
IT sector in GDP (%)	0,8	2,2
exports (software and services) (million USD)	80	407

[40] See the "Information Society Strategy, Action Plan 2006-2010", SPO, July 2006

[41] EU LEGISLATION IN INFORMATION SOCIETY AND MEDIA, Current Situation in Turkey, 29 March 2007, www.bilgitoplumu.gov.tr

Competitive, widespread and cheaper telecom infrastructure and services:		
broadband coverage (%)	75	95
cost of broadband to end user/income per capita (%)	5,4	2
R&D and innovation		
share of R&D in GDP (%)	0,8	2
share of ICT R&D in total R&D (%)	na	20
number of total researchers	28.964	40.000

2.2 E-GOVERNMENT IN TURKEY

The developments in the information technologies and growth of their usage in the economic life have also changed the society as we know it. As the nations became more and more dependent on information, because of the globalization and the international competition it has brought, they needed rapidly to accommodate themselves in order to face the upcoming problems. Therefore since before the beginning of the 2000s, the nations in the world have taken steps to becoming more mobile and transforming their organizational structures, public services and their perception of giving serving citizens. The EU's Lisbon Strategy 2000, which has the ambition for EU to become the most competitive and dynamic knowledge-based economy in the world by 2010, has also aimed this. This history taken its place in the EU beginning with the eEurope2002 Action Plan, which was followed by eEurope 2005 Action. As most of the goals foreseen in this Action Plan has been realized by the end of 2005, new targets have been included in the i2010 Initiative. This initiative revises the aims of Lisbon Strategy, such as faster growth and more and better jobs.

As the transformation into a knowledge-based society has started in a lot of countries, Turkey has also taken its steps into this territory. Turkey has increased its efforts since early 2000s in parallel to EU by joining eEurope+ Action, which ended by 2003 and succeeded by i2010 Initiative. The e-Transformation Turkey Project has

become live in order to transform every player in the society, namely citizens, public administrations and the enterprises, harmoniously in the information society. To make this transition transparent and harmonious, the State Planning Organization, the e-Transformation Turkey Executive Board along with Ministers from the government have taken decisions and actions together with non-governmental organizations (NGOs), bureaucrats and participants from public and private sectors.

According to the newest independent yearly "Global E-Government, 2007" report, published in August 2007, Turkey ranks in the top ten. Websites are evaluated for the presence of various features dealing with information availability, service delivery, and public access. Features assessed included the name of the nation, region of the world, and having the following features: online publications, online database, audio clips, video clips, non-native languages or foreign language translation, commercial advertising, premium fees, user payments, disability access, privacy policy, security features, presence of online services, number of different services, digital signatures, credit card payments, email address, comment form, automatic email updates, website personalization, personal digital assistant (PDA) access, and an English version of the website. The top ten countries in the ranking are as follows with Turkey being in the 9th rank and passing the other EU countries: South Korea, Singapore, Taiwan, the United States, Great Britain, Canada, Portugal, Australia, Turkey, and Germany.[42]

2.2.1 Major e-Government Projects

2.2.1.1 Central Census Management System Project (MERNIS)

MERNIS is the most important system that affects most of the other e-Government projects. It is now operational since January 2003. Its main objective is to automate all census events and to store the census information in a more reliable and computerized environment. The system assigns a unique 11-digit ID-number for about

[42] "Global E-Government, 2007", August 2007. http://www.epractice.eu/resource/1369 18.05.2008

120 million Turkish citizens, both alive and passed away, which is to be used in many e-services.

The first phase of the MERNIS Project, which helps government to build an e-government infrastructure, allows birth certificates to be transferred to a computerized format and entire transactions and processes related with birth certificates will be carried out with an updated data processing technology.

2.2.1.2 Accounting Offices Automation Project (say2000i)

The Ministry of Finance (MoF) has initiated a project for the computerization of 1668 Public Accounting Offices (AO) throughout the country. This web based AO automation system is called say2000i and it is designed to automate all daily tasks of accounting offices and to gather all detailed public accounts information at the central organization on a daily basis. Since all detailed information is stored at a central location, government accounts can be analyzed thoroughly and information can be shared between related government organizations.

The say2000i system has a multi-tier application architecture, built on open systems and internet technology. The first layer of the system is composed of a database server located at headquarters in Ankara. The application servers form the second layer, which are located next to the database servers. Application servers are capable of communicating with 6000 users through a virtual private network (VPN). This approach reduces the initial costs and operational requirements considerably, since the users share an application, which can be maintained and extended easily. The clients located at AOs form the third layer and the application can run on any computer capable of operating web browsers with Java support.

A series of say2000i orientation seminars were organized to explain the system capabilities and implementation plans to all accounting office managers. All AO managers indicated a great degree of satisfaction for new system capabilities and the first stage of the implementation phase was completed successfully.

2.2.1.3 National Judicial Network Project (UYAP)

Project will establish an electronic network and program development covering all Courts, Offices of Public Prosecutors and Enforcement Offices together with the Central Organization of the Ministry of Justice. The project has the objective of abolishing the use of written documents and typewriters. When the project is completed, the case shall be transferred to electronic environment starting from its petition to the court-house, repetitions shall be avoided, and the information gathered by the Office of the Public Prosecutor shall be available online during the trial stage. All stages, including the trial, sending to supreme courts, stages of Supreme Court of Appeals and State Council, return from the Supreme Court, conclusion, judicial decree execution and transmission to the Office of Records of Convictions will all be completed on this network.

UYAP has been planned in two stages: the central and the provincial organization. The central stage has the objective of automating the procedures of the central organization of the ministry and its subordinate units. In the forthcoming years the remaining parts of the project shall be carried out. The criminal records kept by the General Directorate of Judicial Records and Statistics shall be reached by the competent authorities, on line or off line through LAN, WAN, internet, intranet, dial up connection, according to the local communication opportunities in a short while, and interrogation results about the case shall be transmitted to the database. The citizens shall be able to learn the dates of trials and judgement of similar cases from internet.

The project establishes an electronic network covering all Courts, Offices of Public Prosecutors and Law Enforcement Offices together with the Central Organization of the Ministry of Justice. It has the main objective of realization of an information system to create an effective and less-bureaucratic justice system for every interested party; citizens, attorneys, prosecutors, judges, etc. When the project is fully completed, all the judiciary processes, including the trial, stages of Supreme Court of Appeals and State Council, return from the Supreme Court, conclusions, judicial decree execution and transmission to the Office of Records of Convictions, would be transmitted to electronic environment. Total number of courts and agencies that are going to be users of this information system will be around 70.000. Currently the system is used by 3,000 users.

Lawyers' offices and citizens also have access to information concerning their individual cases. All bureaucratic procedures and formal writings are carried out in electronic environment, thereby avoiding delays and reducing mistakes, especially those related to codes of procedures, as well as ensuring some degree of transparency.

2.2.1.4 Internet Tax Office Project (VEDOP)

VEDOP has started as an automation project of tax offices all over the country. As one of the largest IT implementations in government, Ministry of Finance, has initiated this project in 1998. 155 Tax Offices in 22 cities are now operating on the network.

The Turkish tax system includes a variety of different tax types with different periods of collection. A typical taxpayer has to hand over more than 30 tax returns and declaration forms annually. This causes taxpayers to walk in tax offices and leave their tax returns almost 3 times a month. This results in large amounts of individual circulation in the tax offices and the employment of a considerable number of personnel for the front desk operations. Approximately 2,500,000 taxpayers are expected to transfer annually 70,000,000 tax returns of various taxes by this new channel in the first three years of implementation. Internet Tax Office web site was established within VEDOP to serve the taxpayers to follow-up their status in the tax office, check their account balances and get informed about regulations and updates via internet.

Tax statements started to be collected through internet since October 1, 2004. First, the legal regulations had been prepared in this regard with the issue of the law numbered 5228 and General Communication for Tax Procedure Law numbered 340. Initially tax returns for value added tax, private consumption tax, tax for bank and insurance procedures, stamp duty, private communication tax, tax for games and lotteries and withholding tax return could be sent through electronic medium. On the other hand, income and corporate tax returns will be sent through internet by the beginning of 2005.

2.2.1.5 Social Security e-Filing for Employers Project (e-Bildirge)

e-Bildirge is a portal, which enables employers to send the insurance premium documents of employees via internet and to make accrued cost payments via automatic payment or internet banking. This new application enables employers to monitor their accrual-revenue information and past debts from anywhere in the world or Turkey without going to local insurance management offices and paying any fees. It also makes possible for the employer to acquire the necessary document, which shows their debt condition, in a very short time. Since the entry of the services of insured employees is made monthly, it is possible to monitor their service span accurately.

Financial transactions related to social security payments are carried out in electronic environment with this project. e-Bildirge is operating since May 1, 2004 in all over Turkey covering both public and private institutions.

2.2.1.6 Government Supply Office's Electronic Sale Project (e-Sale)

Government Supply Office (DMO) has been serving with its 22 regional offices as a centralized public purchase institution in Turkey. DMO has more than 1,100 supply types in 203 different categories. With the e-sale project, an important step has been taken, by transforming all the catalogue purchase services to internet environment. DMO aims to be a model user in government sector and also have the largest sale portfolio of the country.

With the e-sale project, all the purchase services, which have been managed traditionally by paper, phone, and fax, had been transformed to electronic environment and the entire purchase process has been realized over internet. Among the benefits that the order and shipment processes have became much faster and communication costs have decreased sharply; human resources have also been used much more efficiently and effectively with the new system. Also, the scope of the office has been enlarged and a system, which is equally reached from all regions of the country, has been established.

2.2.1.7 Custom Administration Modernization Project (GIMOP)

This project aims to modernize the whole Custom Administration, increase the efficiency, ease legal trade and prevent illegal trade, and automate all the custom transactions. With this project, all the transactions can be materialized in the electronic environment leading to a decrease in paperwork and bureaucratic affairs. Currently, more than 95% of trade transactions in 64 customs offices are carried out electronically. More concrete objectives of the project are as follows:

- Giving better service to trade environment
- Harmonization of custom laws
- More efficient human resources management
- More efficient and rapid production of foreign trade statistics
- More efficient tax collection
- More selective and efficient custom inspection.

Following the continuing implementation of the Customs Administration Modernization Project GIMOP, more than 95 % of trade transactions are presently carried out electronically, with the exception of documents which may be required and which originate in other institutions.[43]

[43] See the "e-Transformation Turkey Project: Turkish Case for e-Government", OECD, October 7-8, 2004, Istanbul, http://www.bilgitoplumu.gov.tr/eng/docs/OECD%20Room%20Document-TURKEY.pdf, 07.01.2007

See the "eGovernment Factsheet - Turkey – eServices for Businesses", Epractice.eu, http://www.epractice.eu/document/3532, 19.01.2008

See the "Information Society Strategy 2006-2010", SPO, July 2006

2.3 E-BUSINESS IN TURKEY

Turkey has started its electronic society race in the beginnings of 1990s. Throughout these years she has developed and implemented many applications and laws regarding usage of ICT in both the daily life and the business sector. After the 2000s she has kept her steps in line with the developments of the European Union.

Starting with the 2003-2004 Short Term Action Plan, all action plans included the raise and the promotion of the usage and adoption of ICT in the business sector with all the cooperation and support from the government side. The legal infrastructure have been strengthened with such enactments as Enactment of the draft law for Electronic Signature, Enactment of the draft law for Protection of Personal Data, Enactment of the draft law for National Information Security, Enactment of the draft law for change in Turkish Criminal Law designating crimes and punishments specific to the field of ICT, Enactment of the draft law for the Right to Access Information, Enacting a law for protection of Intellectual Property Rights in electronic media and structuring the appropriate environment for e-Commerce.

The enactments have been mostly implemented and are now in force with some lags behind the European Union's laws, but more actions are being taken. There are many projects lead by both the government and NGOs or just supported by the government, which intend to strengthen Turkey's place in the challenging e-business world. There are also new developments on the core laws of doing e-business, which are making it easier for both the Turkish and the foreign firms to adapt themselves in the e-business environment.

2.3.1 "Invest In Turkey" Project

"Invest In Turkey" is a web-based project led by the Republic of Turkey Prime Ministry Investment Support and Promotion Agency. The Investment Support and Promotion Agency of Turkey (ISPAT) is the official organization encouraging and promoting investment in Turkey. Reporting directly to the Prime Minister, ISPAT's mandate is to present investment opportunities to members of the global business

community and assist them before, during and after their entry to Turkey. They serve as the reference point for international investors and the point of contact for all institutions engaged in promoting and attracting investments at national, regional and local levels.

This project – website – promotes Turkey as a place to do business. Turkey's regulatory environment is extremely business-friendly. A person can establish a business in Turkey irrespective of nationality or place of residence. The registration and establishment of a company in Turkey can be completed in one day. The agency has also prepared a "Investor's Guide" for potential investors, which covers the cost of doing business in Turkey such as the monthly wage assumptions (gross and net), electricity, water and natural gas costs for industrial use and also includes the incentives Turkey harbours, giving them the information needed for taxes, regulations as well as demography and labor force.

This also shows the "Technology Development Zones' Supports as below:

- Infrastructure facilities are provided.
- Profits derived out software and R&D activities are exempt from income and corporate taxes until 31.12.2013.
- The wages of researchers, software and R&D personnel employed in the zone are exempt from all taxes until 31.12.2013.
- VAT exemption during the exemption period of income and corporate taxes is provided for IT specific sectors.
- Exemption from customs and duties as well as fund levies.

There are 14 operational technology development zones - technoparks in Turkey and 8 new TDZ's, which have been approved for construction. Technology Development Zones are areas designed to support R&D activities and attract investments in high technology fields, the locations of which can be found in Figure 7.

Figure 7: Places of Technology Development Zones in Turkey

Advantages Of TDZs

- Offices ready to rent and infrastructure facilities provided.
- Profits derived from software and R&D activities are exempt from income and corporate taxes until December 31, 2013.
- Deliveries of application software produced exclusively in TDZ's are exempt from VAT until December 31, 2013. Examples include software for systems management, data management, business applications, different business sectors, Internet, mobile phones and military command control.
- Wages of researchers, software and R&D personnel employed in the zone are exempt from all taxes until December 31, 2013.
- A VAT exemption during the exemption period of income and corporate taxes is provided for IT specific sectors.
- Exemption from customs and duties as well as fund levies.
- Academic staff is encouraged to establish companies, participate in a recognized company or join its executive boards as well as conduct research in the zones.[44]

[44] For more information see "Invest In Turkey" on http://invest.gov.tr and "Investor's Guide for Turkey" on http://invest.gov.tr/documents/investorguide_eng.pdf 16.02.2008

2.3.2 Digital Signatures

E-signature is important in the e-business sector due to its non-repudiation, authentication, confidentiality and data integrity. In the electronic business world, security and trust are the foremost important properties a technology must have. Electronic Signature Act was published in the Official Gazette dated 15 January 2004 and entered into force in 23 July 2004. By virtue of this Act, Telecommunications Authority is given the duty of preparing and publishing secondary legislations and supervision of electronic certificate service providers. By the Authority it was considered as very important to make all relevant parties take part in the process of preparation of regulations, and within this framework "e-Signature National Coordination Committee", composed of about 200 representatives from public sector, private sector, non-governmental organizations and universities, and within this Committee "Infrastructure", "Information Security and Standards" and "Law and Regulations" study groups were established. The Authority prepared the secondary regulations as also taking into account the contributions from aforementioned study groups. As a result; "Ordinance on Certificate Financial Liability Insurance" was published in Official Gazette No.25565 dated 26 August 2004, "Ordinance on the Procedures and Principles Pertaining to the Implementation of Electronic Signature Law" and "Communiqué on Processes and Technical Criteria Regarding Electronic Signatures" were published in Official Gazette No. 25692 dated 06.01.2005. Finally, "Schedule and Instructions on Certificate Financial Liability" was prepared by the Undersecretariat of Treasury in regard with the "Ordinance on Certificate Financial Liability Insurance" and published in Official Gazette No. 25709 dated 27 January 2005. All these regulations entered into force at the date of publications. Consequently, legal basis to electronic signatures has been established in Turkey.

In the 11th Article of the "Communiqué on Processes and Technical Criteria Regarding Electronic Signatures", it is stated that "ECSP (Electronic Certificate Service Providers) shall be awarded the certificate BS 7799-2 which is obtained from an authorized institution or organization". Since an equivalent Turkish standard of BS 7799-2 was not available at that time the Communiqué was published in Official Gazette

(06.01.2005), only BS 7799-2 certification was asked as a notification requirement from ECSPs. However after the publication of the said Communiqué, Turkish Standards Institution (TSI) published the standard TS 17799-2 which is an equivalent of BS 7799-2 on 17.02.2005. Then, TSI stated that it would be appropriate to add TS 17799-2 to the Communiqué. After the evaluation of TSI's proposal with the collaboration of candidate ECSPs, it was agreed by all to make a revision and 11th Article of the said Communiqué was changed as "ECSP shall be awarded the certificate BS 7799-2 or TS 17799-2". This revision was published in Official Gazette No. 25849 dated 18.06.2005.

The Electronic Signature Law that is published in the Official Gazette dated 23.01.2004 and that has entered into force in 23.07.2004 states that the Secure Electronic Signature has the same legal affect and consequence as the hand-written signature. The Turkish Electronic Signature Law that was prepared based on EU 99/93/EC Directive; includes provisions with regards to the consequences of electronic signature in terms of substantive law and evidence law.[45] Unlike the EU 99/93/EC Directive; The Turkish Electronic Law does not make a distinction as qualified electronic signature and advanced electronic signature[46]; but it merely puts legal emphasis on secure electronic signature based on qualified electronic certificate.[47]

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[45] Keser Berber, Leyla, "A new regulation field for the telecommunication board: e-signature". http://www.virtuallawjournal.net/?nodeid=29&lang=en 17.02.2008

[46] Keser Berber, Leyla/Beceni, Yasin/Sevim, Tuğrul, "The Improvement and Consequence Report of National Coordination Commission's Working Group on Electronic Signature Law", Istanbul 2005, http://bthukuku.bilgi.edu.tr/documents/e-imza_hukuk_calisma_grubu_raporu.pdf 17.02.2008

[47] The secure electornic signature is defined in Article 4 of Electronic Signature Law as follows:

"ARTICLE 4. — Secure Electronic Signature is an electronic signature, which;

a) exclusively belongs to the signatory,

b) is created only by means of secure electronic signature creation device that is under the exclusive disposal of the signatory,

c) enables the identification of the signatory based uppon qualified electronic signature

d) enables the determination as to whether any subsequent alteration has been made in the electronic data that is signed". This definition is a mixed definition including the requritements attached to advanced electronic signature by virtue of Article 5/1 of EU 99/93/EC Directive. For detailed information please see Keser Berber/ Beceni/ Sevim, a.g.e.

As a consequence of this emphasis; as explained above it is merely the electronic documents signed by secure electronic signatures that will have the same legal effect as the written documents that are signed on paper; and it is clearly set forth as a legal interpretation that only the electronic documents signed by secure electronic signatures have the power of proof in terms of evidence law and will be deemed as conclusive proof until otherwise is proved.

Differing from EU Directive, Turkish e-signature Act provides detailed provisions only for the secure digital signature amongst other types. Turkish Act does not make distinction between secure, qualified and advanced e-signatures as provided in the EU Directive. The Act thoroughly explains the qualified electronic certificate as being one of the requisites of a secure digital signature and provides that a secure digital signature would bear all legal consequences of signature by hand.[48] Besides, the Act also provides that secure digital signature could not be used for the transactions of guarantee contracts and for those which are required to be effected by either official form or procedure. Accordingly under Turkish Law, sale of real property or marriage ceremony may not be affected by secure e-signature.[49]

Below are the definitions from the unofficial Translation of Turkish Electronic Signature Ordinance by Telecommunications Authority:

a) Electronic Data: Information which are generated, transferred or stored in electronic, optical or similar methods,

b) Electronic Signature: Data in electronic form that are attached to other electronic data or linked logically to that electronic data and used for authentication,

c) Signature Owner: A natural person, who uses an electronic signature creation device in order to generate electronic signatures,

d) Signature Creation Data: Unique data such as password and cryptographic keys belonging to a signature owner and being used by the signature owner in order to create electronic signatures,

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[48] Act Article 5/1

[49] For more information please see "eSignature Profile Turkey, April 2007" on http://ec.europa.eu/idabc/en/document/7434/6000 17.02.2008

e) Signature Creation Device: Software or hardware products using the signature creation data in order to generate electronic signatures,
f) Signature Verification Data: Data such as passwords and cryptographic public keys used for the verification of electronic signatures,
g) Signature Verification Device: Software or hardware products using the signature verification data for verification of electronic signatures,
h) Time-Stamping: An record signed electronically by the ECSP for the purpose of verification of the exact time of creation, alteration, sending, receiving and/or recording of an electronic data,
i) Electronic Certificate: Electronic data binding the signature verification data of the signature owner to identity data of that person,
j) Authority: Telecommunications Authority.[50]

2.3.3 Digital Rights Management

Digital rights management (DRM) is a generic term that refers to access control technologies used by publishers and copyright holders to limit usage of digital media or devices. It may also refer to restrictions associated with specific instances of digital works or devices. DRM overlaps with software copy protection to some extent, however the term "DRM" is usually applied to creative media (music, films, etc.) whereas the term "copy protection" tends to refer to copy protection mechanisms in computer software.[51]

According to the DRM report prepared by DPT and İstanbul Bilgi University, it is a system for protecting the copyrights of data circulated via the Internet or other digital media by enabling secure distribution and/or disabling illegal distribution of the data. Typically, a DRM system protects intellectual property by either encrypting the data so

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[50] Unofficial Translation of Turkish Electronic Signature Ordinance by Telecommunications Authority. In case of divergent interpretation, the original Turkish text shall prevail. http://www.tk.gov.tr/eng/pdf/Electronic_Signature_Law.pdfhttp://www.tk.gov.tr/eng/pdf/Electronic_Signature_Law.pdf ; Article 3 – The definitions and abbreviations 17.02.2008

[51] http://en.wikipedia.org/wiki/Digital_rights_management, 19.04.2008

that it can only be accessed by authorized users or marking the content with a digital watermark or similar method so that the content cannot be freely distributed.[52]

It is very important for developed countries to protect the intellectual properties, therefore the steps for widening it to worldwide and working on the common principles has been expedited. The Agreement on Trade-Related Aspects of Intellectual Property Rights (TRIPS), which has been signed in Morocco in 15 April 1994 by WTO, lays down the minimum standards to be kept by every participating country. In this area the international regulations are being worked on by World Trade Organization (WTO) and World Intellectual Property Organization (WIPO). For Turkey in this matter, the most important reference sources are the directives and regulations of the EU.

The first regulation about intellectual right in Turkey is the Copyright Document of 1852 (Hakk-ı Telif Nizamnamesi). The first regulation in the modern sense is the Law No. 5846 on Intellectual and Artistic Works, which has been changed and updated according to the developments in the international arena respectively in 1983, 1995, 2001 and 2004. These changes have been done concerning the Decision No. 95/1 of the association council, which falls within the operations of the EU Customs Union. All changes have been to fulfill our part of the agreement, to align our laws with EU directives and to prevent piracy. Even if there is still some more way to go, the Turkish law has been aligned with the international agreements and the EU directives. There are also new updates in the Law No. 5846, which includes the legal decisions of the WIPO treaties.[53]

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[52] http://www.webopedia.com/TERM/D/DRM.html, 49.04.2008

[53] Unofficial Translation of DRM Report, Ass. Prof. Leyla Keser Berber, E.Türkekul, T. Sevim, Y.Beceni, N. Çavdaroğlu, G. Kara, İstanbul Bilgi University Technology Law Application and Research Center, 2006, Istanbul

2.4 GENERAL OVERVIEW-COMPARISON BETWEEN TURKEY AND THE EU

2.4.1 2007 European E-Business Readiness Index

In this chapter the benchmarking indicators for the European Union and Turkey will be laid down and compared. Information and communication technologies (ICT) are a powerful driver for economy-wide productivity, growth and jobs. The ICT sector contributes to a quarter of the EU's GDP growth and investment and innovation in ICT generate around 45% of the productivity growth. ICT adoption and uptake in enterprises has a continuously important impact on the business processes, organizations, performance and competitiveness of enterprises. Respectively, ICT spending has increased.[54] The benchmarking of the "e-readiness" has been globally for many years an important issue. This is well reflected in the yearly Economist Intelligence Unit's (EIU) E-readiness studies[55] and in the global reports of the Bridges – organization[56]. "The 2007 European e-Business Readiness Index" report describes the results of the composite indicator on e-business readiness for European countries, using data from the 2006 European Union ISS (Information Society Statistics) enterprise survey, as collected by National Statistical Institutes and collected and verified by EUROSTAT, as available from EUROSTAT in May 2007.[57]

The e-business readiness index is one of the policy sub-indicators selected by the Council Resolution of 28 January 2003 (5197/03) of the European Union to monitor progress in the implementation of the eEurope 2005 Action Plan (COM(2002) 263 final).

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[54] OECD, Information Technology Outlook 2006, Table 1A.2.5, p. 61. (ISBN 92-64-02643-6). Table data: http://dx.doi.org/10.1787/110545204168

[55] Please see: EIU & IBM 2005 report addressing 65 countries: http://www.eiu.com/2005eReadinessRankings

[56] The report from Bridges – organization contains an inventory of e-readiness assessments of a total of 188 countries, http://www.bridges.org/files/active/0/ereadiness_whowhatwhere_bridges.pdf

[57] Data sets are periodically revised and some changes and withdrawals of data have taken place. The methodical changes are typically notified in the metadata of published data by EUROSTAT.

In the i2010 framework, comparing the development of the information society in the Member States on the basis of certain indicators is still an important issue. A set of benchmarking indicators has been selected and the future e-business readiness indicator aims to use as its basic components data from i2010 indicators. A suitable subset of indicators from eEurope 2005 Action Plan indicators (from 2004 to 2006 data) and from i2010 indicators (from 2007 to 2010) is planned to be selected to obtain a continuous time series from 2004 to 2010.

The scores and rankings for the Adoption and Use of ICT (see Table 7) provide a relative gauge of e-business progress in 28 countries (26 European Union Member States and 2 Countries members of the European Free Trade Association). The indices for Adoption and Use for the aggregate EU27 are calculated from component indicators estimated by EUROSTAT.

Table 7: 2006 e-Business Readiness ICT Adoption and Use – Scores and rankings according to the budget allocation weights

ICT Adoption

Countries	Score	Rank
Finland	78.06	1
Sweden	77.28	2
Iceland	76.00	3
Denmark	75.72	4
Netherlands	72.64	5
Belgium	71.72	6
Norway	71.27	7
Germany	70.10	8
France	69.11	9
United Kingdom	68.43	10
Austria	67.96	11
Luxembourg	67.92	12
Ireland	64.35	13
Slovenia	63.36	14
Spain	63.17	15
Italy	60.48	16
Czech republic	60.11	17
Estonia	59.91	18
Slovakia	57.44	19
Greece	55.42	20
Portugal	52.28	21
Poland	52.09	22
Lithuania	51.36	23
Cyprius	51.15	24
Hungary	48.75	25
Latvia	45.35	26
Bulgaria	43.01	27
Romania	32.42	28
EU27	63.86	

ICT Use

Countries	Score	Rank
Denmark	41.42	1
Netherlands	35.22	2
Norway	34.26	3
Ireland	33.20	4
Germany	33.04	5
Iceland	32.42	6
Finland	30.85	7
Austria	30.68	8
Sweden	30.58	9
France	30.10	10
Belgium	28.35	11
United Kingdom	27.89	12
Luxembourg	27.01	13
Greece	26.71	14
Italy	23.95	15
Estonia	23.40	16
Spain	22.94	17
Czech republic	22.76	18
Slovakia	22.03	19
Slovenia	21.71	20
Lithuania	21.15	21
Portugal	19.31	22
Cyprius	19.16	23
Poland	17.39	24
Latvia	13.73	25
Hungary	12.21	26
Romania	11.03	27
Bulgaria	7.71	28
EU27	26.46	

Although quantitatively the Country scores are much lower for Use than Adoption, the pattern of country performance for the category Use of ICT is globally similar to that of Adoption. The countries from the northern part of Europe steadily occupy the top ranks and have consistently done so for the last 3 years. The leading position of Denmark for ICT use is really outstanding. According to both the Network Readiness Index from the World Economic Forum and the e-Readiness rankings from the Economist Intelligence Unit, this country is also leading worldwide. Slight differences in scores are observed in the mid-ranks and stress the need for a robustness analysis. Together with the Mediterranean Member States, most of the states from the Eastern part of Europe which joined the EU recently (2004 and 2007) are still in the developing stage of their e-business environment.

Relation between ICT Adoption and Use

A graphical representation of Adoption versus Use scores for the 28 countries but also for the EU27 aggregate is proposed by Figure 8. Using the EU27 aggregate, the plane is divided in 4 parts characterizing the practical use of the adopted ICT infrastructures. With respect to the EU27 aggregate, the 4 zones categorize the performances of the countries with respect to the EU27 average estimated by EUROSTAT. Since the correlation between Adoption and Use scores is important ($r = 0.91$), most of the countries lie along the diagonal depicting a positive correlation. Most of the time good performances in ICT Adoption are coming along with a satisfactory level of ICT Use. With respect to the EU27 average, Greece can be distinguished for its efficiency in using ICT infrastructures given the investments made. Portugal, Spain and Italy are the only Countries from the former EU15 which are still below the European average for both adoption and use of ICT. The different countries were grouped in 4 clusters (see Figure 1500). The countries were split into groups of similar size depending on their relative position along the regression line (Adoption vs Use).

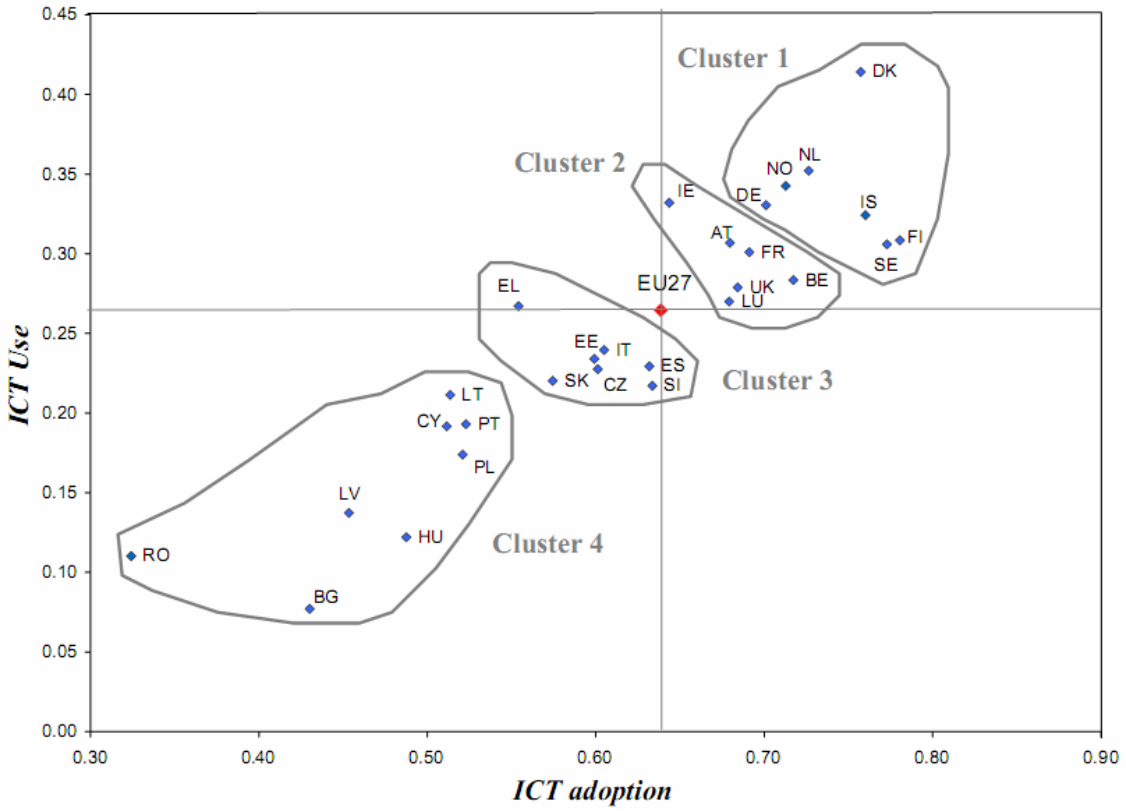

Figure 8: Adoption scores vs. Use scores employing the budget allocation weighting scheme. The "diamond EU27" indicates the EU27 aggregate.

Although quantitatively the country scores are much lower for use than adoption, the pattern of country performance for the category Use of ICT is globally similar to that of adoption. Denmark is comforting its leading position and the top ranks are still occupied by other Nordic countries (Norway, Sweden, Finland, Iceland) together with the Netherlands and Germany. Together with the Mediterranean Member States, most of the states from the Eastern part of Europe which joined the EU recently (2004 and 2007) are still in the developing stage of their e-business environment. Estonia, Slovakia, Check Republic and Slovenia who joined the EU in 2004 reach a relatively fair level of ICT Adoption and Use.[58]

[58] The 2007 European e-Business Readiness Index, William Castaings, Stefano Tarantola, JRC Scientific and Technical Reports, European Commission, EUR 23254 EN – 2008. http://ec.europa.eu/enterprise/ict/policy/ebi/ebizreadinessindex_2007.pdf

Innovation and investment in ICT research

The priority of i2010 focuses on the EU's research and development instruments and sets priorities for cooperation with the private sector to promote innovation and technological leadership. Actions implemented under this priority aim to strengthen European innovation and research in ICT through instruments such as the Seventh Research Framework Program (FP7), the European Technology Platforms and Joint Technology Initiatives (JTIs). Other actions in this area aim to promote the take up of ICT by EU citizens, businesses and administrations, notably through projects supported by the ICT Policy Support Program.

Actions

In this area the Commission's actions for 2008-2009 are to:

- Propose improvements to the EU's ICT standardization system;
- Adopt an Action Plan to further promote eSignature and e-authentication;
- Implement the European electronic invoicing framework.
- Launch the Joint Technology Initiatives as the first true Europe-wide public-private research partnerships;
- Promote the European Technology Platforms, in particular closer cooperation among them;
- Promote the role of the public sector as a first buyer of innovation;
- Launch a process to ensure Europe's leadership in ICTs with a Communication on ICT Research and Innovation;
- Promote the role of e-Infrastructures in a changing and global research environment.[59]

[59] European Commission, http://ec.europa.eu/information_society/eeurope/i2010/invest_innov/index_en.htm

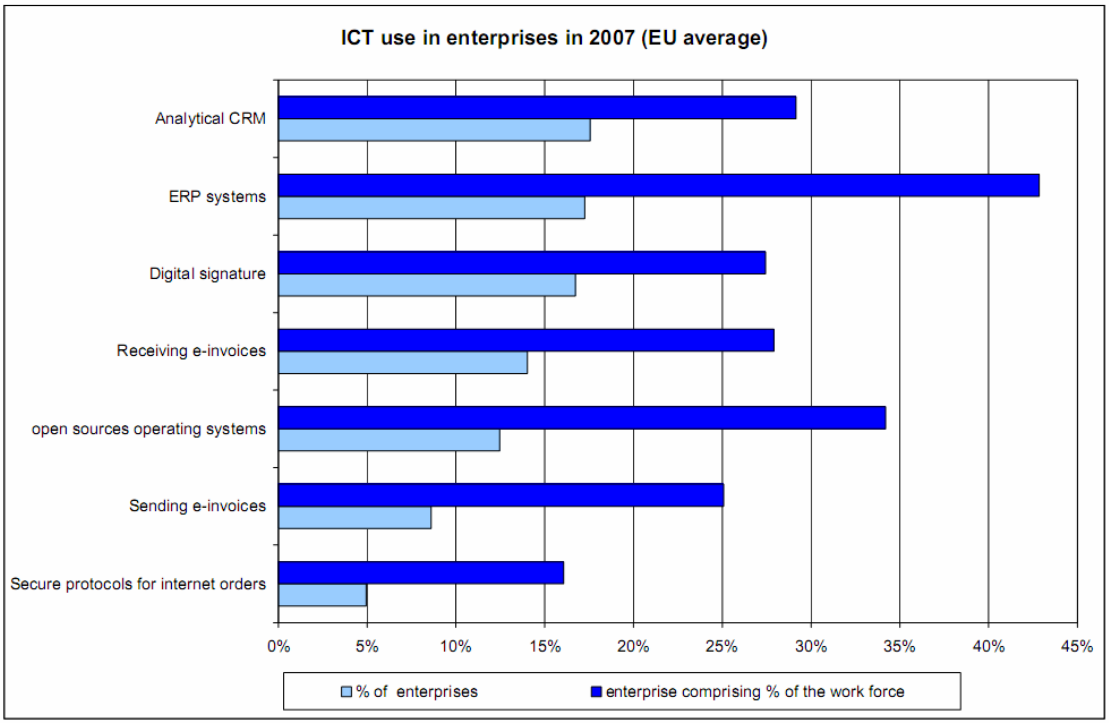

Figure 9: ICT use in enterprises in 2007 (EU average)[60]

[60] Commission Staff Working Document, Accompanying document to the Communication From The Commission To The European Parliament, The Council, The European Economic And Social Committee And The Committee Of The Regions, "Preparing Europe's digital future - i2010 Mid-Term Review", Volume 1: i2010 — Annual Information Society Report 2008 - Benchmarking i2010: Progress and Fragmentation in the European Information Society {COM(2008) 199 final}

Where is Turkey?

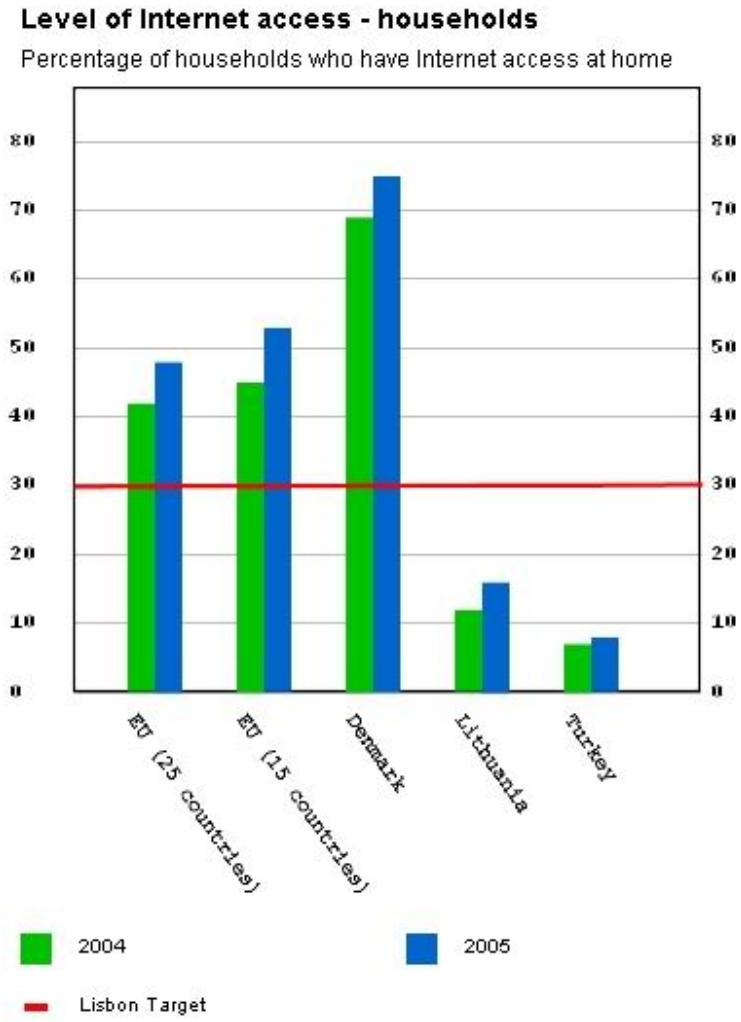

Figure 10: Level of internet access – households, 2004-2005, EUROSTAT

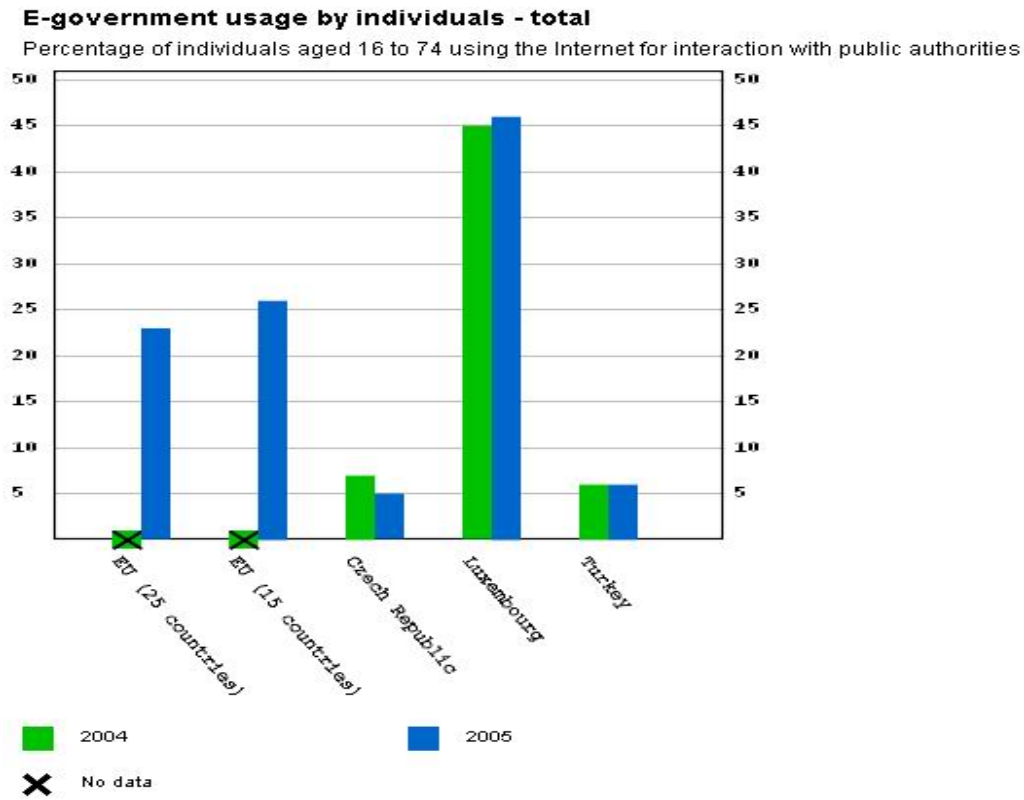

Figure 11: E-Government usage by individuals - total, 2004-2005, EUROSTAT

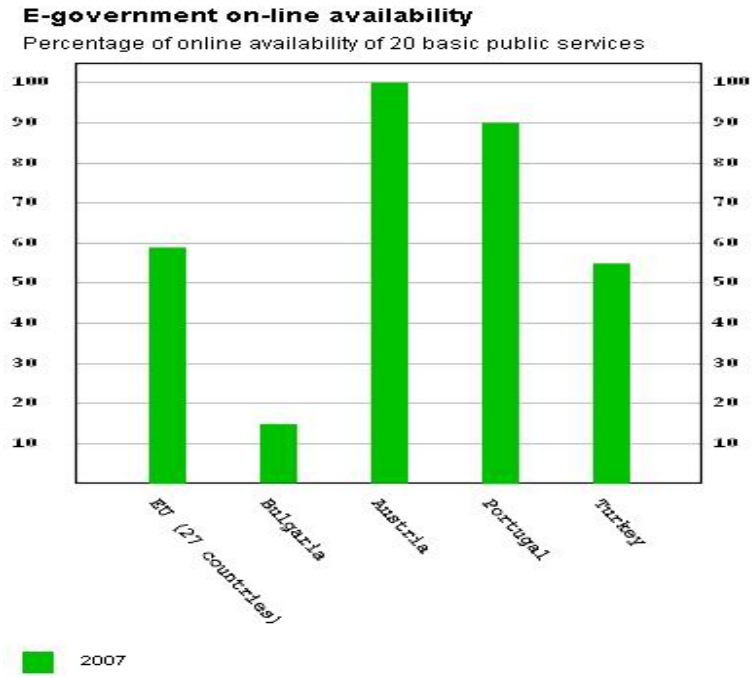

Figure 12: E-Government online availability, 2007, EUROSTAT

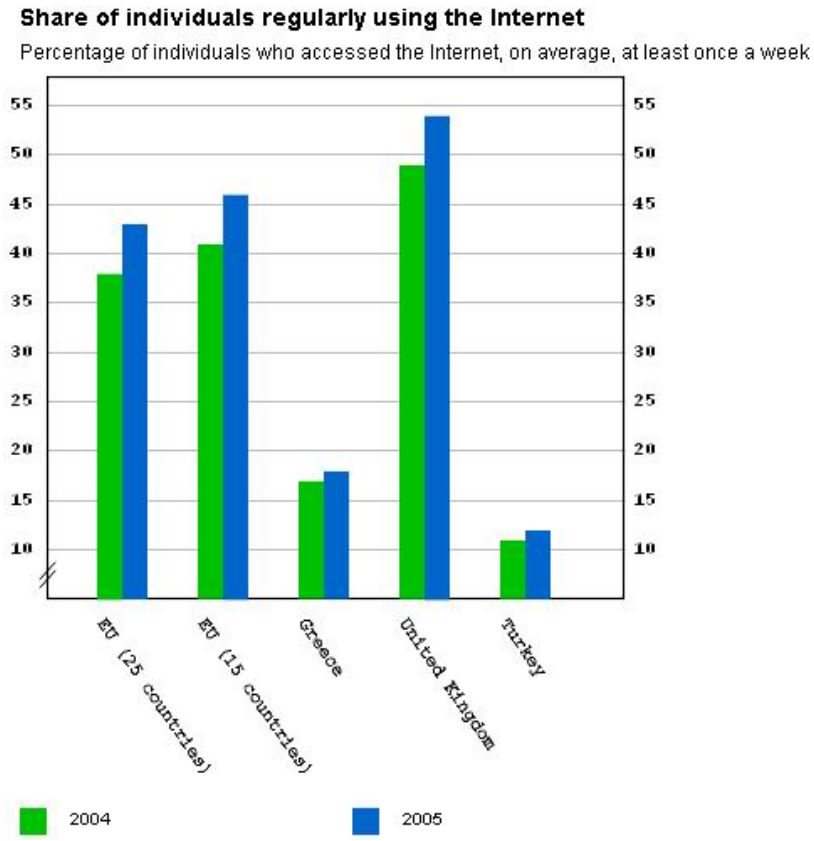

Figure 13: Share of individuals regularly using the internet, 2004-2005, EUROSTAT

2.4.2 2008 E-Readiness Rankings

E-readiness is a measure of the quality of a country's information and communications technology (ICT) infrastructure and the ability of its consumers, businesses and governments to use ICT to their benefit. When a country uses ICT to conduct more of their activities, its economy can become more transparent and efficient. The e-readiness rankings also allow governments to gauge the success of their ICT strategies against those of other countries, and provide companies wishing to invest overseas with an overview of the world's most promising investment locations from the perspective of e-readiness. In all, nearly 100 separate criteria, both qualitative and quantitative, are evaluated for each country. These criteria are scored on their relative presence (or lack thereof) in a country's economic, industrial or social landscape.

The ways for a country to achieve and sustain e-readiness are varied and interrelated, and are shaped by factors in the economic, political and social environment, as well as by the breadth and quality of its ICT infrastructure and the digital services that are taken up. Assessed in the holistic approach employed in our rankings, it is apparent that, collectively, the world is moving up the e-readiness charts. Average e-readiness rose to a score of 6.39 in the 2008 rankings, up from 6.24 in the previous year.

This overall progress, however, masks some backtracking among a handful of countries, and conspicuously within the rankings' top ten. Denmark has, after four consecutive years as the world's most e-ready country, fallen four places, as has Switzerland, to fifth and ninth respectively. The United States is now the global e-readiness leader, with a score of 8.95, followed closely by Hong Kong, which has advanced two places. Finland has also dropped three places, from 10th to 13th, and has been supplanted in the top ten by Austria.

Economist Intelligence Unit e-readiness rankings, 2008
Scoring criteria categories and weights*

Category	Weight
Connectivity and technology infrastructure	20%
Business environment	15%
Social and cultural environment	15%
Legal environment	10%
Government policy and vision	15%
Consumer and business adoption	25%

Figure 14: EIU e-readiness rankings, 2008 – scoring criteria categories and weights

Policymakers have to pull on many levers simultaneously to create an environment where digital connections can proliferate, and where citizens and businesses find it convenient, efficient and profitable to use digital channels for their transactions.

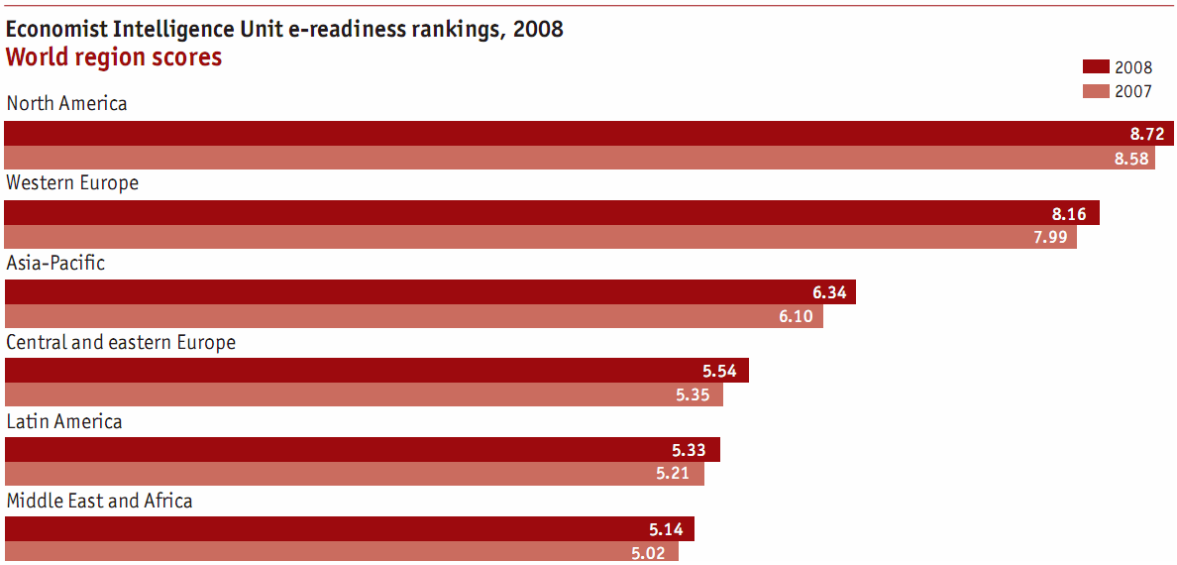

Figure 15: EIU e-readiness rankings, 2008 – world region scores

Improving on a country's e-readiness is a complex task, and maintaining it requires vigilance. The world's most digitally developed countries are already very e-ready when it comes to connectivity, but they still have room to improve as broadband technologies advance. In many other criteria, such as the will and ability to reach out to constituents through digital channels, or the ability to anticipate changes in the social and cultural environment to shift digital policy accordingly, countries can fall back and in so doing slow their e-readiness progress.

Table 8: Economist Intelligence Unit e-readiness rankings, 2008[61]

2008 e-readiness rank (of 70)	2007 rank	Country	2008 e-readiness score (of 10)	2007 score	2008 e-readiness rank (of 70)	2007 rank	Country	2008 e-readiness score (of 10)	2007 score
1	2	United States	8.95	8.85	36	39	Slovakia	6.06	5.84
2	4	Hong Kong	8.91	8.72	37	37	Latvia	6.03	5.88
3	2	Sweden	8.85	8.85	38	41	Lithuania	6.03	5.78
4	9	Australia	8.83	8.46	39	35	South Africa	5.95	6.10
5	1	Denmark	8.83	8.88	40	38	Mexico	5.88	5.86
6	6	Singapore	8.74	8.60	41	40	Poland	5.83	5.80
7	8	Netherlands	8.74	8.50	42	43	Brazil	5.65	5.45
8	7	United Kingdom	8.68	8.59	43	42	Turkey	5.64	5.61
9	5	Switzerland	8.67	8.61	44	44	Argentina	5.56	5.40
10	11	Austria	8.63	8.39	45	45	Romania	5.46	5.32
11	12	Norway	8.60	8.35	46	46	Saudi Arabia	5.23	5.05
12	13	Canada	8.49	8.30	47	49	Thailand	5.22	4.91
13	10	Finland	8.42	8.43	48	48	Bulgaria	5.19	5.01
14	19	Germany	8.39	8.00	49	46	Jamaica	5.17	5.05
15	16	South Korea	8.34	8.08	50	--	Trinidad & Tobago*	5.07	--
16	14	New Zealand	8.28	8.19	51	51	Peru	5.07	4.83
17	15	Bermuda	8.22	8.15	52	50	Venezuela	5.06	4.89
18	18	Japan	8.08	8.01	53	52	Jordan	5.03	4.77
19	17	Taiwan	8.05	8.05	54	54	India	4.96	4.66
20	20	Belgium	8.04	7.90	55	54	Philippines	4.90	4.66
21	21	Ireland	8.03	7.86	56	56	China	4.85	4.43
22	22	France	7.92	7.77	57	58	Egypt	4.81	4.26
23	24	Malta	7.78	7.56	58	53	Colombia	4.71	4.69
24	23	Israel	7.61	7.58	59	57	Russia	4.42	4.27
25	25	Italy	7.55	7.45	60	61	Sri Lanka	4.35	3.93
26	26	Spain	7.46	7.29	61	60	Ukraine	4.31	4.02
27	27	Portugal	7.38	7.14	62	62	Nigeria	4.25	3.92
28	28	Estonia	7.10	6.84	63	59	Ecuador	4.17	4.12
29	29	Slovenia	6.93	6.66	64	63	Pakistan	4.10	3.79
30	32	Greece	6.72	6.31	65	65	Vietnam	4.03	3.73
31	31	Czech Republic	6.68	6.32	66	64	Kazakhstan	3.89	3.78
32	30	Chile	6.57	6.47	67	66	Algeria	3.61	3.63
33	34	Hungary	6.30	6.16	68	67	Indonesia	3.59	3.39
34	36	Malaysia	6.16	5.97	69	68	Azerbaijan	3.29	3.26
35	33	United Arab Emirates	6.09	6.22	70	69	Iran	3.18	3.08

[61] "Economist Intelligence Unit e-readiness rankings, 2008", A white paper from the Economist Intelligence Unit, Written in co-operation with The IBM Institute for Business Value, can be found online at http://a330.g.akamai.net/7/330/25828/20080331202303/graphics.eiu.com/upload/ibm_ereadiness_2008.pdf

3. EMPIRICAL STUDY: "THE STATUS OF THE TURKISH INDUSTRY IN ELECTRONIC COMMERCE"

The current economy is changing into a world of virtual transactions, namely into an online economy. More and more companies are opening up their online stores in order to have more interaction with the customer, to serve them with more correct and up-to-date catalogs and easy shopping from their houses through an online channel. It is clear by now that the future belongs to a world of connectivity, closer relations with the customer and an online world of transactions and security.

Electronic business is the term that covers electronic commerce, too. When the enterprises use the internet to run and promote their business, the term e-business would be used. E-business cannot be described only as buying and selling online, it also includes many aspects of a work, such as customer, client or supplier support, managing, researching and comparing information along with financial and governmental duties management. By selling products and services online, an enterprise will be able to reach a larger number of consumers. Electronic commerce consists of the buying and selling of products or services over electronic systems such as the Internet and other computer networks. The amount of trade conducted electronically has grown extraordinarily since the spread of the Internet. A wide variety of commerce is conducted in this way, spurring and drawing on innovations in electronic funds transfer, supply chain management, Internet marketing, online transaction processing, electronic data interchange (EDI), inventory management systems, and automated data collection systems. Modern electronic commerce typically uses the World Wide Web at least at some point in the transaction's lifecycle, although it can encompass a wider range of technologies such as e-mail as well.[62] Being closely related to electronic government, e-business is the key to success in the upcoming years. E-Government refers to the use of internet technology as a platform for exchanging information, providing services and transacting with citizens, businesses, and other arms of government. E-Government may be applied by the legislature, judiciary, or administration, in order to improve internal efficiency, the

[62] http://en.wikipedia.org/wiki/E-commerce,01.07.08

delivery of public services, or processes of democratic governance.[63] E-business has to be in line with the e-government, since the transactions, petitions, call for tenders, taxes and everything else in the scope of governmental duties are partially done over internet now and will be fully taken on to the online level in the future. This is an advantage on both sides, where time consuming, paper wasting red-tape situations are limited to none. The businesses don't need to spend too much on financial duties as much as they did in the past, because everything can be accessed and taken care of with an id. The governments don't face the problem of too many customers waiting in lines at the counters, and not getting any service for a long time.

The benchmarking criteria of the EU for e-commerce are taken into account in two dimensions, namely "Adoption of ICT" and "Use of ICT". Both criteria have sub-criteria in themselves. Please see Table 3 and Table 4[64] for the topics covered in "Adoption of "ICT and "Use of ICT".

These criteria aim to analyze the current e-business situation of the firms in the EU and went under changes and additions, when with time new prospects came in light. The answers sought by these criteria, have been obtained with the questionnaire used for this analyze in Turkey, which will be explained further in the paper. With the answers given, this analyze shows the preferences and steps taken so far in the Turkish enterprises on a lower scale.

3.1 THE AIM OF THE RESEARCH

The aim of this research is to find out Turkey's place in the world of e-commerce and compare it with that of European Union's. EU has gone under substantial changes throughout the years beginning from early 1990s about generalizing and using electronic commerce more and more in the daily life. In order to achieve their goal set in the Lisbon Strategy, the EU has defined and refined several procedures, laws and regulations regarding e-commerce and e-business. Every member of the EU has and still is

[63] http://en.wikipedia.org/wiki/E-government, 01.07.08

[64] See Table 3 "Adoption of ICT – Indicators" and Table 4 "Usage of ICT – Indicators" on page 37.

implementing these measures in their national laws and commercial business life. Whether they have received their goal or not remains as a constant talk subject in the EU. It is also shown by the recent benchmarking analyses that the member states have not been able to come to the same or average level of doing business online, yet. Turkey, on the other hand has been growing steadily and rapidly taking the EU laws into consideration and fusing them with Turkish law. In this research 25 firms have been analyzed and this study population was derived from Turkey's Top 500 Industrial Enterprises. In this research the results of the questionnaire about e-commerce and its future in Turkey have been analyzed according to the answers, the 25 firms have given in the questionnaire. The results have been converted into data, similar to that of EU's benchmarking criteria. In this way, the situation of the firms in Turkey concerning e-commerce has been revealed to a certain extent.

3.2 RESEARCH METHODOLOGY

3.2.1 Sample/Population

This analyze is aimed to find out how the Turkish firms are doing in the area of electronic commerce. Therefore a sample has been chosen for which enterprises to analyze, which is the total of Turkey's Top 500 Industrial Enterprises of the Year 2005[65]. Since this research has begun in 2006, the results of 2005 have been taken into consideration. This list has been renewed over the last two years, but in order to keep the sample meaningful and in the context; the new enterprises in the new lists have not been taken into the research.

Turkey's Top and Second 500 Industrial Enterprises is a regular publication of Istanbul Chamber of Industry. The Chamber prepares a yearly questionnaire and also does field research in order to build up the top 1000 enterprises of that year in Turkey. These firms are selected according to the following criteria; Affiliated Chamber or State

[65] "Turkey's Top 500 Industrial Enterprises of the Year 2005" can be found on http://www.iso.org.tr/tr/web/besyuzbuyuk/gecmisyillar/500buyukgecmisyillar.htm in Turkish and on http://www1.iso.org.tr/en/500buyuk_Default_gecmis.asp in English.

Enterprise, Production Based Sales (Net) (1.000.000 TL), Sales Revenues (Net), Gross Value Added, Equity Capital, Net Assets, Period Profit (Before Tax), Exports, Average Number of Wage Workers, Capital Distribution (divided in Public, Private, Foreign).

The prepared questionnaire has been sent to 389 firms out of these 500 firms via electronic means. They were given the chance to keep their names hidden, while we could still use their data.

Before going into detailed information about the answers, the first step taken was to investigate the background characteristics of the 25 respondent enterprises. Table 9 shows these characteristics, as in foundation dates, number of employees and sector, etc.

10 out of the 25 firms are involved in Iron and Steel Industry, Metallurgical Industry, Paint Industry, Brass Copper Alloy, Cable Wire and Metal Automotive Industry Agriculture. The rest are divided as follows: 2 are involved in Energy Sector, with Baymina Enerji having specified that they have only one customer. 3 are in the Durable Consumer Goods and Package Industry. Another 3 can be put in the group of Cement Industry and Construction, whereas 4 firms are positioned in Food Industry. 2 firms are in the area of Textile Industry and lastly 1 firm is in Distributing Enterprise, working for only print media as specified.

The majority of the firms -123 of them- are involved in export and/or import. Only 2 of them are not involved in either export or import.

6 of the 25 firms have been established before 1970. Between 1970 and 1980, 5 of the firms, between 1980 and1990, 5 more firms and between 1990 until now 6 firms have been founded. There is no information available on the foundation date for 3 firms.

Table 9: Description of the respondent enterprises (25)

Case #	FIRM	SECTOR	FOUND. DATE	TOTAL # OF EMPLOYEES	TARGET GROUP
C001	AKSA JENERATÖR	ENERGY	1984	N/A	OTHER FIRMS / CONSUMERS
C002	ARÇELİK	DURABLE CONSUMER GOODS	1955	Around 10.000	INDIVIDUAL CONSUMERS
C003	ASSAN ÇELİK	IRON AND STEEL INDUSTRY	1992	70	OTHER FIRMS / CONSUMERS
C004	BAYMİNA ENERJİ	ENERGRY-ELECTRICTY GENERATION - ONE CUSTOMER	1998	48	OTHER FIRMS / CONSUMERS
C005	BSH	DURABLE CONSUMER GOODS	1992	2500	INDIVIDUAL CONSUMERS
C006	BOLU ÇİMENTO SANAYİ A.Ş.	CEMENT INDUSTRY - CONSTRUCTION	1968	243	OTHER FIRMS / CONSUMERS
C007	ÇOLAKOĞLU METALURJİ	METALLURGICAL INDUSTRY	N/A	200	OTHER FIRMS / CONSUMERS
C008	DIMES	IRON AND STEEL INDUSTRY	1978	N/A	OTHER FIRMS / CONSUMERS
C009	DİLER DEMİR ÇELİK	FOOD INDUSTRY	1958	800	INDIVIDUAL CONSUMERS
C010	FATOĞLU GIDA	FOOD INDUSTRY	1978	130	BOTH
C011	HEMA ENDÜTRİ	METAL-AUTOMOTIVE INDUSTRY-AGRICULTURE	1973	2600	OTHER FIRMS / CONSUMERS
C012	HES HACILAR	CABLE-WIRE INDUSTRY	1974	730	OTHER FIRMS / CONSUMERS
C013	İSDEMİR	IRON AND STEEL INDUSTRY	1984	N/A	OTHER FIRMS / CONSUMERS
C014	KARDEMİR HADDECİLİK	IRON AND STEEL INDUSTRY	N/A	N/A	OTHER FIRMS / CONSUMERS
C015	KOCAER TEKSTİL	TEXTILE INDUSTRY	1995	518	OTHER FIRMS / CONSUMERS
C016	KOÇ HADDECİLİK	IRON AND STEEL INDUSTRY	1993	249	OTHER FIRMS / CONSUMERS
C017	KOROZO AMBALAJ	PACKAGE INDUSTRY	1973	950	OTHER FIRMS / CONSUMERS
C018	KORTEKS	TEXTILE INDUSTRY	1989	2200	OTHER FIRMS / CONSUMERS
C019	MARDİN ÇİMENTO	CONSTRUCTION	1969	320	OTHER FIRMS / CONSUMERS
C020	MERKEZ DAĞITIM PAZARLAMA VE SAN. TİCARET A.Ş.	DISTRIBUTING ENTERPRISE (ONLY PRINTED)	2002	410	OTHER FIRMS / CONSUMERS
C021	ÖZER METAL	BRASS COPPER ALLOY	1981	116	OTHER FIRMS / CONSUMERS
C022	POLISAN BOYA	PAINT INDUSTRY	1985	N/A	BOTH
C023	SET ÇİMENTO	CEMENT INDUSTRY	N/A	483	OTHER FIRMS / CONSUMERS
C024	HIDDEN	FOOD INDUSTRY	1962	N/A	BOTH
C025	ÜLKER	FOOD INDUSTRY	1944	N/A	BOTH

It has been clearly shown that majority of them have foreign capital share in their total capital as the answer to the question if they have a foreign capital share, 5 of the firms gave “No” and 20 of them gave “Yes”.

The firms are also asked about the number of employees and are classified into the following scale, which can be found in Table 10:

Table 10: Frequency of firms by number of employees

Number of Employees	Number of Firms
<100	2
100-500	8
501-1000	4
1001-10000	4
N/A	7
Total	25

It is also found out from the information given that the customer of the majority of the firms - 18 firms - is other firms or consumers. 3 firms are serving individual consumers (end-users), while 4 of them have both consumers as their customers.

3.2.2 Method

In this research the questionnaire method is used. The aim is to reveal patterns of behavior and various kinds of dependencies among variables being surveyed. Descriptive statistics and statistical hypothesis testing are among the tools traditionally used for evaluation of questionnaires.[66]

[66] Pratical Research, Planing and Design, 8th Edition, “Part III, 7, Qualitative Research Methodologies”, Paul D. Leedy, Jeanne Ellis Ormrod, pp. 150, 151

The Turkish version of the questionnaire has been sent to Turkey's Top 500 Industrial Enterprises. Both English and Turkish versions of the questionnaire can be found respectively in Annex 1 and Annex 2.

The questionnaire has been sent to 389 firms out of these 500 firms via electronic means, meaning through e-mail addresses. After 2 weeks the first 25 enterprises in the scale have been called by phone to request the filling of the questionnaire or another mail address in case it didn't reach the person in charge. Since the mail addresses in the Turkey's Top 500 Industrial Enterprises list have been general addresses, there was a note in the mail saying "Please forward this mail to the person in charge", whom I determined as a person either from the Marketing or IT-Department.

On first demand only 7 firms have sent an answer back. After the phone calls another 4 have been received. Then another round of mails has been sent to the rest of the group and the new emails acquired by the phone calls. After a month, another round of mails has been sent and in total only 25 firms have replied to this questionnaire, therefore the analyze has been conducted on these firms, the list of which can be found in Annex 3, except for one firm, which requested to keep its name hidden.

3.2.3 Theoretical Frame

EU has a system for analyzing E-Readiness Benchmarking of the countries and they use several criteria to measure this. In this paper, the same criteria also have been used to observe the degree of development in Turkish enterprises.

Creswell (1998) has described a data analysis spiral. Using this approach, you go through the data several times, taking the following steps:

1. Organize the data, perhaps using index cards, manila folders, or a computer database. You may also break down large bodies of text into smaller units, perhaps in the form of stories, sentences or individual words.
2. Peruse the entire data set several times to get a send of what it contains as a whole. In this process you should jot down a few memos (e.g., writing in the

margins or using Post-It notes) that suggest possible categories or interpretations.

3. Identify general or themes, and perhaps subcategories or subthemes as well, and then classify each piece of data accordingly. At this point, you should be getting a general sense of patterns – a sense of what the data mean.
4. Integrate and summarize the data for your readers. This step might include offering propositions or hypotheses that describe relationships among categories. It might also involve packaging the data into an organizational scheme such as a table, figure, matrix or hierarchical diagram.

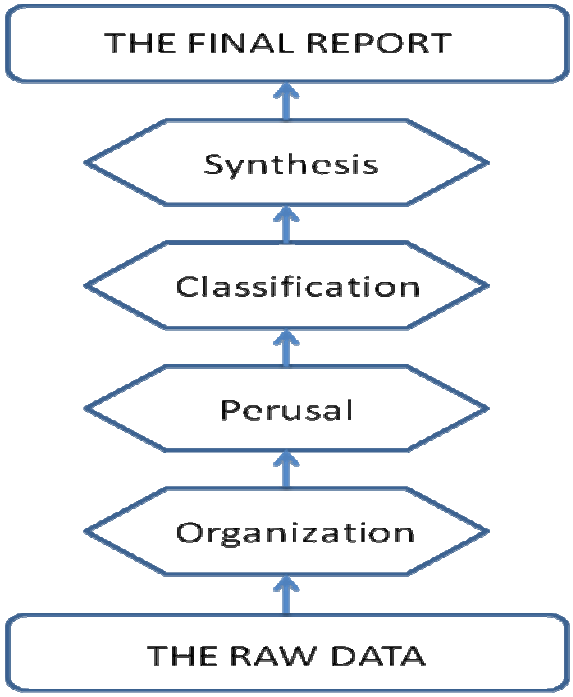

Figure 16: The data analysis spiral (based on Creswell, 1998)[67]

In this research the data analysis is also carried out in these steps. The raw data have been accumulated, organized, analyzed, classified and gathered into a meaningful report. The questions in general are divided into groups, in order to find results to specific subjects and some of them are placed separately in the questionnaire to secure the

[67] **ibit**, pp. 150, 151

accuracy. The questions from 1 to 5 are to find out how the Turkish enterprises are doing in the area of ICT Adoption. Questions between 7 to 10 and 14 are to show the ICT Usage in Turkey. The relationship between these two groups (ICT Adoption and ICT Use) shows in general the E-Business Readiness of Turkey.

Table 11: Questions – Goals

QUESTIONS	INDICATOR
Questions 1 to 5	ICT Adoption
Questions 7 to 10 and 14	ICT Usage
Questions 11 to 21 and 24	Common Outlook
Questions 22, 23 and from 25 to 34	General opinion on e-commerce

The questions 11 to 21 plus 24 are asked within the questionnaire to have a common outlook on how focused and detailed they use the internet and software programs. The questions 22, 23 and from 25 until 34 are asked to get their general opinion of electronic commerce. What the enterprises have in mind for the future of e-commerce can be seen from the results of these particular questions. In total it was aimed have a general idea of where Turkey stands in the E-Business Readiness Benchmark and what perspective do the Turkish enterprises have in this area.

3.2.4 Variables

The questions prepared in the questionnaire are based on the benchmarking criteria of the EU. The variables are therefore mostly quantitative. There are a total of 34 questions as indicated in the below Table 12 and 25 of these are designed as quantitative and 9 as qualitative. Out of these 25 quantitative questions, 22 are dichotomous and 3 are multi-way questions. The answers to the 22 dichotomous questions are “Yes” and “No”. A group of questions with 5 or more intervals have been added in the questionnaire to capture the viewpoints of the respondents.

Table 12: Definition of variable types

34 questions in total		
25 quantitative		9 qualitative
22 dichotomous "Yes" & "No"	3 multi-way questions	1 five-level Likert item

There are also some questions, where the person filling in the questionnaire can write his/her own opinion or an item/percentage of the information asked. 1 out of the 9 qualitative questions is defined as a five-level Likert item and it requires from the respondent to rank the predefined input from 1 to 5 according to their importance; as 1 being the most important and 5 being the least important.

3.3 RESEARCH DATA ANALYSIS

A questionnaire of 34 questions has been sent to Turkey's Top 500 Industrial Enterprises in the scope of this research. The data extracted from the 25 answered questionnaires have been categorized and labeled in order. The enterprises have taken the labels starting from C001 until C025 according to the ascending order of their names.

Every single question has a table dedicated to it below, which includes the questions, their answers and the response frequency they received. All different types of variables used in the questionnaire will also be shown with details.

3.3.1 Data Summarization

i. The time period the firm's website is open

Table 13: Website existence period

Website open since	# of Firms
The last year	1
Two years	0
Three years	2
Four years	4
For more than four years	17
N/A	1
Total	25

It can be seen that a majority of the 25 enterprises have their websites online more than 4 years, which show a certain degree of understanding towards e-commerce beginning in the early years of 2000.

ii. The situation of having intranet and/or extranet

Table 14: Intranet and/or extranet status

Intranet / Extranet Possession	# of Firms
Intranet	14
Both (Intranet + Extranet)	10
N/A	1
Total	25

Intranet is the generic term for a collection of private computer networks within an organization. An intranet uses network technologies as a tool to facilitate communication between people or workgroups to improve the data sharing capability and overall knowledge base of an organization's employees.[68] An extranet is a private network that uses Internet technology and the public telecommunication system to securely share part of a business's information or operations with suppliers, vendors, partners, customers, or other businesses. An extranet can be viewed as part of a company's intranet that is extended to users outside the company.[69] Most of the enterprises have taken notice of the importance of having an intranet within the organization and a big number of these are using extranets.

iii. Broadband connection status

The firms have been asked if they are using broadband connection and in case they are which kind of connection they do use. Two respondents indicated that they do

[68] Definition of Intranet; http://compnetworking.about.com/cs/intranets/g/bldef_intranet.htm ; 26.07.08

[69] Definition of Extranet; http://searchnetworking.techtarget.com/sDefinition/0,,sid7_gci212089,00.html ; 26.07.08

not use broadband connection. It has to be taken into consideration that the enterprises had the choice to indicate more than one of the broadband connection types. We can see here a majority using leased line and xDSL. One of the firms has separately indicated "fiberoptics" under the category "other". Table 15 presents the allocation of broadband usage types.

Table 15: Broadband connection status

Broadband Type	# of Firms
Leased Line	13
xDSL	7
Cable modem	3
Satellite	3
WAN	3
Other	6

iv. Website security measures

During website display, how many security measures take place? (firewalls, virus programs, data protection programs, etc.)

Table 16: The number of security measures on website display

# of security measures	# of Firms
At least 2	11
More than 2	13
N/A	1
Total	25

Almost half of the enterprises use at least 2 security measures in order to protect organizational data, whereas the other half uses more than 2 means of security for this.

v. The percentage of total number of persons employed using computers in their normal work routine to the number of those that do not use a computer

Table 17: Computer usage ratio

Percentage %	# of Firms
100%	2
50%	11
25%	7
< 25 %	5
N/A	-
Total	25

The Table 17 shows us that more than 25% of the employees work on a computer on a daily basis out of the 25 enterprises.

vi. On internet conducted actions (more than one choice can be checked)

Table 18: On internet conducted actions

Actions	# of Firms
Using its own website to introduce and promote its products/services	21
Purchasing/selling products/services from websites	6
Researching products on internet	16
Online completing of sale and purchase with online existing firms	6
Tracking/conducting of transactions regarding government (e-government)	12
Sending newsletters in order to introduce products	8
Paying/receiving payment online	12

Enterprises were to choose more than one of the choices. As all enterprises have their respective websites, they promote their product online via internet. From Table 18 it can be found out that they also use internet mainly for researching products on internet and dealing with governmental issues and paying/receiving payments online. One of the respondents has separately indicated that they also open tenders online.

vii. The question about a firm's purchase being at least %1 of its products/services via internet

Table 19: Via internet product/service purchase ratio

>%1 of total purchase on internet	# of Firms
Yes	11
No	13
N/A	1
Total	25

viii. The question about a firm's received orders being via the internet where these are ≥1% of total turnover

Table 20: Via internet received order ratio

Orders >1% of total turnover online	# of Firms
Yes	8
No	17
N/A	-
Total	25

One of the firms have written an extra explanation for this question, indicating that they can see the stock position and current account on internet but they couldn't use it, because 90% of their customers didn't have the requisites, yet.

ix. Are the firm's IT systems linked automatically to IT systems of suppliers or customers outside its enterprise group?

Table 21: Existence of linked IT systems with suppliers and/or customers

Linked IT system to third parties	# of Firms
Customer	5
Supplier	2
Both	2
No	15
N/A	1
Total	25

There has been one erroneous entry for this question and for the sanity of the outcome of this analyze it has been replaced as N/A.

x. Internet usage for banking and financial services

Table 22: Internet usage for banking and financial services

Financial services online usage	# of Firms
Yes	23
No	1
N/A	1
Total	25

xi. Analyzing data like the user information, the most-clicked URLs over internet with various applications (like data mining)

Table 23: Data analyzes on the website

Analyse online date	# of Firms
Yes	8
No	17
N/A	-
Total	25

Here we see that most of the enterprises do not use data mining tools to get information about how frequent, how in depth their webpage is used by the customers.

xii. Online-marketing

Table 24: Online marketing usage

Online Marketing	# of Firms
Yes	5
No	20
N/A	-
Total	25

Table 25: Usage of web-based programs, which assess the rate of return for online-marketing

Programs for online marketing assessment	# of Firms
Yes	1
No	24
N/A	-
Total	25

xiii. Professional software usage for the following applications

Table 26: Professional software usage

Usage of professional softwares	# of Firms
Electronic Commerce	1
Portal and Content Management	11
Customer Relations Management (CRM)	6
Materials Requirement Planning (MRPI, MRPII)	10
Supply Chain Management (SCM)	3
Enterprise Resource Planning (ERP)	16
Order Tracking Systems	11
Business Planning	7
Knowledge Management	6
Management Information Systems (MIS)	4
Datawarehouses and Data Mining	7
N/A	5

The respondents could choose multiple answers for this question and they were asked the names of the programs they are currently using, but some of them only put a tick next to them without giving detailed information about them. Table 26 shows that many of the professional softwares indicated in the questionnaire are being used by the enterprises for improving their workload and working processes. Enterprise Resource Planning (ERP), Order Tracking Systems and Portal and Content Management appear to be the most used programs.

It is of importance that no enterprise is using a program solely for Electronic Commerce. For Portal and Content Management respondents uses the following programs; SAP Enterprise Portal, IBM Websphere,SHARE POINT (x2), Oracle, Oytek. For Customer Relations Management (CRM), SAP (x2) and Inhouse are used. For Materials Requirement Planning (MRPI, MRPII) and for Supply Chain Management (SCM) three respondents indicated that they use SAP systems. For Enterprise Resource Planning (ERP), SAP (x3), Erdemir TMS, LOGO UNITY, Genom, Oracle E-Business Management System and Datastream 7i are the programs, which are currently in use. SAP (x3), EDI and Genom are being used for Order Tracking Systems. For Business Planning SAP(x2) and Genom are in service. For Knowledge Management and for Management Information Systems (MIS) SAP(x2) and Inhouse were indicated. Oracle (x2), SQL SERVER OLAP (x2) are used for Datawarehouses and datamining. From the responses we can see that SAP, Oracle and Genom are the most widely used programs in the enterprises. Except these a textile firm has indicated different programs they use in their work process such as Winner Warehouse Program, Doruk Automation Program and Tyrex Software with intention to internalize ERP.

xiv. Selling products to other enterprises via a presence on specialized internet market places

Table 27: Status of selling via specialised internet market places

Internet Market Places	# of Firms
Yes	2
No	23
N/A	-
Total	25

xv. Questions related to Customer Satisfaction (15,16,17,18,21)

Does your firm send out newsletters to potential customers to introduce products/services?

Table 28: Newsletter sending

Sending out newsletters	# of Firms
Yes	8
No	17
N/A	-
Total	25

Do you think that your website is customer-focused?

Table 29: Website insight

Customer-focused website	# of Firms
Yes	15
No	9
N/A	1
Total	25

Does your website include a search engine, where the customers can easily find the products they are looking for?

Table 30: Inclusion of a search engine

Inclusion of a search engine	# of Firms
Yes	9
No	14
N/A	2
Total	25

Which of the followings are valid for your website?

Table 31: Attributes of the website

Attributes of the website	# of Firms
The information on the homepage is enough	12
It is easy to reach the information	19
Attractive	9
Easy to use	15
Internal search engine exists	7
Innovative	8
Reliable	13
Payment facilities exists	0
Security guarantied for online transactions	1
Good service	4
N/A	2

Are there any campaigns that take place only online?

Table 32: Online campaigns

Online campaigns	# of Firms
Yes	3
No	21
N/A	1
Total	25

xvi. how often is the website updated and is it outsourced?

To the question of "Do you out-source your website?" 15 enterprises responded positive and 9 responded negative, as in they are taking care of their websites in house, with 1 enterprise, which has also not indicated the years of website existence, has not given an answer.

Table 33: Relation between website update regularity and out-sourcing

Update frequency	# of Firms	Outsourced	
		Yes	No
Weekly	4	3	1
Bi weekly	1	1	0
Montly	5	4	1
Half-yearly	12	7	5
N/A	3	-	2
Total	25		

20 out of the 25 respondents believe that e-commerce makes trade pick up speed while reducing the total cost and eliminating the trade restraints (geographic, economic). Out of the remaining 5, 2 answered "No". In line with this, 18 of them enterprises believe that a return on investment will be realized for the investments of e-commerce while 3 of them remains negative about it. Also in relation to this, we see out of the answers of the question 25, 12 of the enterprises answered positive to their firm executives supporting e-commerce, whereas 9 of them answered negative.

xvii. Search internet for product/price before conducting purchase and sales regarding relevant business

Table 34: Search through internet before buying/selling

Internet searching before purchasing/selling	# of Firms
Yes	23
No	1
N/A	1
Total	25

xviii. Questions regarding the respondents' points of view about the e-commerce (27,28,29,30)

Do you believe that in order to compete with the current world of trade, that e-business/e-commerce is essential?

Table 35: Is e-business essential for competition?

E-business essential for competition?	# of Firms
Yes	18
No	5
N/A	2
Total	25

Most of the enterprises believe that e-commerce/e-business is essential in order to compete with the current world of trade. Linked to this information, 92 % has a positive point of view towards e-commerce.

How do you see the future of e-commerce?

Table 36: Future of e-commerce

Future of e-commerce	# of Firms
All transactions will be online	3
It will be the same level as now	1
Will grow	20
Will be less important	-
Won't be important	-
N/A	1
Total	25

Are you planning to enhance your existing system about e-commerce?

Table 37: Future plans about enhancing e-commerce systems

Future plans for enhancing e-commerce systems	# of Firms
Yes	18
No	5
N/A	2
Total	25

The outcome from these three tables that the enterprises have a high regard and positive perception for e-commerce. Most of them believe in its importance with regards to future of the business-life and have plans on enhancing e-commerce systems for the future.

In response to the question of receiving feedbacks 17 enterprises have given positive answers, whereas there are 4 negative answers and 4 N/A.

xix. The rating from enterprises about the most important problems forestalling e-commerce (Rating from 1 to 5. 1-most important, 5-least important)

Table 38: Problems forestalling e-commerce

Problems forestalling e-commerce (from most to least important)	# of Firms
No data security	31
Firms being unable to take risks, to be innovative	37
A gap in the professional staff	37
Reluctance of customers/suppliers	37
Slow internet connection	39
Security matter	41
Ambiguity and lack of legal arrangements	45
N/A	3

The respondents were asked to rank their own concerns about the problems which hinder the wide-usage of electronic commerce from 1 to 5. Some of the answers came either with just ticks or with reiterated numbers. Ticks have been regarded as average of 3. And the numbers have been taken as they are in order to keep the significance level. Table 38 shows that most enterprises find the data security issue very important and a lack that currently prevails in the infrastructures. These insecurities ranked by the respondents also overlap with the problems regarding e-business handled in Chapter 2.3.

3.3.2 Data Evaluation By Using Cross Tabulation

Out of the 34 questions asked in the questionnaire, some questions have been in relation to each other, thus completing the results in a meaningful way. These related questions are given below with their relevant response frequencies and also their interpretation.

i. Use of ICT

Table 39: Use of ICT in Turkey

Use of ICT	# of Firms
Does your firm purchase at least %1 of your products/services via internet?	7
Does your firm receive orders via the internet where these are >1% of total turnover?	8
Are your firm's IT systems linked automatically to IT systems of suppliers or customers outside your enterprise group?	9
Does your firm use internet for banking and financial services?	23
Does your firm sell products to other enterprises via a presence on specialised internet market places?	2

Table 39 presents the criteria for the Use of ICT and the frequency of firms, which have responded positively. Solely from this table we can see that the ICT is not widely used among Turkish enterprises (at the same time keeping in mind the limited number of subjects). It is however a good indication that a majority of them use internet for banking and financial services, which will in time lead to more usage of e-government for governmental duties. We also see that the enterprises lack in two major points, as the percentages of purchasing products/services and receiving orders via internet. This shows the need to have a better connectivity, security and trust between the producers and the customers.

ii. The relation between points of views regarding e-commerce and future plans for enhancements for current e-commerce systems (2 N/A)

Table 40: Relation between e-commerce and future plans for e-commerce system enhancements

Future plans for enhancing e-commerce systems E-commerce point of view (+/-)	Yes	No
Pozitive	18	0
Negative	4	1

We see from the Table 40 that most of the enterprises, which have a positive perception of e-commerce and its future also have plans for enhancing their e-commerce systems (current or the lack thereof), which is quite predictable. What is unpredictable is that the negative respondents about e-commerce have also plans for future e-commerce systems. It seems that even if they are not confident in e-commerce, they still see the future in it.

iii. The relation between using internet for product/price research before conducting purchase/sales and belief in positive effect on firm performance by means of e-commerce (2 N/A)

Table 41: Relation between using internet for product/price search and belief in e-commerce affecting firm performance positively

E-commerce affecting firms' performance Internet searching before purchasing / selling	Yes	No
Yes	20	2
No	0	1

80% of the enterprises agree on the positive effect of doing research on the internet before purchasing/selling products/services on the performance of their firms.

iv. The relation between points of views regarding e-commerce and online brand planning (2 N/A)

Table 42: Relation between e-commerce and online brand planning

Planned online branding E-commerce point of view (+/-)	Yes	No
Positive	6	16
Negative	0	1

This is an interesting result, since we saw already that many enterprises are quite content and positive about e-commerce and its future, but they are mostly unwilling to have an online branding, something that they can only create/sell online.

v. The relation between belief in that e-commerce makes trade pick up speed while reducing the total cost and eliminating the trade restraints (geographic, economic) and future plans for enhancements for current e-commerce systems (4 N/A)

Table 43: Relation between e-commerce making trade easier and future plans for e-commerce system enhancements

Future plans for enhancing e-commerce systems **Easier trade through e-commerce?**	**Yes**	**No**
Yes	16	3
No	1	1

Here we also see a positive approach to having better e-commerce system in line with the positive perception of e-commerce on the enterprise side.

vi. The relation between current online sales and/or marketing situation and if there is no current online sales yet, the plans to do in this area in the future

Table 44: Relation between current online marketing situation and future plans

Online sales/marketing	# of Firms	Planning online sales/marketing	
		Yes	No
Yes	2	-	-
No	23	12	7
N/A	-	4	
Total	25		

As seen from the Table 44, just 2 of the respondent enterprises are currently doing online sales and/or marketing. What is promising is that out of the 23 negative responded enterprises, 12 have online sales and/or marketing in their future plans.

vii. The relation between enteprises believing in a direct and positive effect to the firm performance by means of e-commerce and planning to create an online brand

Table 45: Relation between belief in positive effect of e-commerce and online brand planning

E-commerce affecting firms' performance	Planned online branding			# of Firms
	Yes	No	N/A	
Yes	6	14	1	21
No	-	2	-	2
N/A	-	-	-	2
Total	25			

Table 45 shows that even if a majority of the enterprises believe in the positive outcomes of the e-commerce, most of them do not plan to produce an online brand.

3.4 FINDINGS AND INTERPRETATIONS

Through this research the e-business readiness of Turkey is investigated in terms of the benchmarking criteria the European Union uses. Given the limited number of surveys received and the insufficient amount of data that can be found about ITC adoption and use in Turkey, it can be concluded that the results, which come to the picture here, can be regarded as a limited overview of Turkey in the area of e-business readiness. I used the information provided by the respondents of the questionnaire, which led to a dataset of 25 enterprises, varying in industries and sizes. These differences have to be taken into consideration. All data can be regarded as latest information of 2006 / mid-2007. The questionnaire consists of 34 questions, which have different types of variables.

When the main results are summarized, we see that the enterprises are in line in the internet connectivity and using different types of broadband connection. 92% of the enterprises use broadband connection with some of them using more than one type. Regardless of the industries they are involved in, we see no difference in them using internet/online sources for banking and financial services, which is an important determinant of adoption and use of ICT. We can also conclude that basic e-business technology adoption have been realized as we see the usage of professional programs used for many procedures of a work.

The use of different channels like internet market places to sell products/services turned out to be quite low for Turkey as 92% of the enterprises responded negative. In relation to this we see that 68% do not use any datamining applications to get deeper website usage information, like most clicked URLs. Almost the same 68% do not use newsletters to inform their customers, with 4 exceptions.

The usage of internet for promoting one's own products, researching internet for products/services and paying/receiving payment online are relevant variables for future online purchases, which look very promising at the moment.

In the course of questionnaire preparation, we had some hypothesis in mind, which would be either supported or denied by the outcome of the responses. One of those was if an enterprise is not using any professional business programs in-house, then it

probably is not e-business ready. The results proved us wrong. We saw that a majority of the enterprises use more than 3 of the predetermined programs in the questionnaire, with also some additions from their side and even if they are not using any of the redefined programs they have some way or another a connection with the indicator of the ICT adoption. Another hypothesis was about how close we are to the EU in the area of e-readiness. This was harder to measure, since we have a limited amount of enterprises to analyze, and the products and consumers vary greatly between this limited number. Even so we can see that we are slower in the adoption and use of ICT than the EU.

The usage or adoption of the ICT is often misunderstood as just buying a business system or application. Adoption of ICT cannot be simplified as the purchase of a product, because then the important part begins, where the program is implemented, deployed and adopted throughout the organization. There will be opportunities and threats. There should be e-business development, where various activities will be planned and the results will be measured.

CONCLUSION

Electronic commerce, embraced by the term electronic business has a core importance in the economies of the developed and developing countries. E-commerce is a must in the current business life and also for the future. As more and more transactions are done online, the need for e-commerce and all the obligations it brings with itself shows us that the future will rest on running the business online. E-commerce will not only mean buying/selling products/services and paying/receiving payments online, but also interlacing parts of the business with the suppliers, consumers, etc. Because of this fact, many companies are using several different software programs during their daily business procedures in order to make the processes run smoothly.

As seen from many regulations and initiatives, the countries have taken this subject to heart and trying to boost e-commerce on a national level. However, since e-commerce leaves no borders for companies to sell and buy from, the governments as well as end-user consumers face a need for more international regulations and punishments for those, who fail to exercise the order. Depending on this knowledge, the European Union has been putting up regulations, doing necessary adjustments and progressing along with the developments outside the EU. With the Directive 2000/31/EC the basic legal framework for electronic commerce was created and with time more regulations came into force. In order to promote and widen the usage of internet and communication technologies in the electronic business area the EU has taken measures. Implementing e-business readiness index is one of these measures and it has been a good indicator in showing where the EU members stand so far. E-business readiness is composed of predetermined criteria, which are classified under two points as “Adoption of ICT” and “Use of ICT”. With these criteria every year the progress of the member countries can be analyzed and the different national-based problems can be discovered and focused on.

In order to keep up with the EU’s progress Turkey has taken steps since 1998. More concrete steps were taken with the e-Transformation Turkey Project Short Term Action Plan of 2003-2004. From thereon other framework programs, projects and regulations are applied to improve the connectivity rates, data security and the confidence of people in online operations. To have parallel development with the EU, Turkey has

joined eEurope+ Action, which ended by 2003 and succeeded by i2010 Initiative. Turkey's efforts have not gone to waste and Turkey ranked in the top ten of the newest independent yearly "Global E-Government, 2007" report, published in August 2007. Since the e-transformation goes slower in the area of e-business than in the area of e-government, there is still some space to fill in. In order to achieve high ranks in the e-business readiness index Turkey must set a stricter pace than before and try to overcome all complications hindering the boost of e-commerce.

The EU has prepared and put several legislations and regulations into force in order to strengthen the place of the e-business. The framework programs all consist of investments and developments of R&D and ICT. Most important aspects regarding e-commerce are the data security, consumer protection and intellectual property rights. These blend with the international legislations and rules. With many actions and projects in place EU is one of the foremost players in the area of e-business.

However, as it appears from the reports analyzing both the EU members and Turkey, there is still more to do. Besides the regulatory frameworks, more actions on the international level have to be taken by the EU, since the diversity of e-commerce progress is quite wide among the members. The Scandinavian countries are the leading and most successful prosecutors of e-business. Their examples must be studied to find the points of success and those must be restructured in the national level.

Promotion of e-commerce is a must as it is where the future lies. The use of best practices will get more attention to details and most importantly it will be an aid to prevent doing the same mistakes over and over for those, who would like to implement a similar project of the sort. The EU can also try other ways to boost the usage of e-commerce by means of subsidies given to SMEs and other companies and by investing more on R&D. This way development in this area will be supported and will gain speed.

The removal of the hindrances standing in the way of communication and connectivity is very important, as it has been done in the body of liberalization of the telecommunication sector in the EU member states. There appear to be areas, clusters/industries and organizations that are lagging in terms of e-business adoption and use. Therefore Europe needs to constitute further economic reforms at both union and national level to meet the impacts of global financial uncertainties and other high prices.

ICT have an impact on innovation and efficiency and this will be a trigger for productivity growth and better services. The services (ICT and others) must be aligned in all members; otherwise it will be harder to benefit from the Single Market.

A questionnaire to find out the status of electronic business in Turkey has been sent to Turkey's Top 500 Industrial Enterprises. The survey contains 34 questions covering their perception of today's and the future's e-commerce and its orientation. 25 of the firms have responded. In order to be able to compare the results with the EU, the benchmarking indicators have been analyzed in the survey.

The info gathered from the responses is in line with the chapter of this thesis concerning the problems e-commerce faces. The most important thing people find about doing business online is the data security problem. People have not gained the trust and therefore the courage to buy and pay online. Slow internet connection, all security matters and the lack of legal arrangements are the other points following the insecurity people are feeling towards e-commerce.

The answer to the question if firms' executives are suppotive of e-commerce is interesting since 12 out of the 25 firms said "Yes", while 9 of them gave the answer "No". This shows us that almost half of the respondent enterprises may not take measurements for e-commerce in the following period due to this outlook of their managers.

The respondents were asked to choose and name the programs they are currently using for running their businesses. It is showed that many of the professional softwares indicated in the questionnaire are being used by the enterprises for improving their workload and working processes. Enterprise Resource Planning (ERP), Order Tracking Systems and Portal and Content Management appear to be the most used programs, however none of the enterprises is using a program solely for Electronic Commerce.

Depending on their responses, we can conclude that the e-commerce situation in Turkey leaves a lot to desire. Although the enterprises see the relevance of e-commerce, they are not yet totally making use of it. Neither Adoption nor Use of ICT has reached agreeable levels so far. Policymakers have to plan consecutive steps on promoting e-business in Turkey, creating environments, where both businesses and customers find it secure, trustworthy, efficient and convenient to do business online. ICT develops quite

rapidly and keeping up-to-date with it is very important. Measures should be taken to observe and analyze the changes in the network capacities, new technologies and interoperability of cross-border transactions.

This thesis shows the progress of the e-business on both European Union and Turkey's sides. We also see where the European Union members have settled in the area of e-business so far, and how far Turkey has come with the e-government projects and the results of the questionnaire in the case study. We see that Turkey takes up the 43rd place (42nd in 2007) in the E-Readiness Rankings 2008 of the Economist Intelligence Unit. The scores of 2007 and 2008 show us that it was not a fruitful year for e-business; although it didn't decline growing, it showed such a little improvement that we fell a step behind.

The results of the comparative research in this paper can be considered as prelude and are open to further discussion and improvement and should be interpreted carefully as they are based on only 25 enterprises with varieties. A way to do that would be by getting more responses from the contacted parties and going deeper into system analyzes on an industry level, which would lead to more detail and insight into what might be preventing enterprises to take bolder steps into adoption and use of ICT.

ANNEX 1

Dear Sir/Madam,

This field survey is desined for Çağla Tura's master thesis of European Union Economics Department of EU Institute, University Marmara.

The aim of this research is to find out where Turkey lies in the means of electronic business and compare it with the EU according to the findings. This paper will be prepared in an professional way and the results will be given anonymously in the thesis report. If it is undesirable, your firm's name can be reserved in the list at the end of the thesis.

This questionnaire consists of 34 questions except the information regarding the firm and can be concluded in 10 minutes. The results will be sent to you by e-mail.

After downloading and filling the questionnaire, please send it to caglatura@gmail.com. You can click the relevant answer's box twice, and choose "onaylandı (checked)" in the opened dialog window.

Best regards,

Prof. Dr. Ümit Oktay Fırat
M.U. Faculty of Engineering
Industrial Engineering Department
Student
Göztepe Campus/Kadıköy
Tel: 0216 347 13 60

Çağla Tura
M.U. EU Institute
EU Economics Master Degree

Göztepe Campus/ Kadıköy
Tel: 0212 368 33 13

FIRM INFORMATION

Firm name : .....

Firm address : .....

Person filling the survey : .....

Your position in the firm : .....

E-mail : .....

Firm's sector : .....

Is export and/or import done? : ☐ Yes ☐ No

Firm establishment year : ……...

Partnership with foreign capital? : ☐ Yes ☐ No

Total number of persons employed : ……

Firm's target audience : ☐ Individual customer

☐ Other firms/customers

1. Your firm's website is open since:

☐ The last year

☐ Two years

☐ Three years

☐ Four years

☐ For more than four years

2. Does your firm have intranet and/or extranet?

☐ Intranet ☐ Extranet

3. Does your firm use broadband connection to access internet?

☐ Yes ☐ No

If your firm uses broadband for internet connection, which type is being used?

☐ Leased Line ☐ xDSL ☐ Cable modem ☐ Satellite ☐ WAN
☐ Other

4. During website display, how many security measures take place?
(like firewalls, virus programs, data protection programs, etc.)

☐ At least 2 ☐ More than 2

5. What is the percentage of total number of persons employed using computers in their normal work routine to the number of those that do not use a computer?

☐ 100 % ☐ 50 % ☐ 25 % ☐ < 25 %

6. Which of the following actions does your firm conduct on internet? (More than one choice can be checked.)

☐ Using its own website to introduce and promote its products/services
☐ Purchasing/selling products/services from websites
☐ Researching products on internet
☐ Online completing of sale and purchase with online existing firms
☐ Tracking/conducting of transactions regarding government (e-government)
☐ Sending newsletters in order to introduce products
☐ Paying/receiving payment online
☐ Other: Please indicate:.....
☐ Other: Please indicate:.....

7. Does your firm purchase at least %1 of your products/services via internet?

☐ Yes ☐ No ☐ Indicate percentage:. ..... %

8. Does your firm receive orders via the internet where these are >1% of total turnover?

☐ Yes ☐ No ☐ Indicate percentage: ..... %

9. Are your firm's IT systems linked automatically to IT systems of suppliers or customers outside your enterprise group?

☐ No ☐ Yes

If such linked systems exists, please choose from below:

☐ Customer ☐ Supplier

10. Does your firm use internet for banking and financial services?

☐ Yes ☐ No

11. Do you analyze data like the user information, the most-clicked URLs over internet with various applications (like data mining)?

☐ Yes ☐ No

12. Does your firm do online-marketing?

☐ Yes ☐ No

If it does online-marketing, do you use web-based programs, which assess the rate of return?

☐ Yes ☐ No

13. Please indicate if your firm uses professional softwares for the following applications.

☐ Electronic Commerce :
☐ Portal and Content Management :
☐ Customer Relations Management (CRM) :
☐ Materials Requirement Planning (MRPI, MRPII) :
☐ Supply Chain Management (SCM) :
☐ Enterprise Resource Planning (ERP) :
☐ Order Tracking Systems :
☐ Business planning :
☐ Knowledge Management :
☐ Management Information Systems (MIS) :
☐ Datawarehouses and datamining :

14. Does your firm sell products to other enterprises via a presence on specialised internet channels like market places?

☐ Yes ☐ No

15. Does your firm send out newsletters to potential customers to introduce products/services?

☐ Yes ☐ No

16. Do you think that your website is customer-focused?

☐ Yes ☐ No

17. Does your website include a search engine, where the customers can easily find the products they are looking for?

☐ Yes ☐ No

18. Which of the followings are valid for your website?

☐ The information on the homepage is enough
☐ It is easy to reach the information
☐ Attractive
☐ Easy to use / userfriendly
☐ Internal search engine exists
☐ Innovative
☐ Reliable
☐ Payment facilities exists
☐ Security guarantied for online transactions
☐ Good service

19. Do you out-source your website?

☐ Yes ☐ No

20. How often is the website updated?

☐ Weekly ☐ Bi weekly ☐ Montly ☐ Half-yearly

21. Are there any campaigns that take place only online?

☐ Yes ☐ No

22. Do you believe that e-commerce makes trade pick up speed while reducing the total cost and eliminating the trade restraints (geographic, economic)?

☐ Yes ☐ No

23. Do you believe that a return on investment will be realized for the investments of e-commerce?

☐ Yes ☐ No

24. Do you search internet for product/price before conducting purchase and sales regarding your business?

☐ Yes ☐ No

25. Do the firm executives support e-commerce?

☐ Yes ☐ No

26. Are you doing currently online sales and/or marketing?

☐ Yes ☐ No

If you are not doing online sales and/or marketing currently, are you planning to do so in the future?

☐ Yes ☐ No

27. Do you believe that in order to compete with the current world of trade, that e-business/e-commerce is essential?

☐ Yes ☐ No

28. What is your point of view towards e-commerce?

☐ Positive ☐ Needs creativity ☐ Negative ☐ Not reliable

29. How do you see the future of e-commerce?

☐ All transactions will be online ☐ Will be less important
☐ It will be the same level as now ☐ Will grow ☐ Won't be important

30. Are you planning to enhance your existing system about e-commerce?

☐ Yes ☐ No

31. Do you get feedback from end-users?

☐ Yes ☐ No

32. In your opinion what are the most important problems forestalling e-commerce? Please rate them from 1 to 5. (1-most important, 5-least important).

☐ Security matter
☐ Ambiguity and lack of legal arrangements
☐ Reluctance of customers/suppliers
☐ Slow internet connection
☐ A gap in the professional staff
☐ No data security
☐ Firms being unable to take risks, to be innovative

33. Do you believe in a direct and positive effect to the firm performance by means of e-commerce?

☐ Yes ☐ No

34. Is your firm planning to create an online brand?

☐ Yes ☐ No

ANNEX 2

Sayın Yetkili,

Bu araştırma, Marmara Üniversitesi, AB Enstitüsü, AB İktisadı Anabilim Dalı'nda, Çağla Tura tarafından hazırlanmakta olan Yüksek Lisans tez çalışması için planlanmıştır.

Araştırmanın amacı, Türkiye'nin e-iş konusunda nerede olduğunu araştırmak ve elde edilen bulgulara göre Türkiye'yi AB ile karşılaştırmaktır. Tamamen akademik yaklaşım içinde gerçekleştirilen araştırmanın sonuçları anonim tutulacak ve tez raporunda genel sonuçlara yer verilecektir. İstenmediği takdirde, tezin sonunda yer alacak ek listede firmanızın adı saklı tutulabilir.

Anket, firma bilgileri dışında 34 sorudan oluşmaktadır ve anketi cevaplama süresi 10 dakikadır. Anket sonuçları firmanıza e- mail yolu ile iletilecektir.

Bilgisayarınıza indirip, kaydettikten sonra cevapladığınız anketi, lütfen caglatura@gmail.com adresine gönderiniz. Uygun cevap kutusunun üzerinde çift tıklayarak açılan pencerede "onaylandı (checked)"i işaretleyebilirsiniz. Zaman ayırdığınız için çok teşekkür ederiz.

Saygılarımızla,

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AB İktisadı Yüksek Lisans Öğrencisi
Göztepe Kampüsu/ Kadıköy
Tel:0212 368 33 13

FİRMA BİLGİLERİ

Firma adı : .....

Firma adresi : .....

Anketi dolduran kişi : .....

Firmadaki pozisyonunuz : .....

E-posta : .....

Firmanın faaliyet gösterdiği sektör : .....

Firma ithalat - ihracat yapıyor mu? : ☐ Evet ☐ Hayır

Firma kuruluş yılı : ……...

Yabancı sermaye ortaklığı var mı? : ☐ Evet ☐ Hayır

Toplam çalışan sayısı : ……

Firmanın hedef kitlesi : ☐ Bireysel tüketiciler

☐ Diğer kurumlar/tüketiciler

1. Firmanızın internet (web) sitesi :

☐ Son bir yıldır var

☐ İki yıldır var

☐ Üç yıldır var

☐ Dört yıldır var

☐ Dört yıldan uzun bir süredir var

2. Firmanızın intraneti ve/veya extraneti var mı?

☐ İntranet ☐ Extranet

3. Firmanız internete geniş bant üzerinden mi bağlı?

☐ Evet ☐ Hayır

Firmanız internete geniş bant üzerinden bağlı ise aşağıdakilerden hangisini kullanmaktadır?

☐ Leased Line ☐ xDSL ☐ Kablo modem ☐ Uydu ☐ WAN ☐ Diğer

4. Firma sayfasının görüntülenmesi sırasında kullanılan kaç tane güvenlik uygulaması var? (güvenlik duvarı, virüs programı veya veri koruma programları gibi)

☐ En az 2 ☐ 2'den fazla

5. Firmanızda bilgisayar kullanan çalışan sayısının tüm çalışan sayısına oranı yaklaşık olarak nedir?

☐ %100 ☐ %50 ☐ %25 ☐ < % 25

6. Firmanız internet üzerinden aşağıdaki hangi faaliyetleri yürütmektedir? (Birden fazla şıkkı işaretleyebilirsiniz.)

☐ Ürün/hizmet reklam ve tanıtımı için kendi web sitesini kullanmak
☐ Web sitesi üzerinden ürün/hizmet alım satımı yapmak
☐ Web sitelerinde ürün araştırması yapmak
☐ Elektronik ortamda mevcut işletmelerle online alım/satım sözleşmeleri yapılması
☐ Devletle alakalı işlemlerin internet üzerinden takibi/yapılması
☐ Kişilere e-posta bülteni aracılığıyla ürün tanıtımı (newsletter)
☐ İnternet üzerinden ödeme kabul edilmesi/yapılması
☐ Diğer: Lütfen belirtiniz:.....
☐ Diğer: Lütfen belirtiniz:.....

7. Firmanız satın alma işlemlerinin en az %1'ini internet üzerinden yapıyor mu?

☐ Evet ☐ Hayır ☐ Değer belirtiniz: % .....

8. Firmanız internet üzerinden toplam siparişin en az %1'ini alıyor mu?

☐ Evet ☐ Hayır ☐ Değer belirtiniz: % .....

9. Firmanızın kendi alt grupları dışında tedarikçilerin ve müşterilerin IT sistemlerine direkt bağlantınız var mı?

☐ Hayır ☐ Evet

Eğer bağlantınız varsa; lütfen aşağıdakilerden seçiniz:

☐ Müşteri ☐ Tedarikçi

10. Firmanız, banka ve finansal hizmetler için interneti kullanıyor mu?

☐ Evet ☐ Hayır

11. Firmanızda internet üzerinden alınan kullanıcı bilgileri, web sitesinde en çok tıklanan linkler gibi verileri çeşitli uygulamalarla (veri madenciliği, vb. gibi) analiz ediyor musunuz?

☐ Evet ☐ Hayır

12. Firmanızda online pazarlama yapılıyor mu?

☐ Evet ☐ Hayır

Eğer yapılıyorsa bu tür kampanyaların yatırım getirisini ölçen web bazlı programları kullanıyor musunuz?

☐ Evet ☐ Hayır

13. Lütfen aşağıdaki uygulamalar için kullandığınız profesyonel yazılım varsa seçiniz.

☐ Elektronik ticaret :
☐ Portal ve içerik yönetimi :
☐ Müşteri yönetimi (CRM) :
☐ Malzeme akış yönetimi (MRPI, MRPII) :
☐ Tedarik zinciri yönetimi (SCM) :
☐ İşletme kaynak planlaması (ERP) :
☐ Sipariş izleme otomasyonu :
☐ İş planlama (Business planning) :
☐ Bilgi yönetimi (Knowledge Management) :
☐ Yönetim bilişim sistemi (MIS) :
☐ Veri ambarı ve veri madenciliği :

14. Ürünlerinizi başka firmalara özel internet kanalları vasıtasıyla satıyor musunuz? (elektronik pazar yerleri gibi…)

☐ Evet ☐ Hayır

15. Firmanız, ürünlerini tanıtmak amacıyla potansiyel müşterilere bülten (newsletter) gönderiyor mu?

☐ Evet ☐ Hayır

16. Websitenizin müşteri odaklı hazırlandığını düşünüyor musunuz?

☐ Evet ☐ Hayır

17. Sitenizde müşterilerin istedikleri ürüne kolayca erişmeleri için arama motoru var mı?

☐ Evet ☐ Hayır

18. Aşağıdakilerden hangileri sizce firmanızın web sitesi için doğrudur?

☐ Ana sayfadaki bilgiler yeterli
☐ Bilgilere erişim rahat
☐ İlgi çekici
☐ Kullanımı kolay
☐ Site içi arama yapma özelliği var
☐ Yenilikçi
☐ Güvenilir olması
☐ Ödeme kolaylığı sağlamaları
☐ İşlemlerde güvenlik garantisi
☐ İyi servis sunmaları

19. Web siteniz için dışarıdan hizmet alıyor musunuz?

☐ Evet ☐ Hayır

20. Web sitesinin güncellemesini hangi sıklıkta yapıyorsunuz?

☐ Haftada bir ☐ İki haftada bir ☐ Ayda bir ☐ Altı ayda bir

21. Sadece internet üzerinden yayınladığınız kampanyalar oluyor mu?

☐ Evet ☐ Hayır

22. Elektronik ticaretin toplam maliyeti düşürdüğünü, ticaretteki kısıtları (coğrafi, ekonomik) ortadan kaldırırarak ticarete hız kazandırdığını düşünüyor musunuz?

☐ Evet ☐ Hayır

23. Elektronik ticaretin getirisinin, bu alana yaptığınız yatırım masraflarını karşılayacağına inanıyor musunuz?

☐ Evet ☐ Hayır

24. İşinizle ilgili alım ve satımlar öncesi internetten ürün ve/veya fiyat araştırması yapıyor musunuz?

☐ Evet ☐ Hayır

25. Şirket yöneticileri elektronik ticareti teşvik ediyor mu?

☐ Evet ☐ Hayır

26. Şu anda online satış ve/veya pazarlama yapıyor musunuz?

☐ Evet ☐ Hayır

Eğer şu anda online satış ve/veya pazarlama yapmıyorsanız, ilerde online satış ve/veya pazarlama hedefleriniz var mı?

☐ Evet ☐ Hayır

27. Rekabet etmek için e-iş/e-ticaret yapmanın gerekli olduğunu düşünüyor musunuz?

☐ Evet ☐ Hayır

28. E-işe bakış açınız nasıl?

☐ Olumlu ☐ Yaratıcılık gerektiriyor ☐ Olumsuz ☐ Güvenli bulmuyorum

29. İleride e-iş/e-ticaretin durumunu nasıl görüyorsunuz?

☐ Bütün işler internet üzerinden yapılacak ☐ Daha gelişecek
☐ Aynı seviyede kalacak ☐ Önemi azalacak
☐ Önemsiz olacak

30. E-iş konusunda şu anda elinizde bulunan sistemi daha da geliştirmeyi planlıyor musunuz?

☐ Evet ☐ Hayır

31. Kullanıcılardan geri bildirim alıyor musunuz?

☐ Evet ☐ Hayır

32. Sizce e-işin önündeki en önemli sorunlar nelerdir? Lütfen 1-5'e kadar puanlayınız (1-en önemli, 5-en az önemli olmak üzere).

- ☐ Güven sorunu
- ☐ Yasal düzenleme yetersizliği ve belirsizliği
- ☐ Müşteri/tedarikçilerin konuya soğuk bakması
- ☐ İnternet hızının düşük olması
- ☐ Profesyonel eleman boşluğu
- ☐ Veri gizliliğinin olmaması
- ☐ Firma kültürünün yenilik yapma/risk almaya açık olmaması

33. E-iş teknolojilerini kullanmanın şirket performansına doğrudan ve pozitif bir etkisi olduğunu düşünüyor musunuz?

☐ Evet ☐ Hayır

34. Online bir marka yaratmayı düşünüyor musunuz?

☐ Evet ☐ Hayır

ANNEX 3

FIRM LIST

Case #	FIRM	SECTOR	EXPORT / IMPORT	FOUND. DATE
C001	AKSA JENERATÖR	ENERGY	Y	1984
C002	ARÇELİK	DURABLE CONSUMER GOODS	Y	1955
C003	ASSAN ÇELİK	IRON AND STEEL INDUSTRY	Y	1992
C004	BAYMİNA ENERJİ	ENERGRY-ELECTRICTY GENERATION - ONE CUSTOMER	N	1998
C005	BSH	DURABLE CONSUMER GOODS	Y	1992
C006	BOLU ÇİMENTO SANAYİ A.Ş.	CEMENT INDUSTRY - CONSTRUCTION	Y	1968
C007	ÇOLAKOĞLU METALURJİ	METALLURGICAL INDUSTRY	Y	N/A
C008	DIMES	IRON AND STEEL INDUSTRY	Y	1978
C009	DİLER DEMİR ÇELİK	FOOD INDUSTRY	Y	1958
C010	FATOĞLU GIDA	FOOD INDUSTRY	Y	1978
C011	HEMA ENDÜTRİ	METAL-AUTOMOTIVE INDUSTRY-AGRICULTURE	Y	1973
C012	HES HACILAR	CABLE-WIRE INDUSTRY	Y	1974
C013	İSDEMİR	IRON AND STEEL INDUSTRY	Y	1984
C014	KARDEMİR HADDECİLİK	IRON AND STEEL INDUSTRY	Y	N/A
C015	KOCAER TEKSTİL	TEXTILE INDUSTRY	Y	1995
C016	KOÇ HADDECİLİK	IRON AND STEEL INDUSTRY	Y	1993
C017	KOROZO AMBALAJ	PACKAGE INDUSTRY	Y	1973
C018	KORTEKS	TEXTILE INDUSTRY	Y	1989
C019	MARDİN ÇİMENTO	CONSTRUCTION	Y	1969
C020	MERKEZ DAĞITIM PAZARLAMA VE SAN. TİCARET A.Ş.	DISTRIBUTING ENTERPRISE (ONLY PRINTED)	N	2002
C021	ÖZER METAL	BRASS COPPER ALLOY	Y	1981
C022	POLISAN BOYA	PAINT INDUSTRY	Y	1985
C023	SET ÇİMENTO	CEMENT INDUSTRY	Y	N/A
C024	HIDDEN	FOOD INDUSTRY	Y	1962
C025	ÜLKER	FOOD INDUSTRY	Y	1944

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