Czech University of Life Sciences Prague

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Diploma Thesis

Internet banking and e-Business solutions

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Declaration

I declare that I have worked on my diploma thesis titled “Internet banking and e-business solutions” by myself and I have used only the sources mentioned at the end of the thesis.

In Prague on 7th of April, 2011 Vladimir Marković

Acknowledgements

I would like to take this opportunity to express my deep gratitude to all those who contributed to my diploma thesis. My most virtuous gratitude goes to Ing. Mansoor Maitah Ph.D.et Ph.D., supervisor of this thesis. His constant guidance supports and critics during the period of writing my diploma thesis inspired me and made this thesis possible.

I also want to express my warmest gratitude to my colleagues, friends and family, who supported me throughout the writing of this thesis, their help, hints and warmth gave me the means to accomplish this task.

Finally I am thankful to my professors in the Faculty of Economics and Management, Czech University of Life Sciences Prague, without their lectures and advise it would have been impossible to catch all the interest and the issues of such an assignment, especially thanks for Head of International Department PhDr. Vlastimil Černý.

Summary:

The essential goal of this thesis is focused on developing of online banking and terms as e-Business, e-Commerce. The thesis is divided into fourth main parts. The first deals with the theoretical definition of e-business, e-commerce, e-markets, and statistical data about internet users all around world. In the second part are definitions about online banking and their types. The third part is the analysis of the service called InternetBanking 24 provided by ČSOB Bank and my experience of using in for a period of almost three years, some benefits that bring online banking with comparison to traditional one. The fourth part includes the concept of e-Commerce and service which is dealing with accepting of payment cards for online shopping and bank gateway, provided to merchants by ČSOB Bank to improve their online sales to follow world trends and to be more efficient and faster in sales of goods with e-shops in Czech Republic.

Keywords: e-business, e-commerce, e-markets, e-Procurement, CRM, ERP, SCM, online banking, e- shop

Souhrn:

Základním cílem této diplomové práce je zaměřenost a rozvoj on-line bankovnictví, termíny jako e-Business a e-Commerce. Práce je rozdělena do 4 hlavních částí. První část se zabývá teoretickými pojmy týkající se e-podnikání, e-obchodování, e-trhy, a statistickými údaji o počtu uživatelů internetu po celém světě. V druhé části je definice on-line bankovnictví a jejich typy. Třetí část se zabývá analýzou služby s názvem InternetBanking 24, kterou poskytuje ČSOB Banka a také moje zkušenosti s jejím používáním po dobu téměř tří let. Dále se zabývá výhodami, které přináší on-line bankovnictví, v porovnání k tradičnímu bankovnictví v ČR. Čtvrtá část obsahuje službu e-Commerce, která se zabývá přijímáním platebních karet pro online nákup a napojení platební brány k e-shopům, obchodníkům a klientům ČSOB banky, s cílem zlepšení on-line prodeje a sledování světových trendů za účelem rychlejšího a kvalitnějšího prodeje zboží.

Klíčová slova: e-podnikání, e-obchodování, e-trhy, e-veřejné zakázky, CRM, ERP, SCM, online bankovnictví, e-obchod.

Abstract

The Internet is driving the new economy by creating unprecedented opportunities for countries, companies and individuals around the world. E-business relies on the development of new business strategies based on networks.

The rapid expansion of the Internet has transfored the way in which people and business communicate and interact. It has revolutionizes the way in which informations is stored, exchanged, viewed, and manipulated. This has opened up new opprotunities for business, which were almost inconceivable before, as it is now possible co conduct business transactions on a global basis, within a relativly short span of time.

Business have recognized the possibilities the Internet has to offer and hence the need to adopt new business process. The increase in electronic ways of conducting business has had a major impact on virtually every business sector, especially banking sector.

The world has become increasingly inter-connected via telecommunication networks and computers. These offer fast, flexible, and cost-effective ways of doing business. To be competitive in the Internet economy, companies need to harness the power of the Internet successfully. Online banking is a young way for banks to reach new and old customers. The concept has emerged over the last decade from being not very utilized to become a major channel for the bigger banks in Czech Republic but also in the world.

This facts where being me very interested and this are the main reasons why i have choosen the topic Internet banking and e-Business solutions to write about. In my diploma thesis i will discusses the foundamentals of e-Business and e-Commerce some e-Business models and reviews e-Business trends in online banking sector in Czech republic, as examlpe i will interduce ČSOB Bank where i have bank account and experience of using their Internet Banking 24 service and other E commerce service's of Československá obchodní banka, a. s. (ČSOB).

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Index:

- **IT** Information technology
- **ATM** Automated Teller Machine
- **ASP** Application Service Provider
- **OECD** The Organization for Economic Cooperation and Development
- **ICT** Information and Communication Technologies
- **IB** Internet Banking
- **CRM** Customer relationship management
- **Wi-Fi** Wireless Fidelity
- **RSS** Really Simple Syndication
- **ČSOB** Československá obchodní banka
- **ERP** Enterprise Resource Planning
- **SCM** Supply Chain Management
- **EDI** Electronic Data Interchange
- **CEO** Chief executive officer
- **SME** Small and medium enterprises
- **WWW** World Wide Web
- **HR** Human Resource
- **ROR** Return on Relationship
- **ROI** Return on Investment
- **MRP** Manufacturing Resource Planning
- **B2B** Business to Business
- **B2G** Business to Government
- **C2C** Customer to Customer
- **XML** Extensible Markup Language

1. Introduction

In the beginning of the 1990s the main aspect of e-commerce was about being present on the Internet, having a website. Companies might not have offered any products or services through the Internet, but they should have a website with at least some information about the company. At the end of 1990s the phase of e-commerce had expanded to not only be about offering a website, but also about transactions, meaning to buy or sell through digital media. Today e-commerce is more focused towards how the Internet can be used to make profitability. Kalakota, Robinson and Tapscott (2001) call this era e-business, because it is now that e-business finally get its big breakthrough and starts to be recognized as a necessity for companies to survive [6]. The e-business probably arose because of the possibilities and benefits it was found to bring along, such as broader and longer reach greater flexibility and better customer understanding. The term e-business was first stated by Lou Gerstner CEO of IBM, when the company started to realize the importance of the Internet as more than a web site. They saw Internet as a marketplace where by exploiting the technology making business processes more successful – e-business, according to IBM.

1.1 Background

The phenomena e-business though can be said to have existed since 1960 on the forerunner to the Internet the ARPANET where electronically transactions is said to taken place. In the 1980s the same kinds of transactions was used over Internet, though in very small scale and only through closed systems like intranet or extranet between companies. In the beginning of the 1990s the e-business could expand thanks to the launch of world wide web and the first web browser which made it possible to build virtual stores on the Internet, where people all over the world could do their shopping, whenever on the day they so desired. Among the first companies to adopt e-business in bigger scale was the American company Amazon who started by selling books on the Internet.

Since then the rise of e-business was a fact and more and more companies have put a dot com after their name and starting with e-business.

The e-business hit a wall and stagnated at the beginning of the new millennium when the so-called IT-bubble busted, but have on recent years started to rise again. As long as e-business has existed so have trends in the same matter. In the 1970s and 1980s the trends most notable was to increase global competition, larger demand for quality and process improvement, shorter product life cycles, and require for a more flexible work force. In the 1990s the most significant trends was the fast appearance of Internet. What will then be the dominating trends for the 21st century? No one can for sure tell, but by taking today's major trends into consideration, and to look at what drives these trends might have, will make it possible to get a glimpse of the future. Having this in mind and by knowing what customers demand from their e-business vendors, then be able to keep up with the, in this business, fast changing trends [6].

1.2 The Rapid Growth of the Internet and Electronic Business

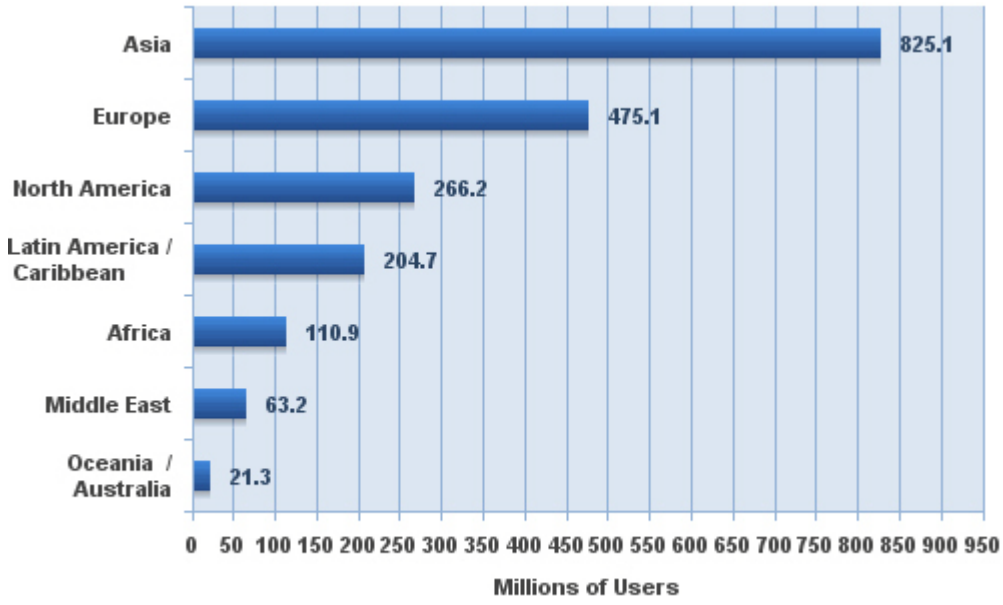
In the last decade, a rapid growth and adoption of the internet has been observed in all the continents of the world (see Table 1.1). As shown in Table 1.1, all the regions in the world have achieved more than 100 percent growth for the period of 2000-2010, with 146.3% in North America, 179.0% in Oceania/Australia, 352.0% in Europe, 621.8% in Asia, 1032.8% in Latin America/Caribbean, 2357.3% in Africa and 1825.3% in Middle East. In the meantime, North America has the highest adoption rate of the Internet (77.4% of its population have adopted the Internet) while Africa has the least adoption rate of the Internet (only 10.9% of its population are connected to the Internet). The differences in economic development may contribute to the variances in adoption rates of the Internet between developing and developed regions. The world has more than 14 million Internet users (or 28.7% of the world population) in the first half of 2010, and has achieved over 444% percent growth for the period of 2000-2010.

Table number 1.1: Global Internet adoption

WORLD INTERNET USAGE AND POPULATION STATISTICS						
World Regions	Population (2010 Est.)	Internet Users Dec. 31, 2000	Internet Users Latest Data	Penetration (% Population)	Growth 2000-10	Users % of Table
Africa	1,013,779,050	4,514,400	110,931,700	10.9	2,357.3 %	5.6
Asia	3,834,792,852	114,304,000	825,094,396	21.5	621.8 %	42.0
Europe	813,319,511	105,096,093	475,069,448	58.4	352.0 %	24.2
Middle East	212,336,924	3,284,800	63,240,946	29.8	1,825.3 %	3.2
North America	344,124,450	108,096,800	266,224,500	77.4	146.3 %	13.5
Latin America/Caribbean	592,556,972	18,068,919	204,689,836	34.5	1,032.8 %	10.4
Oceania / Australia	34,700,201	7,620,480	21,263,990	61.3	179.0 %	1.1
WORLD TOTAL	**6,845,609,960**	**360,985,492**	**1,966,514,816**	**28.7**	**444.8 %**	**100.0**

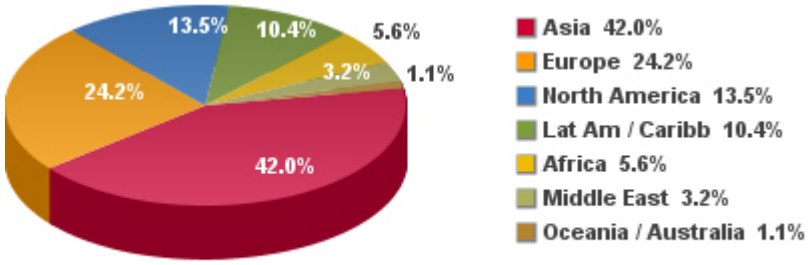
Source: http://www.internetworldstats.com/stats.htm

Figure number 1.1: Internet users in the world – by Geographic regions (2010)



Source: Internet World Stats - www.internetworldstats.com/stats.htm

Figure number 1.2: Internet users in the world- Distribution by world regions (2010)



Source: Internet World Stats - www.internetworldstats.com/stats.htm

Some top countries in terms of the number of Internet users are (in the order): China (420 million or 21.4% of total world Internet users), United States (239.8 million or 12.2% of total world internet users), Japan (99.1 million), India (81 million), Brazil (75.9 million), Germany (65.1 million), Russia (59.7 million), United Kingdom (51.4 million), France (44.6 million), Nigeria (43.9 million), South Korea (39.4 million), Turkey (26.5 million), Iran (23 million), Mexico (23.7 million), Italy (34.71 million), Indonesia (25 million), Philippines (20.16 million),Spain (25.6 million), Argentina (17.5 million) and Canada (28 million). (See Table number 1.2).

As displayed in **Table 1.2**, while China has the largest number of Internet users the penetration/diffusion rate of the internet is quite low (only 21.4% Chinese are using the internet). Similarly India's Internet penetration rate also quite low (with 81 million users and 4.1% internet penetration rate). On the other hand countries like South Korea (81.1), Germany (79.1%), Japan (78.9%), Canada (77.7%), and United States (77.3%) are some countries with the highest internet penetration rates. At the same time, developing countries (such as China (1766.7%), India (1520.0%), Iran (13180.0%) and Nigeria (21 891.1%)) have dominated the user growth for the period of 2000-2010.

Table number 1.2: Internet Top 20 countries with highest number of users (2010)

TOP 20 COUNTRIES WITH HIGHEST NUMBER OF INTERNET USERS						
#	Country or Region	Population, 2010 Est.	Users Latest Data	% Population (Penetration)	Growth 2000-10 (%)	% of World Users
1	China	1,330,141,295	420,000,000	31.6	1,766.7	21.4
2	United States	310,232,863	239,893,600	77.3	151.6	12.2
3	Japan	126,804,433	99,143,700	78,2	110.6	5.0
4	India	1,173,108,018	81,000,000	6.9	1,520.0	4.1
5	Brazil	201,103,330	75,943,600	37.8	1,418.9	3.9
6	Germany	82,282,988	65,123,800	79.1	171.3	3.3
7	Russia	139,390,205	59,700,000	42.8	1,825.8	3.0
8	UK	62,348,447	51,442,100	82.5	234.0	2.6
9	France	64,768,389	44,625,300	68.9	425.0	2.3
10	Nigeria	152,217,341	43,982,200	28.9	21,891.1	2.2
11	S.Korea	48,636,068	39,440,000	81.1	107.1	2.0
12	Turkey	77,804,122	35,000,000	45.0	1,650.0	1.8
13	Iran	76,923,300	33,200,000	43.2	13,180.0	1.7
14	Mexico	112,468,855	30,600,000	27.2	1,028.2	1.6
15	Italy	58,090,681	30,026,400	51.7	127.5	1.5
16	Indonesia	242,968,342	30,000,000	12.3	1,400.0	1.5
17	Philippines	99,900,177	29,700,000	29.7	1,385.0	1.5
18	Spain	46,505,963	29,093,984	62.6	440.0	1.5
19	Argentina	41,343,201	26,614,813	64.4	964.6	1.4
20	Canada	33,759,742	26,224,900	77.7	106.5	1.3
TOP 20 Countries		4,480,797,760	1,490,754,397	33.3	417.8	75.8
Rest of the World		2,364,812,200	475,760,419	20.1	551.2	24.2
Total World - Users		**6,845,609,960**	**1,966,514,816**	**28.7**	**444.8**	**100.0**

Source: http://www.internetworldstats.com/top20.htm

Also it can be seen from the Table 1.2 that the top 20 countries have accounted for more than 75% (78.9%) of the world's total number of internet users while the remaining world (with more than 140 countries) only accounted for 24.2%. Therefore in world scene most of the e-business activities come from these countries and they form the massive head of the Internet world.

Figure number 1.3: Internet Top 20 countries with highest number of users (2010)

Source: www.internetworldstats.com/top20.htm - June 30, 2010

2. Objectives and Methodology

Objectives

This diploma thesis deals with trend in e-Business and online banking and it use in praxis all around world and in Czech Republic. The essential goal of this thesis is focused on developing of online banking and terms as e-Business, e-Commerce. The main objective in the research is to analyze services of online banking provided by ČSOB Bank and to intreduce what kind of benefits can get the clients. Very interested part is explanation of service ČSOB Bank called e- Commerce for merchants and connection of bank gatways to e- shops.

Methodology

The thesis is divided into fourth main parts. The first deals with the theoretical definition of e-business, e-commerce, e-markets, and statistical data about the rapid growth of the Internet and Electronic Business. Comparation between e-Business and e-Commerce and main differences. Still lots of people don't recognize it and I have tried to explain it more closely this problematic. In the second part are definitions about online banking and their types and introduction about what I will write in my practical part. The third part is case study and the analysis of the service called InternetBanking 24 provided by ČSOB Bank and my experience of using in for a period of almost three years, some benefits that bring online banking with comparison to traditional one. Some examples of online payments in Czech Republic provided by ČSOB Bank and explanations how does it work. The fourth part includes the concept of e-Commerce and service which is dealing with accepting of payment cards for online shopping and bank gateway, provided to merchants by ČSOB Bank to improve their online sales to follow world trends and to be more efficient and faster in sales of goods with e-shops in Czech Republic. Explanations how does it ČSOB banks deal with company Global Payments Europe s.r.o., which is leading supplier of cashless payments for banks and financial institutions in the Czech Republic.

3. Literature Overview

„The Internet is an emerging technology that has the potential to revolutionize many Aspects of business theory and practice. "[5]

3.1 The World of e-Business

Connectivity to the Internet and the effective exploitation of available Internet service technologies is both the cause and the effect of new ways to conduct business electronically. The potential rewards of doing business over the World Wide Web (the Web) are limitless as companies extend their reach beyond organizational and geographic boundaries to allow the organization to exploit local and global markets.

Harnessing the Internet and the technologies surrounding it has the potential to impact several business drivers such as attracting new customers; retaining customers; stream ling distribution channels, logistics operations and key business processes; attracting new partners; and improving productivity. The power of the Internet to support the sales and Marketing of products efficiently has led to incredible levels of Web activity. E-Business is a fast growing area in the new Internet economy and is a critical imperative for business seeking to create or maintain sustained market advantages in the 21st century. The rapid adoption of e-Business models is shaping the future of global businesses and driving deep and profound changes in the structure of business practices of organizations and the interactions between companies.

3.2 What is e-Business?

IBM was among the first to use e-Business when it launched a thematic campaign built around the term in 1997. Until then, the widely used buzzword was e-Commerce. The shift in terms also meant a shift in paradigm; selling and selling support were the only experiences that companies could reproduce on the Web. Broadening the approach to allow more types of business on the Web created the new term e-Business. E-Business can be defined as the conduct of automated business transactions by means of electronic

communications networks (e.g., via the Internet and/or possibly private networks) end-to-end. [2]

The term ***end-to-end*** business transaction signifies that a succession of automated business processes and information systems of different companies, which are involved in an inter-company business transaction, are successfully integrated. The aim is to provide seamless interoperation and interactive links between all the relevant members of an extended demand and supply chain - ranging from product designers, suppliers and their partners to end-customers. An end-to-end process involves integrating designers, suppliers, and buyers, trading partners, logistics providers and end-customers in the entire planning and execution process. In simple terms, it promotes inter-enterprise business relationships. Note that thus definition of e-Business subsumes the term collaborative business.

To exemplify the concept of an end-to-end inter-company business transaction, consider the case where the sales department of a large multi-national organization lands a strategic deal. This company needs to quickly update its customer relationship system, the order management system, the billing system, the warehouse management system, and inform its suppliers and its logistics providers that a key order must be filled. All these steps must obviously be carried out in an automated fashion.

Similarly, when the marketing department needs to launch a campaign, coinciding with the availability of a new product line that is supported by the sales department armed with new information about this product line, all company resources must be coordinated. In both cases, critical data from multiple sources must be shared across departments (or collaborating enterprises) and seamlessly fused to deliver answers to customers and partners. Accomplishing these types of challenging enterprise business tasks is difficult because of the multiple resources needed and the precise timing required to make a collaborative **(intra- or inter)** company network work consistently and effectively.

3.3 E-Business vs. e-Commerce

A particular form of e-Business is e-Commerce. E-Commerce is a term that describes a focus on buying and selling products and services on the Internet. This can be conducted from a business-to-business **(B2B)** or business-to-consumer **(B2C)** perspective. Compared with e-Commerce, e-Business is a more generic term because it refers not only to information exchanges related to buying and selling but also to servicing customers and collaborating with business partners, distributors and suppliers. E-Business encompasses sophisticated business-to-business interactions and collaboration activities at a level of enterprise applications and business processes, enabling business partners to share in-depth business intelligence, which leads, in turn, to the management and optimization of inter-enterprise processes such as supply chain management [2]. More specifically, electronic business enables companies to link their internal and external processes more efficiently and flexibly, work more closely with suppliers and better satisfy the needs and expectations of their customers. Internal or back office processes include distribution, manufacturing, and accounting while external or front office processes include these processes that connect an organization to its customers and suppliers.

Sometimes people still use the term e-Commerce instead of e-Business. Most of us feel that e-Business and e-commerce mean the same thing. The term 'e-commerce' has a narrower meaning than 'e-business' and refers to using the Internet to order and pay for products or services. So e-commerce is a sub-set of e-business. Therefore, before we examine the definition of e-Business any further and deconstruct its meaning, it is useful to understand the differences and similarities between e-Business and e-Commerce.

The meaning of the term electronic commerce has changed over the years. Originally, e-Commerce meant the facilitation of commercial transactions electronically, usually using technology like Electronic Data Interchange **(EDI)** to send commercial documents like purchase orders or invoices electronically. Today it includes features that may more correctly be termed **'Web Commerce'** - the purchase of goods and services over the Web via a secure server with e-shopping carts and electronic pay services, like credit card pay

authorizations. We may thus define electronic commerce as the buying and selling of goods and services, and the transfer of funds, through digital communications. This includes on-line display of goods and services, ordering, billing, customer service and all handling of payments and transactions. The selling process may include cataloguing of goods and services, order taking, and billing, however, it does not include key business processes such as Customer Relationship Management **(CRM)**, Supply Chain Management **(SCM)**, and Enterprise Resource Planning **(ERP)** integration.

As observed above, e-Business is a broader term than e-Commerce. It is usually taken to mean the integration of electronic processes beyond buying and selling activities, e.g. full integration into organizations **ERP (Enterprise Resource Planning)** systems or equivalent business tools, to undertake business processes by electronic communications end-to-end. Placing key processes, such as CRM, SCM and ERP, on the Web means that enterprise customers can do far more than simply placing an order and paying for it. They can track the status of an order from placement to delivery; receive prompt support once it has arrived, and easily place follow up and related orders [2]. From the enterprise perspective this means that inventory is optimized by directly interfacing with suppliers and customers, partners and suppliers who can transact directly with an enterprise's corporate systems such as inventory, accounting, and purchasing. Transactions can be buying and selling, serving customers, collaborating with business partners, or administrative transactions. Transactions can be internal to a company, e.g., processing a purchase order, and affect the internal supply chain process, or be across firms, affecting external supply chain processes. Business transactions typically generate multiple activities such as credit checks, automated billing, purchase orders, stock updates, and shipping on the back-office systems of an enterprise.

3.4 E-Business and e-commerce definitions

There are a range of definitions of e-business. Damanpour for example, defines e-business as any 'net' business activity that transfers internal and external relationships to create value and exploit market opportunities driven by new rules of

the connected economy. The Gartner Advisory Group, a research and advisory services firm, describes e-business in terms of a quantity rather than absolute state of a company. They consider a business an e-business to the degree that it targets the market opportunities of conducting business under new electronic channels, which revolve around the Internet.

This is an acknowledgement that e-business comes in many forms and can be implemented to a very small or a large degree. It is also an acknowledgement that the 'Internet' is an essential component of an e-business strategy. Laudon and Laudon's (2002) definition of e-business, as the use of the Internet and other digital technology for organizational communication, co ordination and the management of the firm, encompass these different adaptations. In the broadest possible terms, however e-business is an electronic way of doing business. The fact that the value proposition of e-business includes the creation of new market opportunities through electronic channels, should not be ignored as these electronically channeled market opportunities enable companies to lower trans action costs, reduce delivery times, improve customer services, and add convenience [2].

This fits with broad definitions of the term **'e-commerce'** exemplified by the definitions below:

- **The Organization for Economic Cooperation and Development (OECD)**: 'The electronic exchange of information that support and govern commercial activities including organizational management, commercial management, commercial negotiations and contracts, legal and regulatory frameworks, financial settlement arrangements and taxation'.
- **Learnthat**: e-Commerce is not just about buying and selling online, but also includes all forms of business activities that are conducted over the Internet (e.g. the business-to-business flow of information between companies or within a company, communication between businesses, online advertising, etc.).

- **Kalakota and Whinston**: e-Commerce at its grass root level can be described as an electronic method of doing business, typically over the Internet. Broadly defined, however, 'e-commerce is a modern business methodology that addresses the needs of organizations, merchants and consumers to cut costs while improving the quality of goods and services, and increasing the speed of service delivery'.[2]

3.5 Some Critical factors

It is important to reemphasize that e-Business support business process along the entire value chain: electronic purchasing (e-Procurement) and supply chain management, processing orders electronically, customer service and cooperation with business partners. One of the objectives of e-Business is to provide seamless connectivity and integration between business processes and applications external to an enterprise and the enterprise's back office applications, such as billing, order processing, accounting, inventory, receivables, and services focused on total supply chain management and partnership including product development, fulfillment, and distribution. In this respect, e-Business is much more than e-Commerce.

As I have explained above, e-Business processes are integrated end-to-end across the company and with key partners, suppliers, and customers; they can respond with flexibility and speed to customer demands and market opportunities. This applies to traditional and virtual organizations. Special technical standards for e-Business facilitate the exchange of messages and combinations of processes between companies.

To succeed in e-Business it is crucial to combine technological developments with corporate strategy that redefines a company's role in the digital economy while taking into account its various stakeholders. It is important to understand the issues, evaluate the options, and develop technology orientation plans. An e-Business strategy helps organizations identity their e-Business concerns, assess their information needs, analyze to what degree existing systems serve these objectives, pinpoint specific improvements, determine the development stages of e-Business solutions and attain concrete and

measurable results. It is thus clear that e-Business solutions are not only about technology. They focus on the use of evolutionary technology and reengineered business processes in tandem to develop new applications that are not limited by organizational or geographic boundaries or territorial borders [2]. This combination of cutting edge technology and organizational processes supports the emerging set of business strategies and priorities, which include greater speed to market, more flexibility and nimbleness, accelerated global expansion, and tighter integration with one's suppliers and customers.

3.6 Elements of an e-Business solution

The vision of e-Business is that enterprises will have access to a much broader range of trading partners to interact and collaborate with and not only to buy and sell more efficiently. Also it is expected that e-Business will contribute to the agility of business organizations and with that to reaching higher levels of customization. In this way enterprises can maximize supply chain efficiency, improve service to customers and their profit margin. To accomplish this objective, enterprises must make certain that their mission-critical business information systems such as inventory, accounting, manufacturing and customer support not only can interact with each other but can also become Web-enabled and exposed so that business systems of their partners and customers can interact with them. In addition, in order to optimize their operational efficiency enterprises need to develop newer distributed applications that extract data and launch business process across many or all of these systems. An e-Business solution should thus embrace Customer Relation Management (CRM) systems, Enterprise Resource Planning (ERP) systems, Supply Chain Manager (SCM), and vertical product offerings.

Customer Relationship Management (CRM) systems: These are 'front-office' systems that help the enterprises deal directly with its customers. CRM is the process of creating relationships with customers through the introduction of reliable service-automated processes, personal information gathering and processing, and self-service throughout the supplying company in order to create value for customers. It attempts to integrate and

automate the various customer-serving processes within a company. CRM typically includes three categories of user application: customer-facing applications, sales force-facing applications, and management-facing applications. The customer-facing category includes applications that enable customers to order products and services and obtain customer service and support. The sales force-facing category includes applications that automate some of the company's sales and sales force management functions to deliver effective customer service and support and sell products and services to customers. These applications support the field sales organization with sales-force automation functions and the field service organization with dispatch and logistics functions. The management-facing category includes applications that analyze data gathered by the other applications and provide management reports, including calculations and reports that compute Return on Relationship (ROR) according to a company's business model, competitors, industry trends, and macro-environmental variables. The demands and increased functionality of the Internet and Web-based applications fueled a meteoric growth in demand for CRM. CRM systems are obviously an important element of e-Business. [1]

Enterprise Resource planning systems (ERP): These are management information systems that integrate and automate many of the business practices associated with the operations or production aspects of a company. These typically include manufacturing, logistics, distribution, inventory, shipping, invoicing, and accounting. Enterprise Resource Planning or ERP software can aid in the control of many business activities, like sales, delivery, billing, production, inventory management, and human resource management. They are often called 'back-office' systems indicating that customers and the genera/ public are not directly involved. This is contrasted with front office systems like customer relationship management systems that deal directly with the customer. The most successful efforts to manage enterprise resources are currently based on ERP systems. These systems grew out of earlier Material Requirements Planning (MRP) and Manufacturing Resource Planning (MRP II) systems of the 1980s. A typical ERP system is designed around four primary business processes:

· Production: manufacturing resource planning and execution process;

· Buying a product: procurement process;

· Sales of products and services: customer order management process;

· Costing, paying bills, and collecting: financial/management accounting and reporting process.

ERP systems extend beyond the bounds of manufacturing to integrate many functions previously performed by many stand-alone applications for planning, production, asset management, financial control, human resource management, and workflow management.

Supply Chain Management (SCM): A supply chain is a network of facilities and distribution options that performs the functions of procurement of materials, transformation of these materials into intermediate and finished products, and distribution of these finished products to customers. A supply chain essential has three main parts: the supply, manufacturing and distribution. The supply side concentrates on how, where from, and when raw materials are procured and supplied to manufacturing. Manufacturing converts these raw materials to finished products, and distribution ensures that these finished products reach the final customers through a network of distributors, warehouses, and retailers. The chain can be said to start with the suppliers of an enterprise's suppliers and to end with the customers of an enterprise customer. Supply Chain Management deals with the planning and execution issues involved in managing a supply chain. Successful supply chain management allows an enterprise to anticipate demand and deliver the right product to the right place at the right time, at the lowest price to satisfy its customers.

Knowledge Management: This relates to the identification and analysis of available and required knowledge assets and related processes. It embodies organizational processes that seek synergistic combination of data and information processing capacity of information technologies, and the creative and innovative capacity of human beings. Knowledge assets

encompass two things, information plus experience. Knowledge assets comprise knowledge regarding markets, products, processes, technologies, and organizations that a business owns or needs to own, and that enable its business processes to generate profits and provide value. Knowledge management also includes the subsequent planning and control of actions to develop both the knowledge assets and the processes to fulfill organizational objectives.

E-Markets:

An e-Market is an electronic meeting place for multiple buyers and sellers providing many participants with a unified view of sets of goods and services, enabling them to transact using many different mechanisms available in the e-Market. An e-Market uses Internet technology to connect multiple buyers with multiple suppliers so that suppliers, through electronic procurement systems, ERP-based procurement applications, can interact with one another and conduct business transactions.

The term of electronic markets will be described more detailed in chapter e-commerce.

E-Business roles and their challenges

Typically there are two distinctive sides to any e-Business application: the ***buy side*** and the ***sell side.*** The buy side represents organizations that use e-Business facilities for their buying needs, such as spot purchasing and/or addressing their enterprise-wide procurement needs. The sell side, as the name suggests, includes businesses that sell their products via the transaction mechanisms offered in e-Business applications. Sell-side solutions allow a company's customers that are other businesses, or the company's distributors, to purchase goods and services via e-technology. A company can either sell on their own private sell-site or they can connect their e-catalog to a larger marketplace. [5]

These two types of e-Business help define two principal roles: ***buyers*** and ***suppliers***. Buyers are organizations that purchase goods and services directly from suppliers. Suppliers are organizations that market and sell goods or services directly to buyers or

indirectly through diverse sales channels including Web-based procurement systems and electronic marketplaces. Suppliers typically provide buyers with Web-based services - such as payment, logistics, credit, and shipping - necessary for completing e-Business transactions. Buyers (customers) can thus review product information, receive customer service, ordering services, and customization support facilities, and can submit or modify orders, learn about order status, and make payments.

3.7 E-Business requirements

Enterprises, which desire to conduct business-to-business transactions over the Internet, look to e-Business solutions to improve communications and provide a fast and error-free method of transacting with one another to address their procurement and supply chain processes. However, before enterprises become e-Business enabled and successful users of the techniques they need to address several fundamental business and technology challenges. Typical ones are additional to buy and sell side challenges that include the following item s that need to be addressed in the sequence indicated below:

1) ***Indentify/measure quantifiable business objectives****:* companies must accurately measure the impact an e-Business initiative has on their business processes to ensure that this initiative is worth pursuing and has sustainable long-term effects.

2) ***Ensure organizational/operational flexibility:*** however well organized the enterprise was before the deployment of e-Business solutions, the situation will necessarily change because of e-Business initiatives. For instance, business transaction growth, expanded markets, and increased information accessibility constitute major change factors for an enterprise. Enterprises must reposition themselves in their mission, structure and execution to prosper in a substantially more dynamic environment.

3) ***Rethink entire company supply chains****:* each company in a supply chain must clearly understand the value propositions of other participants. In particular, companies must rethink their entire supply chains to optimize performance and value as they seek to better

integrate with suppliers and customers, share information, inter-link processes, and outsource manufacturing logistics systems, on-site engineering, and maintenance activities.

4) ***Transform the company to a process-centric one:*** it should be possible for companies to be conceptualized as a set of business processes. Most process-centric companies, like most traditional organizations, still have departments and divisions. Unlike traditional organizations, however, process-centric companies place their primary emphasis on maximizing the efficiency of processes, not on maximizing the efficiency of departmental or functional units.

5) ***Define business processes:*** companies must create models of existing processes and interactions, determining the relevant events, time frames, resources and costs associated with business processes. Only in this way will business processes be well defined and measurable. This model can then help streamline and evaluate new business models and processes and serve as a benchmark for determining return on investment.

6) ***Understand security requirements:*** the breadth of access and interaction representative of e-Business solutions requires the ability to provide controlled and focused access by customers, employees, suppliers, and, in some cases, applications that can interact directly with each other without human intervention.

7) ***Align business organizations with a flexible IT architecture:*** in response to demands for end to end e-Business solutions, companies are expanding their applications to include enhanced integration capabilities. The solutions required reflect the need to integrate business processes at a variety of different levels from applications and data, and finally across (and within) organizations in a way that embraces all possible sources of complexity. This also includes automating business processes that encompass a diverse range of packaged applications and systems within enterprises. The grand challenge is forcing the creation and adoption of new infrastructures and enabling technologies that will be used to facilitate e-Business integration.

8) ***Establish ubiquity within standards:*** IT vendors have created many integration technologies that bring value to their customers. However, none of these technologies has achieved complete coverage for the demands of the IT world. Some technologies were

proprietary, which required other integration participants to have the same technology. This worked well within an organizational unit, but deteriorated across global enterprises and between separate enterprises. [2]

3.8 Impacts of e-business

The emergence of e-Business impacts organizations in various ways. Some of the key characteristics of e-Business are the speed at which transactions can occur, the ability to connect multiple parties at the same time, the ability to gather and manipulate information in new ways, and the absence of traditional business tools such as paper forms and face-to-face retail contact.

E-Business impacts more than just the sales side of the business. Electronic connectivity not only improves efficiencies across the full value chain, but also has the power to transform the traditional business models entirely. There is a wide range of potential benefits motivating today's enterprises to undertake e-Business initiatives.

Improved operational efficiency and productivity*:* the most often touted benefit of e-Business is the potential for tremendous improvements in operational efficiency. By using e-Business technologies to interact with trading partners, organizations can streamline their operations and increase their effectiveness at the same time [2].

Reduction in operating costs and costs of goods and services: a major benefit of e-Business is in savings generated by doing common business functions such as the purchase of goods and services, processing purchase orders, order and delivery tracking, and so on, more efficiently but also by enabling collaboration with external partners. E-Business technologies help lower the cost of communication and collaboration between trading organizations, in a supply chain.

Improved competitive position: global reach, rapid growth, efficient reduction of product time to market, and optimization of product distribution channels, all contribute to a superior competitive position. Recent surveys reveal that many companies are adopting e-

Business as a key component of their growth strategy. According to these surveys, those companies who already linked their business processes with other companies are showing about 70% higher profitability than those organizations that do not integrate with trading partners.

Penetration into new markets through new channels: for several organizations, e-Business technologies could prove to be the conduit to new markets. E-Business helps companies extend their reach beyond organizational and geographic boundaries and reach markets that were previously considered to be too distant to be practical. With e-Business, location is of no consequence when it comes to reaching customers.

Improved communications, information, and knowledge sharing: the alignment of key supply chain partners with an organization's internal strategies helps exploit their expertise and knowledge in creating value. Collaborative sharing of business information such as forecasting and demand information can better help plan long-term capacity, inventory, and human resource requirements.

Harmonization and standardization of processes: to provide simple, transparent, and effective processes for global commerce, it is important not only to exploit advances in information technology, but also adopt new approaches to trade facilitation based on simplification and harmonization of business processes.

Improved internal information access*:* quantities and qualitative improvements to internal information access can yield big payoffs for the business. Business areas such as the development of business opportunities and business strategy are particularly rich in this respect.

Improved relationships with suppliers and improved customer service: the Internet is an effective way to maintain relationships with customers and suppliers, and its usefulness for reaching global customers is significant. E-Business enables the sharing of information and business processes across multiple organizations for stronger, more profitable relationships.

3.9 Inhibitors of e-Business

Counterbalancing the drivers of e-Business adoption is a set of powerful inhibitors. E-Business adoption is closely linked to a company's perception of the importance of trading on the Internet and how it might impact on their business. A key indicator that may influence the adoption of e-Business is the size of the firm (the smaller the firm the less likely it is to use the Internet). It is important to understand that most of the large firm's currently developing and implementing e-Business strategies and solutions typically engage Small to Medium Enterprises (SMEs) in their supply chains. For these large firms, the rate at which SMEs adopt e-Business and enhance their capabilities could affect the scope and timing of their e-Business implementation. A1ternatively, SMEs that do not keep pace with e-Business may be marginalized as suppliers. Most inhibitors to implementing an e-Business solution include uncertainty of the financial benefits, lack of a clear e-Business strategy, technological concerns, security concerns, privacy and legal issues, suspicion regarding new partnership loyalties, and the high costs of computing technology. Small to medium sized enterprises face the same issues as larger enterprises as they progress through the various stages of adopting information technology and the Internet for business purposes.

3.10 Management/strategy issues

E-Business strategy*:* the need to develop a strategy is great where e-Business is concerned. The lack of a clearly defined e-Business strategy is a major inhibitor for companies to espouse e-Business-based technological solutions. A sound e-Business strategy constitutes the basic foundation that allows companies of all sizes to move forward and embrace the Internet as a key business tool. Ideally, the e-Business would seamlessly integrate with the business strategy. This would enable the company to set out a critical path to success in e-Business. There is always a need for an e-Business strategy and action plan that has sufficient detail to allow progress to be monitored and measured.

***Organizational changes required by e-Business**:* traditional organizational structures may not be suitable for e-Business as they may fragment customer service, retard market responsiveness, and constrain improvements in process efficiency. Barriers are often erected between departments to inhibit sharing of information - for example, in banking, debt and equity functions are separated to reduce the possibility of conflicts of interest. The e-Business implementation process includes evaluating a company's supply chain, its customer relationship, and an e-Business assessment survey. This enables a company to benchmark e-Business progress against that of similar-sized companies, to identify business opportunities, risks, and process improvements, a company requires good understanding of how suppliers, distributors, retailers, end-users, joint venture partners, and even competitors interrelate. This requires organizational changes so that companies can better integrate with each other. A special challenge in this restructuring is finding new approaches to maintain due diligence while dismantling the old structures.

Management attitudes and organizational inflexibility: these can be more serious in an SME than in a large firm, because of the traditional leadership and organizational forms in many SMEs [4]. Firms operating in more traditional sectors also tend to be less innovative. However, this is less of a problem in new companies where management may be more receptive to technology, or it may be central to the activity of the company.

Cost/financing issues

The adoption of e-Business is closely linked to company perceptions regarding the importance of Internet trading, and how they believe it will impact their business in the future. Companies, especially smaller ones, demand dear proof of the Return on Investment (ROI). This implies that e-Business must be proven as essential to the competitiveness of their firm.

Costs of implementation of e-Business: these can be a serious barrier for smaller companies, especially SMEs. The cost of setting up an e-Business includes preliminary planning, procuring hardware and/or software tools (installation, training, and subsequent

reorganization), and continuous maintenance, servicing costs, and telecommunications charges. The cost of the initial investment has dropped in recent years.

Calculating the Return on Investment (ROI): just as it can be difficult to understand the commercial advantages of an e-Business model, it can be difficult to calculate the ROI on an e-Business investment. SMEs often work with limited funding resources and need to see a significant return before they will take a major decision on e-Business.

3.11 Security, trust and legal issues

Security - many companies are afraid to move to electronic trading systems because of the potential for theft of business information and funds, alteration of financial documents, as well as the potential for illicit transactions and concerns over payment security. Potential losses due to inadequate security can be crippling as the entire enterprise network can easily be compromised if appropriate security methods and procedures are not built into the e-Business technology infrastructure. Evolving and thriving as an e-Business entails not only keeping pace with the latest best practices, but also managing and responding to security-related vulnerabilities, risks, and threats. It is essential for enterprises to understand the critical success factors for conducting e-Business securely. To reduce fears of fraud and invasion of privacy, a selling company must provide its customers with a secure, stable, and fraud-proof system for the transfer of their payments and sensitive business-related data. Different kinds of security technology are now available that can effectively support e-Business initiatives.

Trust - one of the most important barriers to the use of e-Business is the level of trust that organizations are willing to place in businesses selling goods and services on the Internet. Trust can be defined as the expectation that the trading party will behave in accordance with its commitments, negotiate honestly, and not take advantage even when the opportunity arises [1]. Trust is an important commodity in e-Business, In short, if organizations do not trust those companies which provide goods and services, they will not engage in e-Business transactions. Trust is a dynamic concept: the level of trust companies

are willing to place in a trading partner may change over time as they become more familiar with the other party through experience or other knowledge [1].

New partnership loyalties - Cooperation rather than competition may be the basis for success in e-Business. E-Business markets may create much larger markets, but can require a great deal of loyalty and trust building in the new partnerships that they create. The emergence of new and unknown online intermediaries addressing aggregations adds to the confusion that many companies feel regarding e-Business, There is recognition by many community and enterprise intermediaries that existing trusted offline relationship, be they a lead company in a business network or a business association, and could be important in recruiting companies to online services. The role of the community intermediary is seen as being important in the recruitment of companies to their applications based on their trusted relationship within the e-Market aggregations. [5]

Legal issues

Legal barriers could be defined as a specific legal provision, which prevents enterprises from entering into e-Business. However, the lack of a legal provision may have the same effect, if it is considered as an important condition for e-Business. From an enterprise point of view the concept of legal barriers is a highly subjective concept, reflecting the perception by enterprises of what might constitute a barrier to market access in the wider sense [5].

The most important legal issue hampering the growth of e-Business is still a lack of awareness. Few companies are familiar with the rules and regulations that apply to an online environment, leading to much uncertainty for e-Business companies and consumers alike. Many enterprises feel insufficiently informed about legal provisions applicable to e-business. This lack of awareness may be explained by the large number of new and often unfamiliar rules applicable to e-Business being perceived as too complex and/or too vague by many enterprises. The lack of full harmonization of e-Business legislation, and the resulting divergences between national legislations, has contributed to this negative image [5]. In addition, online and offline trade is, in some cases, still treated differently, which

further contributes to the confusion. This uncertainty is detrimental to the degree of trust that both companies and consumers have in doing business online. Companies see themselves confronted by an ever increasing number of directives on e-Business. Since these directives all deal with different topics (distance selling, e-signatures, contract law, unsolicited commercial e-mail, etc) it is hard for companies to gain an insightful overview of the situation.

Many differences still exist between national legal provisions applicable to e-Business, which are considered by enterprises as internal market barriers, as they raise legal uncertainties and the cost of compliance with law. Enterprises would favor fully harmonized rules, which would increase legal certainly in e-Business and encourage companies to conduct business electronically across the borders. In particular, in the field of consumer protection, full harmonization would strengthen confidence in the internal market for consumers and business a like [5]. Thus, many companies, especially SMEs, are reluctant to engage in cross- border e-Business activities, as they are unfamiliar with e-Business rules and regulations that apply in other countries. The fact that consumers have a strong position when it comes to cross-border disputes exacerbates this problem. In addition to the above concerns, new trading models, such as business-to-business online auctions, may create new legal challenges, in particular with respect to ensuring fair trade.

4. E-Markets

The Internet has a powerful effect on transaction costs. As a consequence businesses are expected to consider buying goods and services they need instead of producing them themselves. One of the effects of the Internet is the electronic brokerage effect: the ability to bring buyers and sellers together in a virtua1 space, in other words, to create electronic Markets.

Electronic markets are commerce sites on the public Internet that allow large numbers of buyers and suppliers to meet and trade with each other. They are also known as electronic market places, online Markets, e-hubs, or business-to-business markets. At its most basic,

an electronic market is a Website where many companies can buy from and sell to each other using a common technology platform. Many electronic markets also offer additiona1services, such as payment or logistics services that help members complete a transaction. They may also support community activities, like distributing industry news, sponsoring online discussions, and providing research on customer demand or industry forecasts for components and raw materials. Theoretically, electronic markets present ideal structures for commercial exchange, because of the market efficiency attained by tightening and automating the relations between sellers and buyers of services and products. Many different market mechanisms are made avai1able to e-Markets' participants, and the markets'' flexibility may thus be customized to serve any Industry's full supply chain.

Although e-Markets have not taken off as expected, they are still likely to be an important channel for e-Business connecting buyers and suppliers. E-Markets agglomerate their member companies into trading communities united by common business interests, thus improving speed and efficiency. They offer both buyers and sellers forums to reduce transaction costs, to enhance sales, to streamline distribution processes, to deliver and consume value-added services, and to stream line customer management.

4.1 Electronic markets defined

Every market, whether online or not, represents a complex assembly of buyers and suppliers united by intricate lines of power and dependency. Although supply and demand control the business flow, each market carries a built-in measure of inefficiency. Electronic markets minimize that inefficiency by tightening the relationships between supplier and buyer, promoting price transparency and spending aggregation, reducing supply chain costs, and increasing the reach of suppliers, if they attain enough liquidity, electronic markets offer the closest approximation to a perfectly efficient trading system developed so far.

An e-Business electronic market (or simply e-Market) can be defined as a virtual online market, i.e., a network of company interactions and relationships, where buyers, suppliers, distributors, and sellers find and exchange information, conduct trade, and collaborate with each other via an aggregation of content from multiple suppliers, trading exchanges, and member communications supported by collaboration tools.

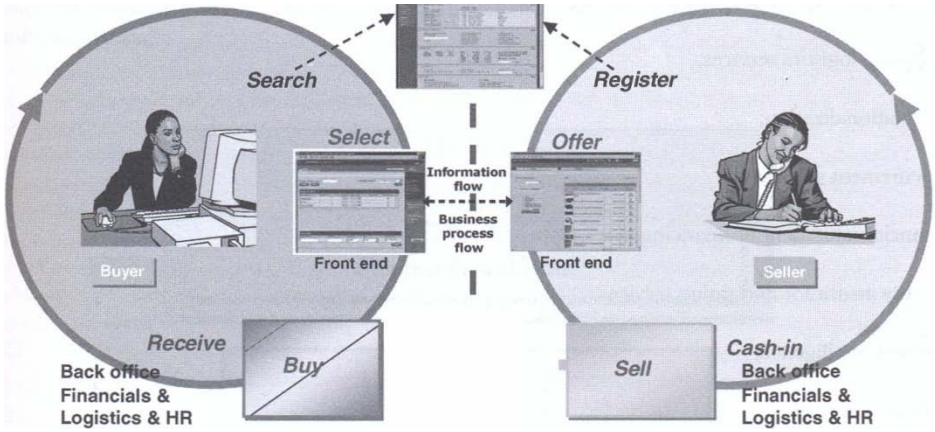
E-Markets typically offer a wide variety of ancillary services required by the members of the trading community, such as authenticating buyers and sellers, and streamlining procurement workflows, risk management, settlement services, conflict resolution services, and logistics services.

4.2 How electronic markets work

In a typical e-Market, groups of buyers and sellers in a particular industry are linked together. In the most common scenario, organizations establish a marketplace system to provide an electronic catalog service that features the products and services of many suppliers in an industry sector. Sellers register their product and service offerings with the e-Markets electronic catalog. Buyers use their browsers to search for and review product offerings, fill electronic forms, and generate their orders. The orders are passed to the messaging system, which interprets messages, sends the orders to appropriate suppliers, and communicates other order- status tracking documents. [1]

This is depicted in **Figure 1.4** this figure depicts two key elements:

Figure number 1.4: Market place



Company/organization boundary

Figure Typical Function in an e-Market

Source: Global Marketing: A Decision-Oriented Approach, 2010

4.3 E-Market (marketplace)

Is an open electronic business-to-business hub that enables inter-company relationships for buying, selling, communicating, and acquiring information by employing Web services.

Companies operating marketplaces are referred to as intermediaries or market makers. They may themselves be participants in the market - buyers or sellers - or independent third parties, financial services providers, IT vendors, or multiform consortia. E-Markets provide mechanisms to facilitate finding buyers for sellers and suppliers for buyers, matching what is wanted with what is offered in the market. Market makers provide a comprehensive range of services surrounding trade, and thus offer a strong value proposition, improve

customer retention, and expand their own potential revenue. Some of the values market makers may provide to an e-Market include:

• Industry expertise and content;
• Catalog aggregation;
• Transaction negotiation and facilitation;
• Shipping/logistics services;
• Internationalization;
• Procurement workflow;
• Financial settlement or financing;
• Quality assurance and rating services;
• Business intelligence;
• Customer service.

It is interesting to note that e-Business electronic markets leverage their information processing, storage capacity, and communication networks to satisfy management needs in business transactions [4]. Procurement knowledge is derived from the vast quantity of data generated from online transactions as firms analyze purchase patterns. In addition, product information and purchase expertise can be made available for better sourcing solutions.

4.4 Classification of electronic markets

To understand electronic markets, it is useful to understand what merchandise businesses purchase and how they acquire it. Generally speaking, businesses buy two types of products: ***operating inputs*** and ***manufacturing inputs*** [4]. Operating inputs are also called maintenance, repair, and operating (MRO) goods.

They may include non-production materials such as software, printers, hardware, office equipment, and so on, and are not specific to the industry in which the business buying them operates. ***Manufacturing inputs*** are raw materials (wood, plastic, chemicals, etc.), needed for the company's' processes or products, and therefore usually specific to its

industry. Both kinds of purchases may be made in two ways. Many businesses have negotiated, usually long-term contracts with qualified suppliers with whom they develop close relations. This is called ***systematic sourcing***. The alternative is ***spot sourcing***: fulfilling immediate needs at the lowest cost possible. This generally involves short-term, loose relations; in fact, many spot market buyers don't know who their supplier is. By combining these two distinctions, operating versus manufacturing goods and systematic versus spot sourcing, we arrive at a four-cell matrix to classify electronic markets according to four economic models: MRO hubs, catalog hubs, yield managers, and exchanges (see **Table 1.3** below).

Table 1.3: Four Types of Electronic Market

	Products bought	
Buying method	Operating inputs	Manufacturing
Systematic sourcing	**MROhub**	**cataloghub**
Spot sourcing	**yield Dl.anager**	**exchange**

Source: Global Marketing: A Decision-Oriented Approach, 2010

The systematic sourcing of low-cost operating inputs often involves high transaction costs. ***MRO hubs*** lower these costs (for buyers and sellers) by disinter mediating, that is, bypassing middlemen. **MRO hubs** are business providers of horizontal markets that enable systematic sourcing of operating inputs. Operating inputs tend to be low-value goods with relatively high transaction costs, so this electronic hub s provides value largely by improving efficiencies in the purchasing process. Many of the best known players in this area, such as Ariba and Commerce One, started out by licensing 'buy-side' software for e-Procurement to large companies which used the software on their own intranets. Now, instead of licensing their software to individual companies, MRO hubs are hosting it on their own servers to provide an open market. These markets give buyers access to consolidated MRO catalogs from a wide variety of suppliers.

Yield managers create spot markets for common operating resources with a high degree of price and demand volatility, such as manufacturing capacity, labor, and advertising, which

allow companies to expand or contract their operations at short notice. This type of electronic hub adds the most value in situations with high price and demand volatility, such as those found in utilities markets, or with huge fixed-cost assets that cannot be liquidated or acquired quickly, such as person power and manufacturing capacity.

Exchanges are electronic markets closely related to traditional commodity exchanges that enable the spot sourcing of manufacturing inputs. They are essentially online exchanges that facilitate the trade of commodities and near-commodities needed for production, such as steel or paper, thus allowing purchasing managers to smooth out the peaks and valleys in demand and supply by rapidly exchanging one commodity for another. The exchange maintains relationships with buyers and sellers, making it easy for them to conduct business without negotiating contracts or otherwise hammering out the terms of relationships.

Catalog hubs facilitate the systematic sourcing of non-commodity manufacturing inputs, such as plastics and chemicals, and create value by reducing transaction costs. Like MRO hubs, catalog hubs bring together many suppliers. The only difference is that unlike MRO hubs they are industry specific. They can also be buyer-focused or seller-focused. Because their products tend to be specialized, catalog hubs often work closely with distributors to ensure safe and reliable deliveries. Since exchanges and catalog hubs facilitate the trade of industry-specific products, they are often called ***vertical*** electronic markets. These are also known as industry consortia, and are industry-owned vertical marketplaces that serve specific industries. Likewise, MRO hubs and yield managers establish the trade of non-industry-specific products, and are therefore referred to as horizontal electronic markets. In contrast to vertical marketplaces, horizontal marketplaces sell specific products and services to a wide range of companies.

E-Business electronic markets are generally considered as a potential source of significant efficiency gains. They generate efficiencies in three ways. First, they put a downward pressure on purchasing prices. Secondly, they decrease informational costs and expand everyone's market reach by removing the geographic barriers to buyers and sellers

efficiently discovering each other. Thirdly, they allow a reduction in transaction costs and an improvement of inventory management [5].

4.5 Information goods

The Internet allows the almost costless creation and distribution of perfect copies of digital information goods, such as news articles, digital images, and music. Thus, the marginal production and distribution costs of such products are dramatically reduced. Meanwhile, electronic-payment technology reduces the transaction costs for their commercial exchange. This creates new opportunities for repackaging content by bundling, site licensing, subscriptions, rentals, differential pricing, per-use fees, etc. Many information goods are buckled solely to save on transaction, distribution, and menu costs, yet these costs are much lower on the Internet. Bundling information goods can be a surprisingly profitable strategy in a situation of low marginal costs, and a homogeneous consumer population [1].

4.6 Search

Electronic markets lower the costs buyers face for obtaining information about prices and product features, as well as the costs sellers face for advertising such information. By lowering buyers' search costs, electronic markets increase economic efficiency. Not only are the costs reduced even when many more product offerings are considered, e-Markets also enable buyers to identity and purchase a better match. Multiple Internet- based technologies assist buyers during their se arch process: search engines, hierarchical directories, or tools specially designed for specific markets (such as Pricewatch for computers and components). Lower search costs also stimulate the emergence of new markets. For example, consider buying second-hand vehicles.
In conventional markets, the costs of carrying out a thorough search are almost prohibitively high, but on the Internet they are insignificant. Thus, new markets for second-hand vehicles develop. Similarly, product information, recommendation, and personalization, as well as comparative seller information, are increasingly provided.

4.7 What are the effects of electronic markets?

Electronic markets reduce the costs of acquiring price and product information. Economic theory suggests that this reduction in search costs significantly influences market efficiency and competitive behavior. It results in direct efficiency gains from reduced intermediation costs and in indirect but possibly larger gains in the allocation efficiency of better-informed buyers. Thus, the market power of both suppliers and customers is increased. Let us take a look at five characteristics of electronic markets and their impact on market structure and efficiency [1].

Cost reduction: electronic markets reduce the costs of obtaining information on the prices and products of alternative suppliers. They also reduce the costs of advertising price and product information to additional customers.

Network externalities: the benefits for individual participants in electronic markets increase as more businesses join their inter organizational information systems. Electronic markets with large numbers of buyers and sellers create more value for their participants, who are provided with a wider selection of potential suppliers and customers. These network externalities may also generate an early mover advantage because early movers have more time to attract buyers and sellers.

Switching costs: electronic markets may require sizeable investments from their participants, for hardware, software, employee training, and organizational transformations. Such investments may become worthless should the participant decide to join a different system, or revert to the previous mode of operation.

Economies of scale and scope: electronic markets typically require large capital investments and offer substantial economies of scale and scope. Intermediaries usually incur large system development and maintenance costs. But then they face relatively small incremental costs for additional transactions until the capacity of the system is approached, resulting in substantial economies of scale. Furthermore, it may be possible to transfer the

technological and organizational resources and expertise acquired during the development and operation of one system to other systems. This, too, results in economies of scale.

Technological uncertainty: potential participants of electronic markets face substantial uncertainty regarding the actual benefits of joining such a system. (Occasionally this uncertainty remains even after they have joined.) This may affect the behavior of buyers, sellers, and potential intermediaries, who may adopt a 'wait and see' attitude: delaying the introduction of a system, or waiting before they join, hoping they will learn from the experience of other organizations.

4.8 E-Hubs

In the recent past, e-Hubs have been flourishing, either in the form of public marketplaces or as private exchange platforms within enterprises. E-Hubs have been used in a wide range of industry sectors (e.g. Shipping and Trucking, Warehousing, Perishable Goods, Chemicals, Travel, Entertainment, Real Estate, Insurance Services, Manufacturing, Financial Services, and Media). E-Hubs have clearly demonstrated their power as a real-time, global distribution marketplace by dissolving the constraints of time and geography and made it possible for buyers, Business-to-Business and Business-to-Consumers to become more fully engaged.

E-Hubs have been continuously being studied over the past two decades. The understandings to e-Hubs have also been changing with the quickly expanded e-Hub contents, architectures, functions and services, development techniques, and application environments. The result is that the definitions of e-Hubs vary significantly due to different services e-Hubs provide and people's views of e-Hubs, Therefore, though under the same umbrella, e-Hubs can be quite different things to different researchers, from a simple B2C (Business-to-Consumer) e-marketplace to a comprehensive virtual enterprise facilitator.

For example:

• ***Cyber Business Centre (URL3)*** defines an e-Hub as an alternative name

For an e-marketplace and in particular for any sub-category thereof such as a forward aggregator or re verse aggregator. E-Marketplace is a Business to Business (B2B) online

trading forum, often dedicated to e-business between companies and their customers and suppliers in a particular industry or sector thereof.

• ***IDS (URL4)*** describe an e-Hub as a telephone company which passes information from one place to another. The company providing services is invisible to the dealers. E-Hubs can handle the transfer event in either XML- or EDI-based information. Since an e-Hub is a utility in nature, it actually adds nothing to the transaction. As the programs are written to convert data from one place to the next, its work is simply to pass on data.

These definitions indicate the different levels of e-Hubs' services. Nevertheless, it can be seen that the core of e-Hubs is that they are Internet-enabled entities which allow users to exchange information for the purpose of value adding. Table 1.3 presents the taxonomy of e-Hubs based on a number of major e-Hub characteristics [2]. Such a classification is a necessary supplementary to e-Hubs definition, which provides a high-level vision on e-Hubs.

E-Hub's services

Either as pure e-marketplaces or complex business entities, e-Hubs achieve their services through Web Services, which represent a revolution with layered services; it enables a dynamic e-business model, fosters collaboration with layered services, and opens the door to new business opportunities.

Collaborative Web Services

Web Services are configured with new technologies such as SOAP (Simple Object Access Protocol), WSDL (Servers, and the Web Services Description Language), WSIL (Web Service Inspection Language), and UDDI (Universal Description, Discovery, Integration). These technologies consist of a model for exchanging XML information, a language for describing services and workflow between business partners, and a directory for finding new business partners, respectively. Together, they enable Web Services for various e-Hubs.

5. Electronic commerce and the internet

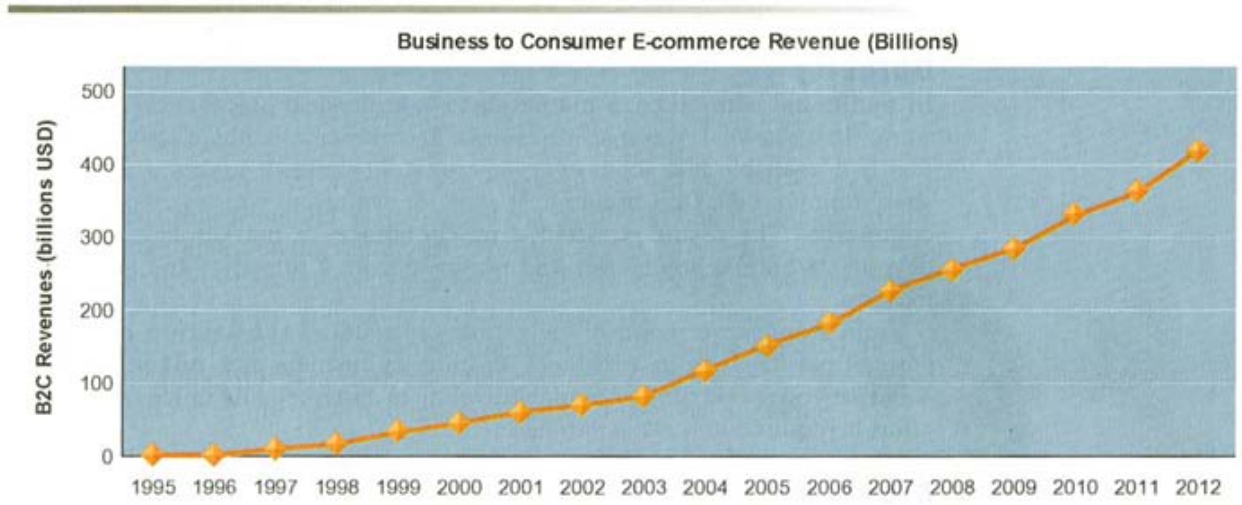
Have you ever purchased music over the Web? Have you ever used the Web to search for information about your sneakers before you bought them in a retail store? If so, you've participated in e-commerce. So have hundreds of millions of people around the globe. And although most purchases still take place through traditional channels, e-commerce continues to grow rapidly and to transform the way many companies do business.

5.1 E-commerce today

E-commerce refers to the use of the Internet and the Web to transact business. More formally, e-commerce is about digitally enabled commercial transactions between and among organizations and individuals. For the most part, this means transactions that occur over the Internet and the Web. Commercial transactions involve the exchange of value (e.g., money) across organizational or individual boundaries in return for products and services.

E-commerce began in 1995 when one of the first Internet portals, Netscape.com, accepted the first ads from major corporations and popularized the idea that the Web could be used as a new medium for advertising and sales. No one envisioned at the time what would turn out to be an exponential growth curve for e-commerce retail sales, which tripled and doubled in the early years. Only since 2006 has consumer e-commerce "slowed" to a 16-percent annual growth rate in 2008 (**Figure number 1.5).**

Figure number 1.5: The Growth of e-Commerce in period 1995-2010



Source: Management information systems / Effy Oz 2009, [7]

Retail e-commerce revenues have grown exponentially since 1995 and have only recently "slowed" to a very rapid 16-percent annual increase in 2008, which is projected to remain at this growth rate through 2011.

Mirroring the history of many technological innovations, such as the telephone, radio, and television, the very rapid growth in e-commerce in the early years created a market bubble in e-commerce stocks. Like all bubbles, the "dot-corn" bubble burst in March 2001. A large number of e-commerce companies failed during this process. Yet for many others, such as Amazon, e-Bay, Expedia, and Google.com results have been more-positive: soaring revenues, fine-tuned business models that produce profits, and rising stock prices. By 2006, e-commerce revenues returned to solid growth again, and have continued to be the fastest growing form retail trade in the United States, Europe, and Asia.

B2B e-commerce-use of the Internet for business-to-business commerce and collaboration among business partners expanded 17 percent to more than $3.6 trillion. The e-Commerce revolution is still unfolding. Individuals and businesses will

increasingly use the Internet to conduct commerce as more products and services come online and households switch to broadband telecommunications. More industries will be transformed by e-commerce, including travel recreations, music and entertainment, news, software, education, and finance.

5.2 Why e-Commerce is different?

Why has e-commerce grown so rapidly? The answer lies in the unique nature of the Internet and the Web. Simply put, the Internet and e-commerce technologies are much more rich and powerful than previous technology revolutions like radio, television, and the telephone.

Ubiquity

In traditional commerce, a marketplace is a physical place, such as a retail store, that you visit to transact business. E-commerce is ubiquitous, meaning that is it available about everywhere, at all times. It makes it possible to shop from your (desktop, at home, at work, or even from your car, using mobile commerce. The result is called a market space-a marketplace extended beyond traditional boundaries and removed from a temporal and geographic location. From a consumer point of view, ubiquity reduces transaction costs-the costs of participating in a market. To transact business it is no longer necessary that you spend time or money traveling to a market, and much less mental effort is required to make a purchase.

Global Reach

E-commerce technology permits commercial transactions to cross cultural and national boundaries far more conveniently and cost effectively than is true in traditional commerce. As a result, the potential market size for e-commerce merchants is roughly equal to the size of the world's online population (more than 1 billion, and growing rapidly). In contrast, most traditional commerce is local or regional - it involves local merchants or national merchants with local outlets. Television and radio and newspapers, for instance, are primarily local and regional institutions with limited, but powerful, national networks that can attract a national audience but not easily cross national boundaries to a global audience.

5.3 The growth of e-Commerce and business Transformation

E-commerce remains the fastest growing form of commerce when compared to physical retail stores, services, and entertainment. The first wave of e-commerce transformed the business world of books, music, and air travel. In the second wave, eight new industries are facing a similar transformation scenario: advertising, telephones, movies, television, jewelry, real estate, hotels, bill payments, and software. The breadth of e-commerce offerings grows; especially in the services economy of social networking, travel, information clearinghouses, entertainment, retail apparel, appliances, and home furnishings. The online demographics of shapers broaden the match that of ordinary shoppers. Pure e-commerce business models are refined further to achieve higher levels of profitability, whereas traditional retail brands, such as Sears, Je Penney, L.L. Bean, and Wal-Mart, use e-commerce to retain their dominant retail positions. Small businesses and entrepreneurs continue to flood the e-commerce marketplace, often riding on the infrastructures created by industry giants, such as Amazon and eBay.

Technology foundations

Wireless Internet connections (Wi-Fi, WI-Max, 3G smart mobile phones, Android OS and I Phone mobile devices) grow rapidly. Powerful handheld mobile devices support music, Web surfing, and entertainment as well as voice communication. Podcasting takes off as a medium for distribution of video, radio, and user-generated content. The Internet broadband foundation becomes stronger in households and businesses as transmission prices fall. RSS grows to become a major new form of user-controlled information distribution that rivals email in some applications. New Internet based models of computing, such as .NET and Web services, expand B2B opportunities.

New business models emerge

More than half the Internet user population joins an online social network, contribute to social bookmarking sites, create blogs, and share photos. Together these sites create a

massive online audience as large as television that is attractive to marketers. The traditional advertising business model is severely disrupted as Google and other technology players such as Microsoft and Yahoo! seek to dominate online advertising, and expand into offline add brokerage for television and newspapers. Newspapers and other traditional media adopt online, integrative models but are losing advertising revenues to the online players despite gaining online readers.

E-telling

Electronic retailing (also called e-tailing, online retailing) refers to selling retail goods and services online. This type of e-business is highly visible and has received much attention by the popular press (especially success stories such as amazon.com and dell.com). The Internet has provided opportunities for new, fully online retail and distribution businesses, and is making many existing, brick-and-mortar retailers wonder to what extent they ought to put their own operations online. While there exist different ways of categorizing e-tailing models (i.e., general purpose vs. specialty, global vs. regional, or classification as per revenue models), a popular approach is classifying e-tailing according to distribution channels.

5.4 Types of electronic commerce

There are many ways to classify electronic commerce transactions. One is the by looking at the nature of the participants in the electronic transaction. The four major electronic commerce categories are business-to-consumer (B2C) e-commerce, business-to-business (B2B) e-commerce, and consumer-to-consumer (C2C) e-commerce, consumer-to-business (C2B) ecommerce. The impact of e-commerce on the economy extends far beyond the dollar value of e-commerce activity. Businesses use e-commerce to develop competitive advantages by providing more useful information, expanding choice, developing new services, streamlining purchasing processes, and lowering costs. The Internet also imposes price discipline as customers have access to price and product information from many sources. But there is also lot of other types of electronic commerce where included

government administration, employs, mobile devices etc. More about relations between legal subjects it is explained in a following table.

Table : 1.4 : e-Business:Relations between legal subjects

	B– Business	C – Consumer Citizen	G – Government Administration
B – Business	**B2B** Business transactions Proposal Purchase order Invoice	**B2C** E-shop for end user Person buying an article from a retailer	**B2G** Market of "public sector marketing" which encompasses marketing products and services to various government levels - including federal, state and local
C – Consumer Citizen	**C2B** Consumers offer products and services to companies. Searching of the articles.	**C2C** Transactions between consumers through some third party. Online auction eBay.	**C2G** Declaration of taxes, Elections,Census
G – Government Administration	**G2B** Online non-commercial interaction between local and central government and the commercial business sector	**G2C** The communication link between a government and private individuals or residents	**G2G** Non-commercial interaction between Government organisations, departments, and authorities and other Government organisations

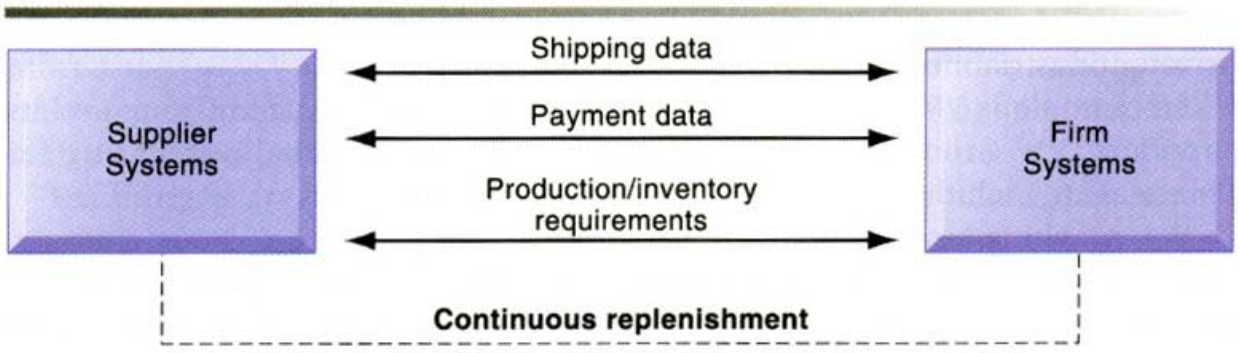
Source: Lessons of the subject System Integrations: PEF, Prof. Toman.

Business-to-business (B2B) e-commerce

Electronic-based commerce is not a new phenomenon on the B-to-B market. Instead of Internet-based solutions, many industries have been using electronic data interchange

(EDI) for years to streamline business processes and reduce the cost of doing business. About 80 percent of B2B e- commerce is still based on proprietary systems for electronic data interexchange **(EDI). (EDI)** enables the computer-to-computer exchange between two organizations of standard transactions such as invoices, bills of lading, shipment schedules, or purchase orders. Transactions are automatically transmitted from one information system to another through a network, eliminating the printing and handling of paper at one end and the inputting data at the other. Suppliers, manufacturers, wholesalers, distributors and retailers have an online access to share inventory information and send orders, invoices and shipping data electronically to meet specified targets without intervention by firm purchasing agents. **(See Figure 1.5)**

Figure number 1.5: Electronic Data Interchange (EDI)



Source: Management information systems / Effy Oz 2009, [7]

EDI enhances the flow of information and goods through the supply chain and eliminates a manual re-entry of data, thereby eliminating errors and costly delays. EDI is used for the exchange of structured data between the computer systems of trading partners. It is frequently used as an electronic replacement for traditional 'paper' documents such as the order form or invoice but EDI is developed also in the world of finance, administration etc. In essence EDI is used for the exchange of structured data between originators and recipients of such information. EDI can be defined as the transfer of structured data, by agreed message standards, from one computer system to another by electric means. A brief definition of the terms used in this definition will help readers understand the concept, which is also known as 'paperless trading'.

The use of ***structured data*** refers to a precise, recognized method of assembling data. Such data items as item code, customer reference, and delivery point and limit price all come together to form a purchase order invoice, packing list, acknowledgement of order etc. The phrase ***by agreed message standards*** implies that such discrepancies between documents (an invoice is one such message) will be minimized by providing a fixed and agreed method of specifying and presenting the data. Much effort has been expended by respected national and international bodies (**ISO** bodies) in producing standards for presenting the data, via syntax rules and message guidelines.

The definition also uses the phrase ***from one computer system to another***, and implies that the two systems belong to distinct organizations. However, EDI can be used for both intra-company and inter-company communications. The phrase ***by electronic means*** implies no human intervention. In **Table 1.5** a comparison between the traditional EDI and the Internet is made.

Table 1.5: A comparison between EDI and the Internet

Traditional EDI	Internet
Proprietary, dedicated network	Open network
Highly structured, machine-readable data	E-mail, video, voice, image
High cost	Low cost
More secure	Less secure

Source: Management information systems / Effy Oz 2009, [7]

Traditional EDI, however, is expensive and time consuming to implement. Many smaller companies simply cannot justify the price of entry. According to *Business Week,* adding a single trading partner to an EDI network can cost up to $50,000. In contrast, some Internet-based EDI links cost less than $1,000, making them affordable for a much broader audience. EDI on the Web supports much richer information exchange. Traditional EDI supports only highly structured documents such as purchase orders and invoices. The Internet supports the exchange of multimedia information, including engineering drawings, full-color photographs, audio and even video ellipse. As a result, Internet based EDI fosters much tighter relationships among

participants, providing a sense of teamwork and shared goals, and enabling all components and systems of a value chain to communicate with each other. Today, EDI has further developed and hybrid solutions are now available, most of them based on Web technology. Many of the same advantages that arise from retail e-commerce hold for business-to-business e-commerce. The new technology has helped to create new relationships and to streamline and augment supply chain processes. As these changes are occurring, the roles of logistic and financial intermediaries (e.g. FedEx, UPS, and American Express) are expanding.

Business-to-consumer (B2C) e-commerce

Many of the advantages of e-commerce were first exploited (in the mid 1990s) by retailer businesses such as Amazon.com, eTrade, and Auto-by-tel that were created as Internet versions of traditional bookstores, brokerage firms, and auto dealerships. Freed from the geographic confines and costs of running actual stores, such firms could deliver almost unlimited content on request and could react and make changes in close to real time. Compared to traditional retail or catalogue operations, this new way of conducting business is changing cost structures. The emergence of these e-businesses has made their competitors consider their own e-commerce strategies, and many now operate their own on-line stores (e.g. Barnes and Noble, Merill Lynch).
E-businesses do more than simply provide alternative shipping sites to real-world stores; they can also expand existing markets and even create new ones. Not included in the cost savings listed above are the additional value that Internet based businesses can provide in terms of increased information and choice and time savings. These advantages make it possible for buyers and sellers to come together in significantly more efficient ways than would otherwise be possible.

Consumer-to-business (C2B) e-commerce

C2B is an electronic commerce business model in which consumers (individuals) offer products and services to companies and the companies pay them. This business model is a complete reversal of traditional business model where companies offer goods and services to consumers (business-to-consumer = B2C). It is a 'reverse auction' where the buyer (consumer) rather than the seller initiates the transaction.

Consumer-to-Consumer (C2C) e-commerce

This e-commerce type covers the new fashion for consumer-to-consumer auctions. It is involves consumers selling directly to consumers. They are not so much a new marketplace as a new form of entertainment. Auctions did not develop by chance; for many products they suit both buyers and sellers. Fixed prices did not develop by chance; for many (standardized) products they suit both buyers and sellers. However, despite these reservations, the new auction pricing portals will not disappear, because it is great tun for many people. The bidding and close interaction between buyers and sellers promotes a sense of community - a near addiction that keeps them coming back. For example, eBay, the giant Web auction site, enables people to sell their goods to other consumers by auctioning the merchandise off the highest bidder.

Government-to-Government (G2G) known as Administration-to-Administration (A2A)

Using the G2G model, government departments can nationally and or internationally communicate and exchange classified information through dedicated portals. Typical examples include the national DNA database and other police information.
G2G systems generally come in one of two types:

- **Internal facing** - joining up a single Governments departments, agencies, organisations and authorities – Example www.isvs.cz (Czech only)
- **External facing** - joining up multiple Governments IS systems - an example would include the integration aspect of the Schengen Information System (SIS), developed to meet the requirements of the Schengen Agreement.

Business-to- Government (B2G) or Government -to-Business (G2B)

The B2G category covers all transactions that are carried out between businesses and government bodies using the Internet as a medium. This category has steadily evolved over the last few years.G2B is an electronic means of providing business-specific information such as policies, regulations directly to the business. A typical example of the G2B category is construction e-tendering solutions that enable potential construction stakeholders to bid for government-led projects such as the 2012 London Olympics, using online tendering tools.

Consumer-to- Government (C2A) or Government -to-Consumer (A2C)

The C2G and G2C categories have emerged in the last decade. C2G. Examples include applications such as e-democracy, e-voting, information - about public services and e-health, Using such services consumers can post concerns, request feedback, or information (on planning applications progress) directly from their local governments/authorities.

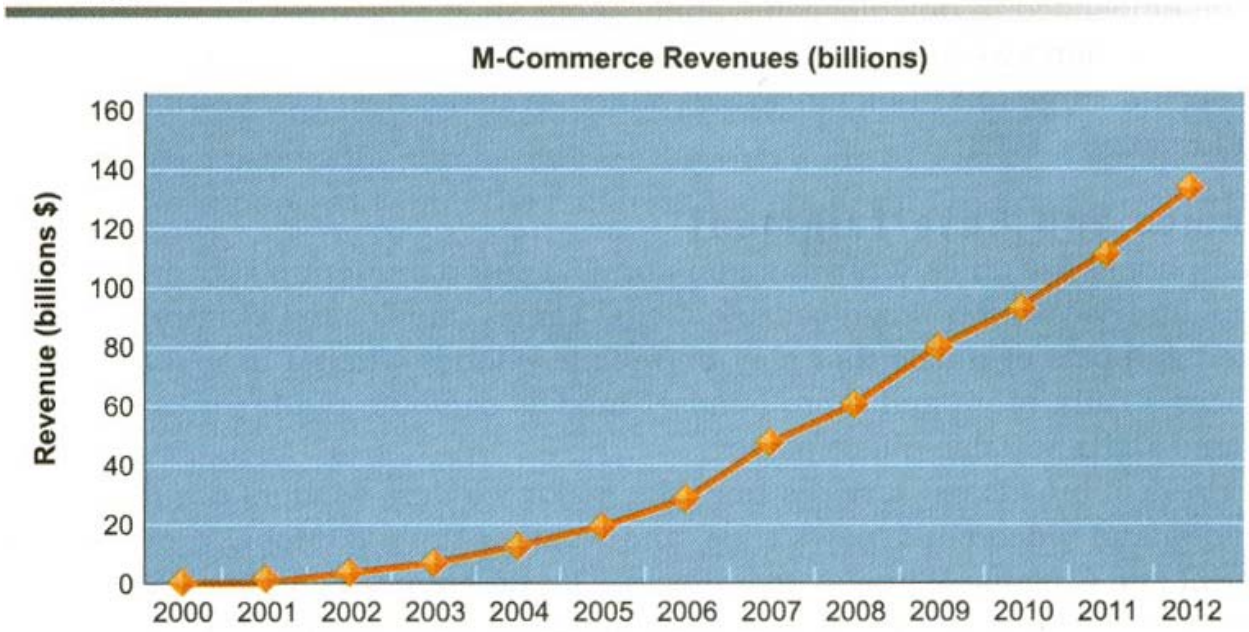
G2C provides a direct communication link between government (e.g. local authority) and consumers. The HM Revenue and Customs Website for example, allows consumers to directly file tax returns using a secure Website. Other examples are those of local council and civic service Websites that inform the general public about community events, road closures, and other activities that impact the community and public services. Another way of classifying electronic commerce transactions is in terms of the participant's physical connection to the Web. Until recently, almost all e-commerce transactions took place over wired networks. Now mobile phones and other wireless handheld digital appliances are Internet-enabled to send text messages and e-mail, access Web sites, and make purchases. Companies are offering new types of Web-based products and services that can be accessed by these wireless devices. The use of handheld wireless devices for purchasing goods and services from any location has been termed **mobile**

commerce or m-commerce. Both business-to-business and business- to-consumer e-commerce transactions can take place using m-commerce technology.

5.5 M-Commerce

Wireless mobile devices are starting to be used for purchasing goods and services as well as for transmitting messages. In the United States, m-commerce is still in its infancy but is starting to grow as 3G cell phones become more common. In Asia and Europe, mobile commerce is much more widely adopted. Although m-commerce represents a small fraction of total e-commerce transactions, revenue has been steadily growing (**see Figure 1**). In 2008, there were an estimated 3 billion cell phone subscribers worldwide, with over 500 million in China alone. In the United States, there are about 255 million cell phone subscribers.

Figure number 1.6: Global m-Commerce revenue, 2000-2012



Source: Management information systems / Effy Oz 2009, [7]

M-Commerce service and applications

M-commerce applications have taken off for services that are time-critical, that appeal to people on the move, or that accomplishes a task more efficiently than other methods. They are especially popular in Europe, Japan, South Korea, and other countries where fees for conventional Internet usage are very expensive. Here are some examples:

Locations-based service

Services such as Verizon's VZ Navigator enable users to locate nearby restaurants, ATMs, and gasoline stations, find local entertainment, and send and receive location information with other Verizon users, providing maps showing how to reach the locations. MeetMoi.com provides a locations based dating service that helps users identify people who are nearby and looking for dates. SmarterAgent.com Mobile Real Estate Search enables users of cell phones with global positioning systems (GPS) to find nearby vacant apartments.

Banking and financial services

Banks are rolling out services that let customers manage their bank accounts from their cell phones or other mobile devices. Citibank and Bank of America customers can use their cell phones to check account balances, transfer funds, and pay bills. More information's I will provide in my case study about ČSOB Bank Internet banking.

Wireless Advertising

Cell phone service providers have information valuable to advertisers about where subscribers live, their location the moment they view ads, their age, and the games, music, and other services they use on their phones. Advertisers must find a way to deal with privacy issues and consumer reactions to ads on their phones. But when

done right, mobile campaigns yield high response rates and increased consumer engagement.

Yahoo! displays ads on its mobile home page for companies such as Pepsi, Procter & Gamble, Hilton, Nissan, and Intel. The News Corporation has a mobile campaign to encourage people to vote for winners of its *American Idol* television show. Google is displaying ads linked to cell phone searches by users of the mobile version of its search engine, while Microsoft offers banner and text advertising on its MSN Mobile portal in the United States. Ads are starting to be embedded in downloadable applications such as games and videos. Less than $1 billion was spent on mobile advertising in 2007, but spending on mobile ads could surge to $10 billion to $20 billion over the next five years [5].

Games and Entertainment

Cell phones are quickly turning into portable entertainment platforms. Mobile phone services offer downloadable digital games, music, and ringtones (digitized snippets of music that play on mobile phones when a user receives or places a call). More and more handset models combine the features of a cell phone and a portable music player.

Users of broadband services from the major wireless vendors can download on-demand video clips, news clips, and weather reports. MobiTV offered by Sprint and Cingular Wireless, features live TV programs, including MSNBC and Fox Sports. Film companies are starting to produce short films explicitly designed to play on mobile phones. News Corp., which owns the Fox Network, coined the trademark "mobisodes" for short cell phone videos. User-generated content is also appearing in mobile form. A selection of YouTube videos are available to Verizon Wireless customers who subscribe to its VCast media service. MySpace arranged with Vodafone Group PLC and AT&T to allow European and American users to post

comments, photos, and eventually videos to the MySpace Web site from their mobile phones.

5.6 Electronic Commerce Payment Systems

Several electronic payment systems have been developed to pay for goods electronically on the Internet. Electronic payment systems for the Internet include systems for digital credit card payments, digital wallets, accumulated balance digital payment systems, online stored value payment systems, digital checking, and electronic bil1ing presentment and payment systems.

Types of Electronic Payment Systems

Nearly all online payments in the United States (90 percent) use credit cards, or rely on the credit card system. Businesses can also contract with services that extend the functionality of existing credit card payment systems. **Digital wallets** make paying for purchases over the Web more efficient by eliminating the need for shoppers to enter their address and credit card information repeatedly each time they buy something. The digital wallet securely stores credit card and owner identification information and enters the shopper's name, credit card number, and shipping information automatically when invoked to complete a purchase. Google Checkout is an example.

Micropayment systems have been developed for purchases of less than $10, such as downloads of individual articles or music clips, which would be too small for conventional credit card payments. **Accumulated balance digital** payment **systems** enable users to make micropayments and purchases on the Web, accumulating a debit balance that they must pay periodically on their credit card or telephone bills. Examples are Valista's Payments used by AOL, Vodafone, and NTT DoCoMo, and Clickshare, which is widely used by the online newspaper and publishing industry. [5]

Online stored value payment systems enable consumers to make instant online payments to merchants and other individuals based on value stored in an online digital account. Some online stored value payment systems such as Valista are merchant platforms. Others are focused on peer-to-peer payments, such as PayPal. PayPal is owned by eBay and makes it possible for people to send money to vendors or individuals who are not set up to accept credit card payments.

Digital checking systems such as PayByCheck extend the functionality of existing checking accounts so they can be used for online shopping payments. Digital checks are processed much faster than traditional paper-based checking.

Electronic billing presentment and payment systems are used for paying routine monthly bills. They enable users to view their bills electronically and pay them through electronic fund transfers from bank or credit card accounts. These services notify purchasers about bills that are due, present the bills, and process the payments. [5]

5.7 Trust and risk in e-Commerce

Trust is a cornerstone of e-commerce. The notion of trust has a long history, various approaches have been developed to foster trust building between business partners. Traditionally, these approaches rely on physical contact and paper-based business processes. Although to a large extent traditional principles for trust building may be still valid in e-commerce, they still face much changing and evolving dynamics. The absence of interpersonal physical proximity (e.g. recommendations, letters of credit, background checks, handshakes, body language, face-to-face contact and paper documentation) and the lack of overall control in virtual environments create the perception that business in electronic environment is inherently insecure and cannot be trusted.

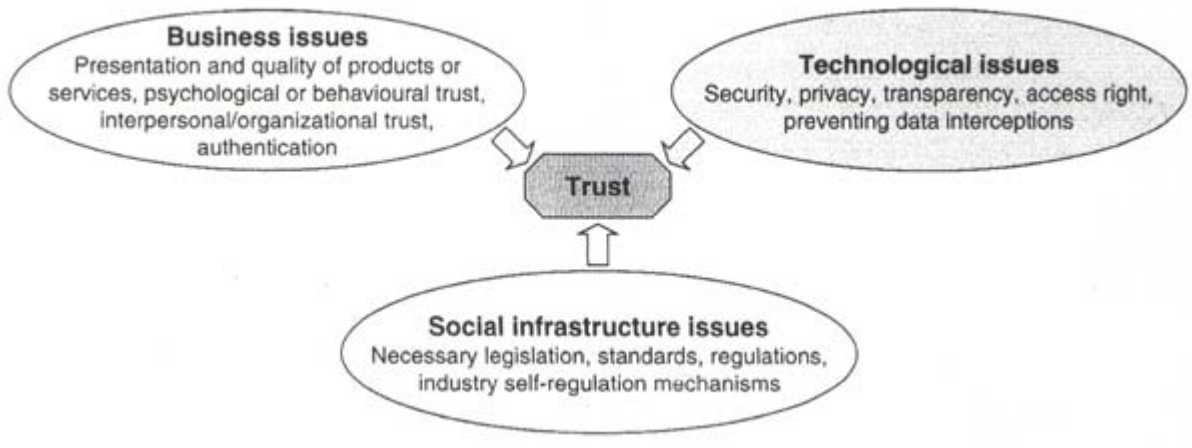
In the context of Business-to-Business (B2B) environments, trust involves more complex issues. A company conducting online procurement and collaboration or joining virtual enterprises, may face a many of risk, for example, losing confidential information. Lack of

confidence on business partners or e-business platforms often stops parties from sharing internal data such as sales reports, productions schedules, product design and logistical details with supply chain partner. With trust research in e-commerce still being in its infancy, most of the current literature revolves around the role of trust and does not offer an insight as to how trust may actually be developed and maintained [2].

Trust building in e-commerce

Trust in e-commerce involves two closely related aspects: users' trust to ecommerce platforms and business partners' counter-trust to one another. Compared with trust building in general, business issues such as technology, privacy, transference, and e-business infrastructure have critical impacts on trust building in e-commerce (Dutton, 2005). At a macro level, trust in e-commerce is impacted by the complex issues from three large perspectives: trading partner trust (as between organizations in e-commerce), technology assurances, and social infrastructure. [3]

Figure number 1.7



Source: Global Marketing: A Decision-Oriented Approach, 2010, [1]

Risks in e-commerce

Lack of trust and consequently barriers to participation in e-commerce activities arise due to uncertainties inherent in the current e-commerce environment. These, uncertainties, in turn, create a perception of increased risk, thereby inhibiting the tendency to participate in e-commerce. Uncertainties reduce confidence both in the reliability of B2B transactions transmitted electronically and, more importantly, in the trading parties themselves. **Table** lists some of the risks. Most of them could be a combination of the problems from more than one aspect.

Table number 1.6: Typical risk in e-commerce

Social infrastructure risk	Technology risk	Business risk
Lack of e-commerce related laws, regulations and directives (e.g. intelligent property right, professional virtual community, privacy, etc.	Security problems o Transaction security (e.g. online payment, digital signature, etc.) o Storage security (e.g. data confidentiality, etc.)	Disguised identity Inaccurate information about business/product Inability or non-willingness to perform Misconception or misleading description
Inconsistent legislation system Lack of Internet standards	Technical risk (e.g. fraud, virus attacks, technological errors, etc.)	Low quality of goods or services
Non- existing or inadequate user identification systems Unclear insurance policy	Poor designed e-commerce infrastructure (e.g. lack of transparency and traceability)	Unauthorized copying or use critical information or digital assets
Inefficient online dispute resolution systems	etc.	Limited IT knowledge, experience and resources
Cross border issues		Unclear liabilities
Lack of industry self-regulation		etc.
Lack of trusted third party		
etc.		

Source: e-Business in Construction 2009

6. Internet banking

Information technology is considered as the key driver for the changes taking place around the world. Internet banking (IB) is the latest and most innovative service offered by the banks. The transformation from the traditional banking to e-banking has been a 'leap' change. The evolution of e banking started from the use of Automatic Teller Machines (ATMs) and telephone banking (tele-banking), direct bill payment, electronic fund transfer and the revolutionary online banking. This study determines the consumer's perspective on internet banking adoption.

Internet banking is the new method of banking using the new technologies available in the world today. Instead of needing to travel into a local branch of your bank, the Internet allows you to do a wide variety of useful things with your accounts. It can be accessed from anywhere that there is a computer with the Internet, and of course unlike bank branches the net is open 24 hours a day 7 days a week. Everything has upsides and downsides and unfortunately so does online banking. First of all obviously it does not deposit physical money nor does it withdraw bank notes, which means you will still have to make a trip to the bank or ATM to do those things. The services available online vary from bank to bank. Most of the general services are on all banking websites but the larger banks contain more control over your money.

With the increasing development of technology, and with the benefit of using today’s computer technology, online possibilities give the option of saving time and paper work. Both at work and private, one can manage the finances more quickly and efficiently (Bankrate.com 2007).

Online banking creates additional opportunities and challenges for the banking industry. In more detail, online banking is the performance of banking activities via the internet (Answers.com 2007). A good online banking system should not differ much from what a traditional brick and mortar bank offers. The great benefit of online banking is that it is free and the possibilities of accessing your bank whenever it is convenient for the customer, 24 hours per day, seven days a week and requires only a few mouse clicks for any transaction.

Advantages of online banking:

- Ubiquity - even if you are abroad and you want to make any transactions this is possible by just log in to your online bank from any computer.
- Transaction speed - the online bank sites perform and confirm even faster than an ATM processing speed.
- There are also disadvantage of online banking that needs to take into consideration:
    - The start up process - when starting using the bank's website, it will require identification and to sign a form
    - Learning process - some banking websites can be difficult to navigate the first times and need to be explored in order to get familiar with all the functions.
    - Trust - one of the biggest obstacles of doing transactions online, doubts occur if the transaction was successful, if the button was pushed once or twice etc.

Furthermore, a good online bank should offer high IT security. The object of having a good IT security is to eliminate or reduce significant threats against its system. The IT security comprise of three basic components; confidentiality, integrity and availability (Bishop, 2005).

- Confidentiality - the system should be secure by ensured that the system will not be accessed to anyone who do not have the authority, the goal is to keep the information or recourses hidden and this applies especially of the use of computers within government, medicine and law, there are different access control mechanism that support confidentiality (ex: cryptography).
- Integrity - integrity of data is about the level of trustworthiness of data or resources, the goal is to prevent improper or unauthorized change of data, important aspect is to protect a person's integrity, there are two kinds of integrity mechanism: **prevention and detection**
    - the prevention mechanism avoid any unauthorized attempts of changing the data by preserving the data

- Detection mechanism will discover when the data's integrity is no longer trustworthy through analyzing and reporting the data status.

- Availability - the information or resource should be accessible when desired, a system that is not available considered to be as bad as no system at all, in some aspects the data can also be intentionally arranged to deny accessibility due to security aspects.

Internet banking (IB) has become the self-service delivery channel that allows banks to provide information and offer services to their customers with more convenience via the web services technology. The new world of electronic banking is changing day by day. It is important to understand the customer's perception on internet banking. Today, many financial services organizations are rushing to become more customer focused. A key component of many initiatives is the implementation of Customer Relationship Management (CRM) software. Many companies in the financial services sector have been quick to implement Internet capabilities, and electronic service is becoming a viable option for interaction between financial service providers and their customers.

The challenging business process in the financial services pressurized banks to introduce alternate delivery channel to attract customers and improve customers' perception. Many banks have implemented Internet banking to offer their customers a variety of online services with more convenience for accessing information and making transactions. Customer satisfaction and customer retention are increasingly developing into key success factors in e-banking. There will be huge acceptance of online banking with the passage of time with growing awareness and education. A great many people are shifting to online banking and are readily accepting the usefulness of this bounty. Online banking service allows customers to manage their accounts from any place at any time for minimum cost; it gives abundant compensation to the client in terms of price and ease.

6.1 Types of Internet banking

According to the U.S. Department of the Treasury, there are three types of Internet banking: informational, communicative and transactional.

Informational Internet Banking

This fundamental level of banking does not allow patrons to view or maintain accounts, nor does it allow for communication between the financial institution and customers. Informational Internet banking simply means the bank provides basic information about its products and services, much like a brochure. This is meant for marketing purposes only, and there is no connection to the bank's main computer systems.

Communicative Online Banking

Communicative online banking allows for some communication between the patron and bank. However, this is typically limited to fundamental interactions such as account inquiries, new account updates, loan or mortgage applications, contact information updates and balances. Communicative online banking may connect with the bank's main computer systems.

Transactional Internet Banking

The most popular online banking type, transactional Internet banking offers all of the benefits of a traditional brick-and-mortar institution. This includes full control over your accounts deposits, withdrawals, transfers, updates and online payments. Increased security measures now make Internet banking safe, secure and convenient, especially in the case of mobile online banking.

Source: [http://www.ehow.com/list_6949866_types-internet-banking.html]

6.2 Some security facts

The fact that online banking is done over the Internet means that safety and security is a big issue. It is very possible that some of information can be stolen while it is being passed across the World Wide Web due to the latest surges in technology, sometimes even PIN numbers and user names are possible. Every time people use electronic devices like credit cards, mobile phones, the Internet, even signing up for a competition your details are being recorded. While being secure it will not be too anonymous as some writers mean there are fears of moving into an Internet electronic age of banking. On the other hand there are the

obvious reasons why net banking is becoming popular and banks are becoming more and more online-aware. It is so much easier being able to access accounts from literally anywhere in the world at anytime than finding a bank branch and visiting it during normal business hours. The whole process also gets done much quicker than by physically talking to a teller and waiting for them to process the service.

In order to first begin to use a net banking service from your local bank, you must first have access (preferably regular access) to a computer with access to the Internet. There is a short process involved to receive a user name and password for online banking, it usually involves a phone call and 3 working days to mail online details to you.

7. Case Study

Internet online service 24 provided by ČSOB Bank

Banks today are aware of both the threat and the opportunity that the Web represents. No traditional bank would dare face investment analysts without an Internet strategy. But even a detailed and thoughtful approach to the Web does not guarantee business success. The main purpose behind the launching of **online banking** services is to provide the customers with an alternative, more responsive and with less expensive options. With options just a click away, customers have more control than ever. They expect real-time answers and superior usability. They also want personal attention and highly customized products and services. The focus of e-business must always be on the customer. On the other hand, the technology and the business structure follow on form of the value you intend to provide to the customer.

CEO’s worldwide recognize the strategic role that the Internet plays in their company's ability to survive and compete in the future.
I have choose to introduce you ČSOB BANK and to explain you how they do business online, what kind of services they offer to clients and how is easy to use their Internet

online service 24. I will start with company profile and some basic information about ČSOB BANK

7.1 Company Profile

Basic information on ČSOB	
Business name	Československa obchodni banka, a. s.
Registered office	Praha 5, Radlicka 333/150, Postal Code: 15057
Legal status	joint-stock company
Registration	Registered in the Commercial Registry of the City Court in Prague, Section B XXXVI, Entry 46
Business activities	Bank
Supervisory body	Czech National Bank (CNB), Na Prikope 28, 115 03 Praha 1
ID No.	00001350
Tax registry. No.	CZ00001350 (since 1. 1. 2009: CZ699000761)
SWIFT	CEKOCZPP
Bank code	0300
Internet address	www.csob.cz
Telephone	+420 224 111 111

Source: www.csob.cz

Československa obchodni banka, a. s. is a universal bank operating in the Czech Republic. ČSOB was established by the state in 1964 as a bank to provide foreign trade financing and convertible currency operations. It was privatized in June 1999 when KBC Bank, a member of Belgium's KBC group, became the majority owner. ČSOB took over Investični a Poštovni banka, a.s. in June 2000. After the purchase of ČSOB shares from minority shareholders in June 2007, KBC Bank became the sole shareholder of ČSOB. ČSOB had been active in both Czech and Slovak markets until 2007; the Slovak branch was separated since 1st of January 2008.

ČSOB's business profile comprises the following segments: retail (individuals), SMEs, corporate and non-banking financial institutions, financial markets and private banking. ČSOB is operating under two retail brands in the Czech Republic – ČSOB and Poštovni spořitelna (Postal Savings Bank – PSB); the latter is using the wide distribution network of Czech Post. To serve their clients, ČSOB has 248 branches in the Czech Republic while PSB has 52 Financial Centers and approx. 3,310 post offices (as at 31 March 2010). Both

ČSOB and PSB also provide their services through various direct-banking channels. In addition to its own products, ČSOB is distributing products and services of the whole ČSOB group.

Source: www.csob.cz

ČSOB in figures	30/09/2010
Employees (FTE) - group	7,629
Customers (thousands.)	3,074
Users of direct online banking (thousands.)	2,323
Payments cards (thousands.)	2,033
ČSOB branches	247
PSB – financial centers	52
PSB – outlets of Czech Post Offices	ca 3,290
ATMs (ČSOB + PSB)	772

Source: http://www.csob.cz/en/CSOB/About-CSOB/Profile-CSOB/Stranky/default.aspx

* Plus cash desks (CashBack) of Albert, COOP stores and ČEPRO EuroOil petrol stations.
Along with its own products and services, ČSOB's branch network offers products and services of the entire ČSOB group. Comprehensive service portfolio thus also includes insurance and pension products (ČSOB Pojišťovna and the Stabilita and Progress pension funds), financing the housing needs (Hypotečni Banka and Českomoravska stavebni spořitelna) collective investment and asset management (investment funds of ČSOB Investment company a ČSOB Asset Management) and specialized services (ČSOB Leasing and ČSOB Factoring). Services related to trading on financial markets are provided by Patria, a sister company of ČSOB.

After some basic information at beginning we will continue with different kind of services that are directly involved with e-Business you can find in official web page of ČSOB Bank **www.csob.cz**

7.2 Online services of ČSOB Bank

Here is the list of Electronic banking services available for individuals and SME's: **Info 24** a service intended for citizens, entrepreneurs, and companies to receive information by SMS message or e-mail.

Linka 24 a service intended for citizens, entrepreneurs, and companies that allows you to access your account via a mobile phone or telephone. In addition to information on the status and movements on the account, it also gives you the option of making bank transactions.

Mobil 24 a service intended for citizens, entrepreneurs, and companies that allows you to access your account via a mobile phone or telephone. In addition to information on the status and movements on the account, it also gives you the option of making select bank transactions.

Internet banking 24 a service intended for citizens, entrepreneurs, and companies that allows you to access your account via a personal computer connected to the Internet. In addition to information on the status and movements on the account, it also gives you the option of making select bank transactions.

Business Banking 24 a service intended for entrepreneurs and companies that allows you to manage your company finances via a personal computer connected to the Internet. In addition to information on the status and movements on the account, it also gives you the option of making select bank transactions.

Business Banking 24 Online - Internet banking for entrepreneurs and companies with possible connection to accounting systems.

Convenient Billing is a service by which you can easily pay the operating expenses of a household. It replaces paper payment documents (e.g. invoices, postal money orders, or prescribed premium) electronically. Electronic billing is easy to check and then you pay directly through your internet banking.

7.2.1 Internet banking 24

Deeply I will write about service called **Internet banking 24** for individuals and SME's, also I will mention **Convenient Billing** and **Payment Button service**. I have been using **Internet banking 24** since year 2008 and I am very satisfied with simplicity, security and benefits of this service instead of traditional banking.

This service offers a wide range of operations which include:

- account information,
- common payment operations,
- information on mutual funds and investments,
- information on pension insurance,
- credit product management,
- credit product applications,
- information on mortgages,
- informative text message and e-mail message distribution,
- top up pre-paid SIM cards for mobile operators - T-Mobile (Twist), Telefónica O2 (O2 card) and Vodafone (Vodafone card) and make other payments to Vodafone,
- Card services.

Here are some of the Benefits that bring **Internet banking 24**:

- permanent access to your money,
- financial benefits of electronic payments,
- user support at immediate assistance line,
- good quality security based on latest standards,
- overview of everything happening in your account through up-to-date information,
- significant time savings and convenience (no need to go to the branch),
- simple and easy control adapted to your needs,
- The offer of our services is continuously developed and expanded.

So let's we see how does it look all things I have mention in praxis, first of all client should login to Internet Banking Service. There are few ways how clients can sign in.

7.2.2 Logging to Internet banking 24

1. **ID Number and PIN**

   This is the very simple way how to signing to Internet Banking 24, client is getting from the bank she/he's ID of account and PIN. Everything what client could do is to visit **https://ib24.csob.cz/** and enter ID number, PIN and press the log in button.

2. **ID Number, PIN and SMS Key**

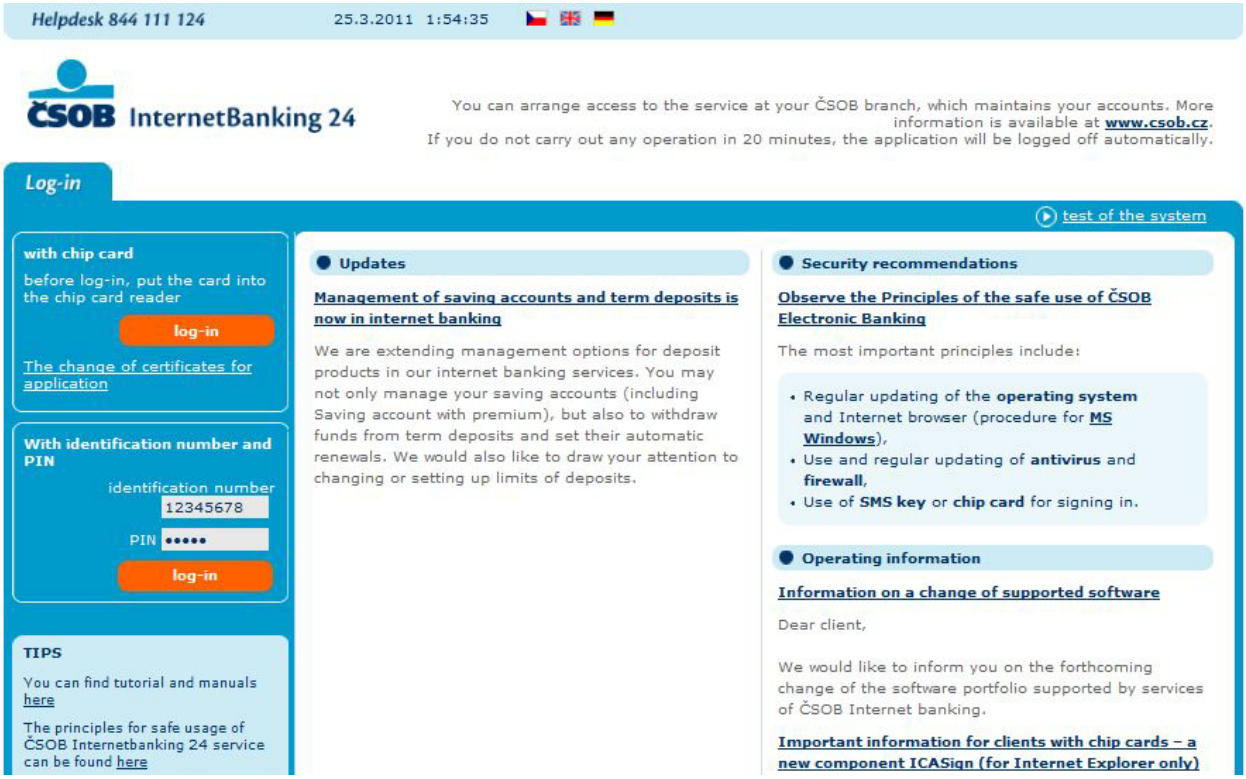
   Client will enter ID number, PIN and press the log-in button. In the following screen, enter the SMS key (authorization code sent to your mobile phone in a text message) and enter the service by pressing the confirm button. There is a 10 minutes to enter the SMS key; it becomes invalid after this time limit.

3. **Chip Card with an Electronic Signature**

   Before logging in, client should first install the chip card and its reader Administrator (Secure Store, Comfort Chip or Crypto Plus depending on the type of card). Then, put the chip card into the reader and leave it there for the whole time of use the electronic signature. Entering the PIN to the chip card (received together with the card) client will then be logged in to the service using the electronic signature.

In my case study I will introduce the first possibility to sign in using **ID Number and PIN** that I have got from bank after establishing contract.

Figure number 1.8: Screen shot of landing page of ČSOB InternetBanking 24



Source: **https://ib24.csob.cz/**

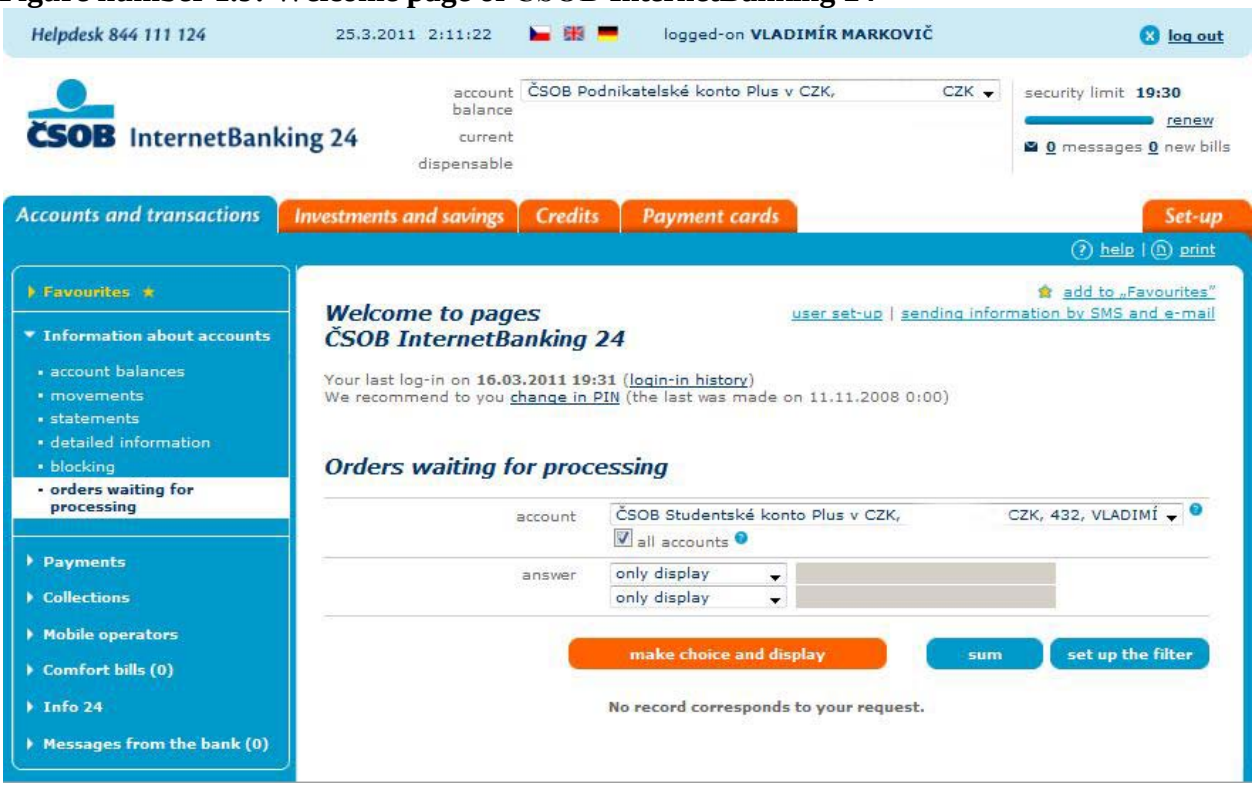
What we see here, it is a home page of service called Internet Banking 24. As it is visible in photos it is enough just to enter ID number, PIN and press log-in button and we are able to use some of the operations I have mention above. After logging in to electronic banking service ČSOB Internet Banking 24, we are having a nice menu from the left side as you can see it in Figure number.

Menu consists from following items:

Information's about accounts where we can see details about current account balance, movements, statements, detailed information's as who is account holder, name of account, IBAN, SWIFT/ (BIC) codes, date of opening, the type of account, the actual interest rate, the limits for transaction, if it is any blocking here is possible to find a records, also orders waiting for processing and information's about credit and debit cards issued by bank. So that is mean all information at one place. There is no more reason to go to branch and ask

for every single detailed in case if we forget some of them or lost, it is enough to login and all info are available online.

Figure number 1.9: Welcome page of ČSOB InternetBanking 24



Source: **https://ib24.csob.cz/**

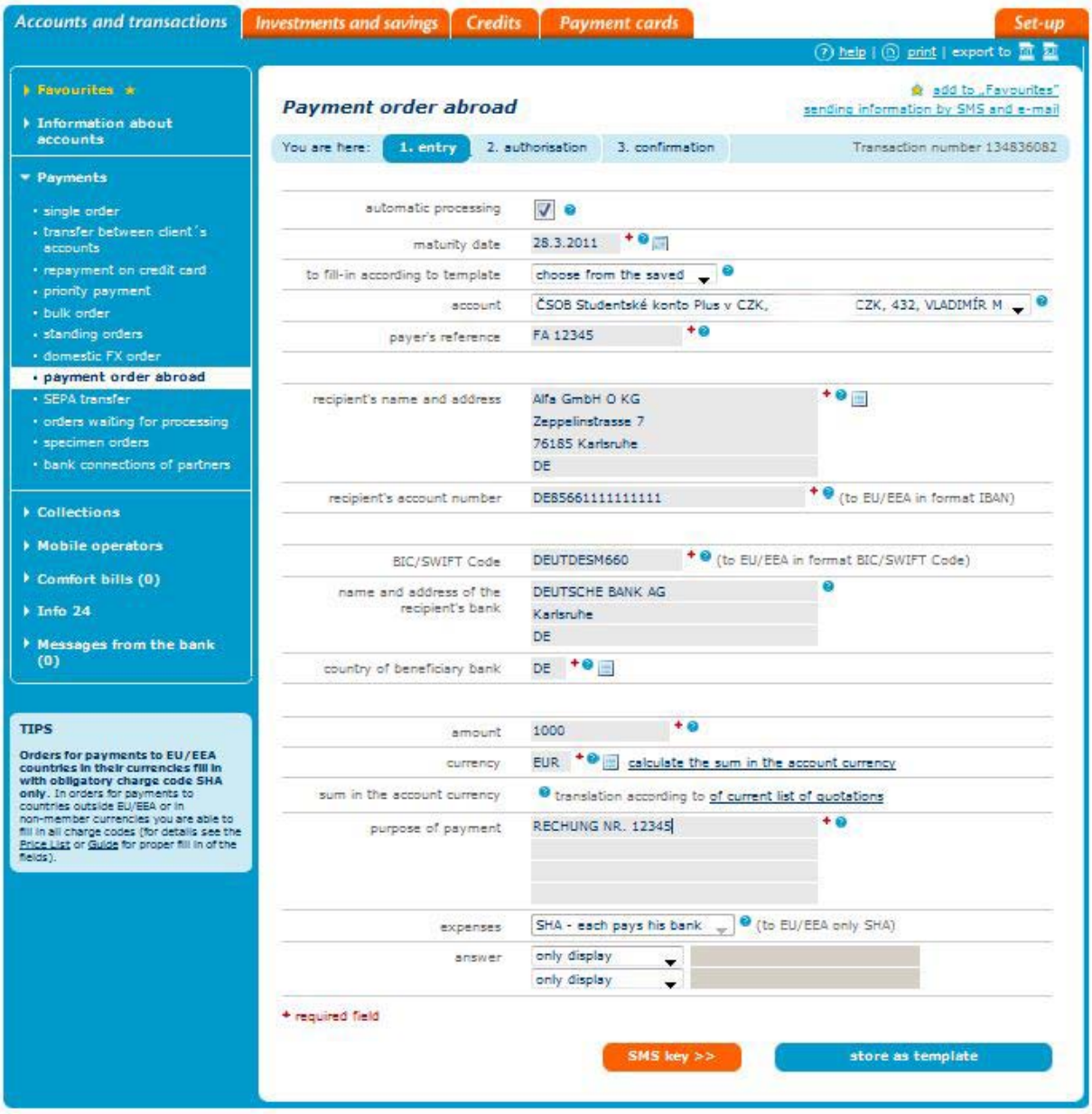
Other items in a main menu are**: Payments, Collections, Mobile Operators, Comfort Billing, and Info 24 and Messages from bank**. Let's continue with Payments where are available following operations: single order, single order transfer between client´s accounts, repayment on credit card, priority payment, bulk order, standing orders, domestic FX order, payment order abroad, SEPA transfer, orders waiting for processing, specimen orders, bank connections of partners.

7.2.3 Example of payments order abroad

This payment order is for execution of payment transactions in CZK and foreign currencies abroad. Clients can execute a payment transaction in CZK abroad only to certain countries

and chosen banks (consult an execution of payment transaction prior its execution with a branch client officer).

Figure number 2.0: Screen shot of payment order abroad



Source: https://ib24.csob.c

For entering a payment order, we should select an option **Payment order abroad** in the menu. After selection an option **Payment order abroad** in the menu and fill in the required fields, I will select **automatic processing**, where will be able to fill in **only required fields**

for automatic processing of a payment order. I will let a field **automatic processing** not selected, in case I want to fill in specific requirements for processing of a payment order in a field **client's information for the bank**. When a field **automatic processing** is selected (so called STP processing with a favored fee), then an execution of payment order is subject of certain checks. More detailed info in snapshot from my bank account.

As we can see it procedure for the payment abroad is very simply, I will explain the meaning of every single field and introduce it to readers.

- **Maturity date** (required field) - the date when a payment order will be executed
- **Payer's account** (required field) - please to choose an account kept in ČSOB that will be debited in accordance with execution of a payment order.
- **Payer's reference** (required field) - the information on payment (16 characters at maximum) for payment transaction identification (an information will be displayed on the account statement).
- **Recipient's name and address** (required field) -the name, surname, business name and the address of the beneficiary (including street, descriptive number, city and ZIP code) in accordance with beneficiary's account name in the beneficiary's bank (maximum 35 characters at each of 4 lines). There is option to store the information in "**partners´ bank connection**", than could fill it in through an icon.
- **Recipient's account number** (required field) beneficiary's account number kept in beneficiary bank, in favor of which the payment order will be executed. **BIC/SWIFT code** (required field for automatic processing) - the BIC code (Bank Identifier Code) = SWIFT address of the beneficiary bank (8 or 11 characters). SWIFT or BIC code shall have either 8 or 11 characters.
- **Name and address of the recipient's bank** - the name and the address of the beneficiary's bank (maximum 35 characters at each of 4 lines).
- **Country of beneficiary bank** (required field) - the ISO code of the beneficiary's bank country or select it through an icon.

- **Amount** (required field) -the amount of the payment transaction **in the currency of the payment transaction** (including decimal numbers) that will be credited to beneficiary's account.
- **Currency** (required field) in which the amount will be credited to beneficiary's account
- **Purpose of payment** (required field) -this field is in order to inform the beneficiary about the purpose of payment (maximum 35 characters at each of 4 lines).
- **Expenses** (required field) - the charge code (that is automatically setup as SHA charge code) for defining who will pay the charges of CSOB and charges of the beneficiary bank. Clients are able to use all three types of charge codes (i.e. SHA, BEN and OUR) in the payment orders to countries outside EU/EEA or in non-member currencies.

SHA – each pays his/her bank (the payer/the beneficiary pay the charges of their own banks).

OUR – payer pays all (all charges are paid by the payer).
BEN – beneficiary pays all (all charges are paid by the beneficiary).

- **Client's information for the bank** (displayed when automatic processing is not selected)- for specific requirements/additional information for processing (e.g. providing contractual exchange rate, requirement for prompt execution of a payment order, specifying a foreign currency for settlement of a payment transaction, debiting an account by a fixed amount in CZK, etc.)

By clicking on the button **store as template** users may store the filled payment order into **specimen orders.**

7.2.4 Domestic foreign exchange payment

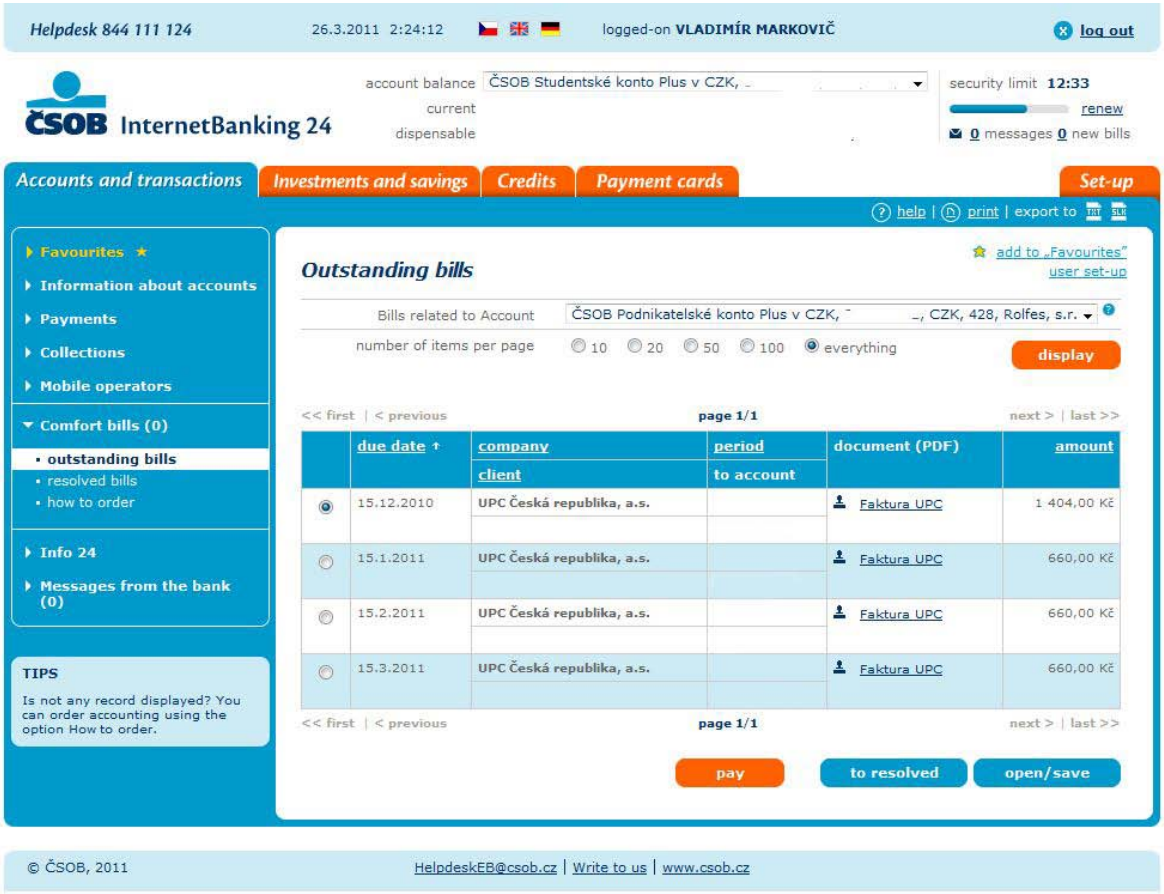
Payment order can be used for execution of a payment transaction in foreign currencies (when ČSOB client's account kept in CZK or in a foreign currency is debited) within the **ČSOB** branch network in the Czech Republic or to another bank in the Czech Republic. For entering a payment order select an option **domestic FX order** in the menu. It is very similar to **payments order abroad.**

7.2.5 Comfort Billing

From November 4, 2009, **ČSOB** clients can start using a new function – the **Comfort Billing. It allows them to pay household bills** just by clicking on electronic documents (bills, insurance premium schedules etc.) which are **delivered straight to client ČSOB Internet Banking 24**. This is very useful because user of **Internet Banking 24** can easily check all of bills and pay them right there without having to retype the data in the payment order form. The first companies to enable electronic documents instead of hard copies are **ČSOB Pojišťovna** and **UPC Česká republika**.

Last few months I have also start to use this perfect service and I am very satisfy it is saving me lot of time, all invoices are at one place (there is no possibilities to loose some of them) I do not need to search them in my email inbox , just directly print them if I want and pay. I will show how I am paying my company bills for Internet broadband connection provided by **UPC Česká republika.**

Figure number 2.1: Screen shot of Comfort billing payment example



Source: https://ib24.csob.cz

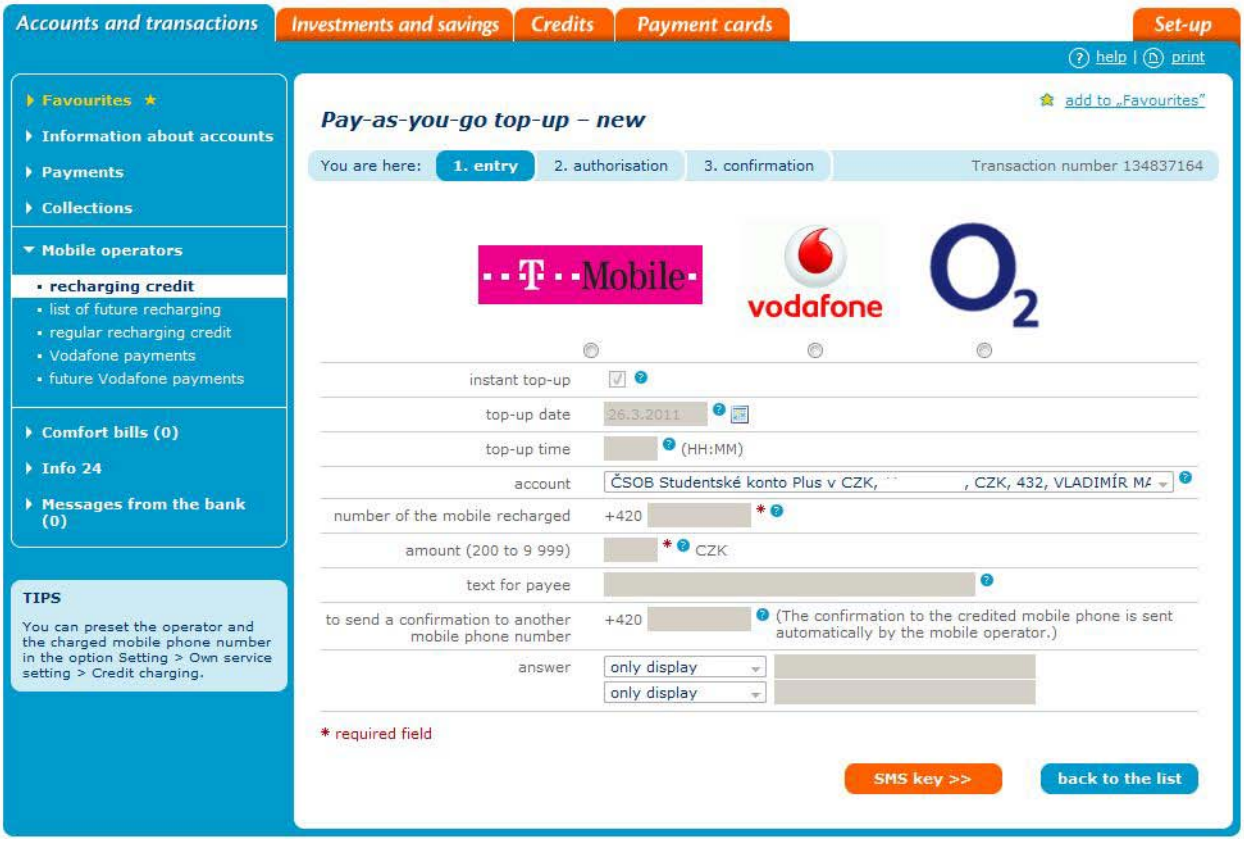
In a main menu there is item called comfort billing if we click in outstanding bills, we can see all invoice from **UPC Česká republika.** If I want to download or just to open invoice I should click on line Faktura UPC. To make a payment it is enough to check the tick box for chosen invoice and click button pay without entering any information about recipients as in steps I have been explained above. See figure below

7.2.6 Mobile operator payments

In this menu user of pre-paid mobile SIM cards can easily and very fast recharge a credit for following mobile operators in Czech Republic: T-Mobile, Vodafone and O2 without going out from a house and paying in cash in post office, bank or shop etc. In menu we will

choose Mobile operators and item researching credit after that will be open a form that we should fill in.

Figure number 2.2: Screen shot of recharging credit form for mobile operators

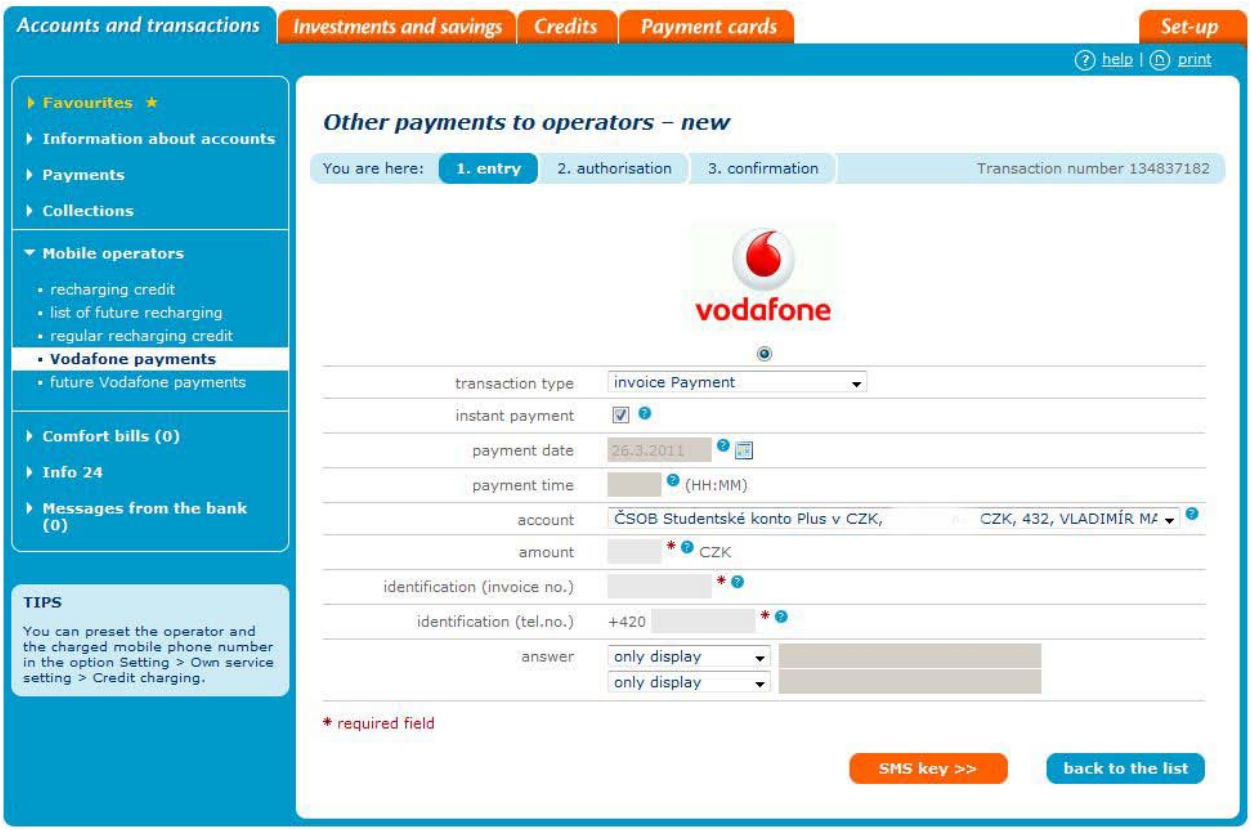


Source: https://ib24.csob.cz

We should select one of the 3 mobile providers, specify time, write number of the mobile we want recharged, fill amount (min. is 200 CZK), mobile phone number where we want to get confirmation SMS about payment and press button SMS key for authorization (authorization I will explain later).

Even customers are having possibility directly from Internet Banking 24 to pay any invoice issued by Vodafone Czech Republic or make a Vodafone payment. In menu Mobile operators it is enough to click on Vodafone payments. After that just to specify payment time, amount of money, invoice number, identification (telephone number) and to click SMS key for authorization (authorization I will explain later).

Figure number 2.3: Screen shot of Vodafone payments



ČSOB Bank is doing their best to make it easier all kind of transactions to their clients as you can see it.

7.3 Payment orders authorization

Authorization methods

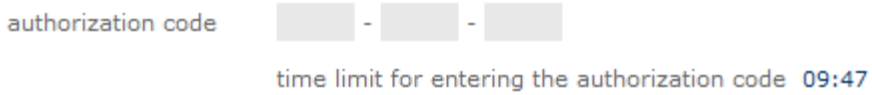
One of the main identification and authentication tools on the Internet. In the ČSOB Internet Banking 24 service, it is used for the authorization of active operations. I have explained the steps how to fill orders for payments but the important is also to make it more close to readers how ČSOB Bank deals with last step called authorization. Clients are able to authorize all the payment orders by one of the below mentioned manners. It depends on the conditions agreed in their Contract for Use of ČSOB Internet Banking 24 Service. There are two types of authorizations used by ČSOB Bank: SMS key and Chip card authorization.

SMS key

After clicking on the button 

ČSOB client will receive an sms message on mobile phone number (mentioned in the Contract for Use of ČSOB Internet Banking 24 Service as contact telephone) containing 9 digits authorization code in the form „xxx-yyy-zzz“ (i.e. randomly chosen alphanumeric characters).

Client should just fill in the code in to a field **authorization code** on the second screen.



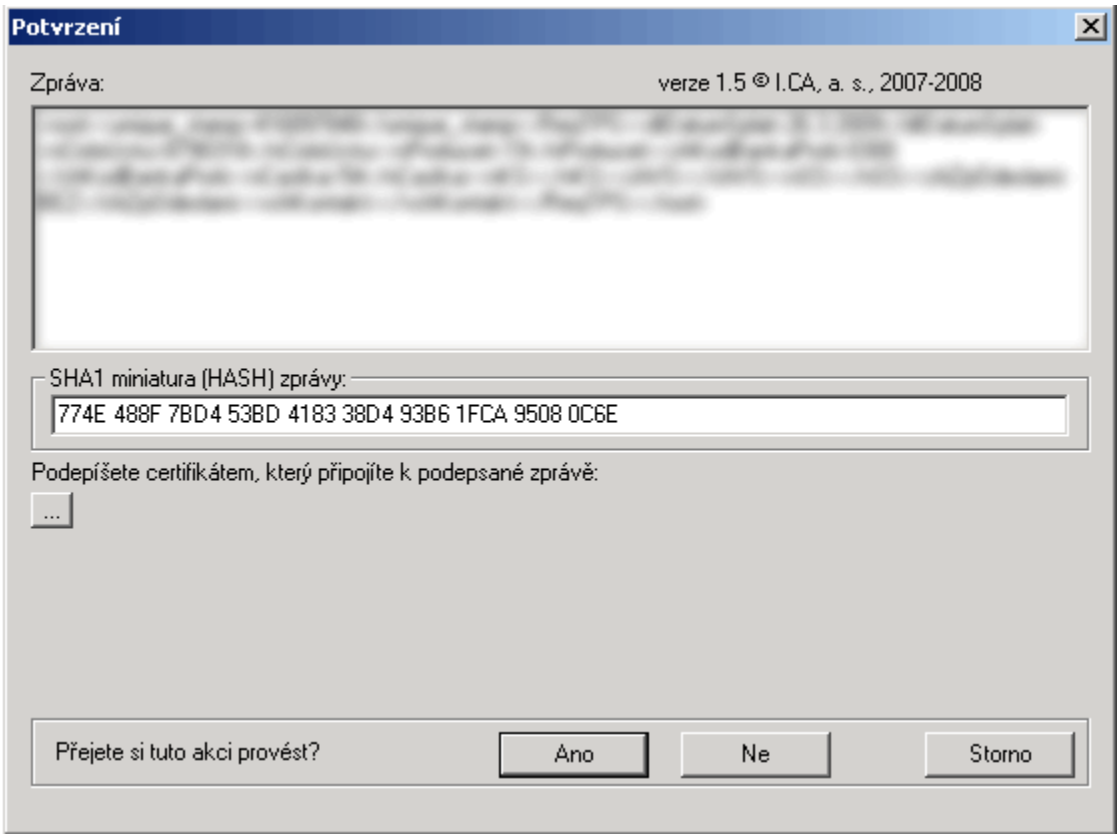
Afterwards filled entries in a payment order have to be controlled and sent for its execution by a bank by clicking on the button **send**. In a sms message client obtain both **authorization code** and basic information about filled payment order including a transaction number. I have ask in my branch of ČSOB Bank for this kind of authorization during the signing a contract.

Chip card with an Electronic Signature

This is 2nd option to do authorization of payment in ČSOB Bank. Before logging client must first install the chip card and its reader Administrator (Secure Store, Comfort Chip or Crypto Plus depending on the type of card). The computer communicates with the chip card through a reader (USB, PCMCIA). Then, to put the chip card into the reader and leave it there for the whole time you use the electronic signature. It is generated from data (private and public key + certificate) saved on a chip card protected by a PIN (received together with the card) in order to achieve maximum security. The high security level is achieved by the fact that the data never leaves the card (it cannot be copied) and the electronic signature is also generated in the card’s chip.

Using an electronic signature, clients authorize the payment order and send it to a bank by clicking on the orange button chip card. It will be displayed a notice about signing the message by a certificate which have to confirm by clicking on the button **Yes**.

Figure number 2.4: Chip Card warning



In the next dialog Windows, client should enter PIN number related to a chip card. By clicking on the button **OK** will sent a payment order for its execution by a bank.

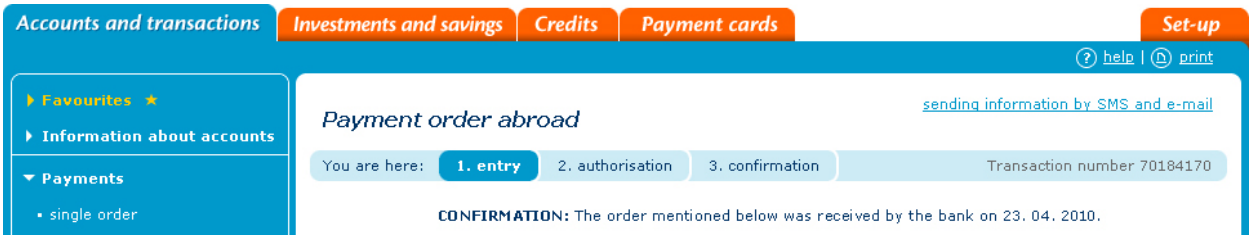
Figure number 2.5: Secure Store CSP widow for PIN code

Source: https://ib24.csob.cz

7.4 Confirmation of payment

It will be displayed a screen with confirmation of receiving a payment order by a bank both in the case of sending an SMS key after correct entering an authorization code and clicking on the button send or in the case of using a chip card after clicking on the button OK and entering PIN number.

Figure number 2.3: Screen shot made to show confirmation of payment



Source: https://ib24.csob.cz

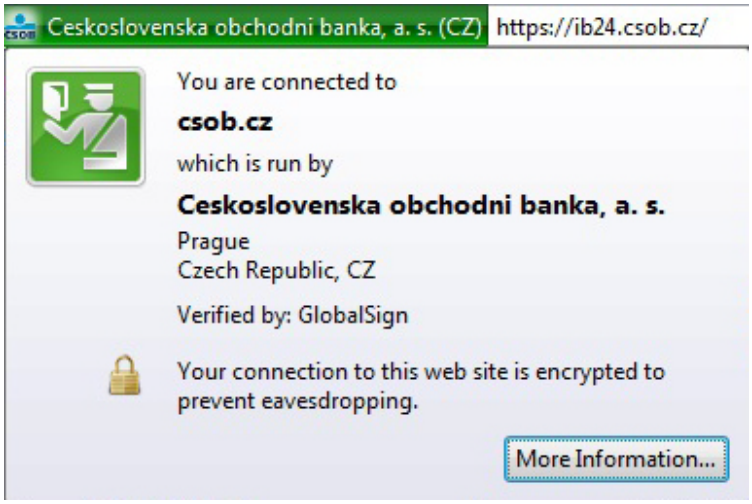
7.5 Others operations and services

In main menu there is an also item called **Messages from Bank** that I would like to mention, this mean that almost whole communications, important information and warnings from Bank can be sent to client in electronic form similar to email. Internet Banking 24 gives a plant of possibilities to clients as we see it but that is not the all. Clients can set up **Investments and saving**, follow situations with savings accounts online, pension funds etc. In menu there is also card called **Credit** where client can online calculate credit options, fill online application for loan and increase credit limit. If click to **Payment cards**, there is the list of cards issued by ČSOB Bank to administrate supplementary service as travel insurance, insurance against loss and theft, display the balance in the ATM, automated renewal, payments via Internet, change a limits, ask for a PIN again and to follow the paying history by cards.

7.6 Security certificates

If client want to login to Internet Banking online than only possibilities is trough secured link: https://ib24.csob.cz, after opening this link will be visible certificate from company U.S. Global Sign and this certificate enabling high grade encrypted connection.

Figure number 2.4: Global Sign Security certificate for ČSOB Bank



Source: https://ib24.csob.cz

It is mean that this encryption makes it very difficult for unauthorized people to view information traveling between computers. It is therefore very unlikely that anyone read this page as it traveled across the network. This certificate is set up for Firefox and Internet Explorer browsers, so ČSOB Bank recommend them to clients.

7.7 Service e -Commerce - ČSOB basic information

The e-Commerce ČSOB is designed for enterprises which are considering extending business activities in electronic commerce. This service allows merchants to receive in their Internet business environment as e-shops, payment for services or goods by credit card

online. The E-commerce ČSOB is generally open to all traders who want to increase turnover of their businesses and their target clientele may be card holders from around the world.

E-commerce allows ČSOB acceptance of the following payment cards:

- MasterCard, MasterCard Electronic, Maestro
- VISA, VISA Electron, V Pay

7.7.1 Safety Standard 3-D Secure

E-commerce ČSOB supports the highest security standard 3-D Secure. Merchant does not have access to information on credit card customer, all payment details are transmitted to the secure transmission and 3-D Secure standard supports by publishing bank, is coming to step of verify the card holder (authentication) during online transactions (authorization). The aim is to provide solutions to merchants and customers have the same level of safety as the Purchase in traditional store. Secure payment system 3 D Secure support two biggest world card associations Visa (Verified by Visa) and MasterCard (MasterCard Secure Code).

7.7.2 Payment Gateway GP webpay

ČSOB is working with the company Global Payments Europe s.r.o. (hereafter GPE), which is leading supplier of cashless payments for banks and financial institutions in the Czech Republic. The GPE operates the for the ČSOB web pay GP system, which allows electronic businesses to accept payments made by credit cards in the internet network. This is an Internet payment gateway meeting the requirements for the highest safety standards 3D Secure, supported by card associations Visa and MasterCard.

Merchant Benefits

- Enhanced sales and number of transactions in electronic commerce through a secure and fast payment method for payment card holder
- expansion of the portfolio of customers - not only the development of trade in local markets
- most widely accepted payment cards - VISA and MasterCard
- Enhancing credibility and competitiveness through increased security transactions and providing customers with convenient payment method
- Fast transfer payments - credited to the merchant account is already next working day after the transaction
- Reduced the risk of fraudulent transactions is ensured by the introduction of compulsory CVV2/CVC2 enter the security code on the cardholder's payment gateway
- Easy implementation into existing merchant system – only set up communications between Internet commerce and payment gateway
- Speed and ease of implementation and registration of transactions with payment cards, e-statement with a firm structure provides merchants the option to import data to the merchant accounting system
- Current overview of the status of order - authorized, paid, dismissed, processed or credited
- possibility of credit transactions - in the event of a complaint by the cardholder's possible to return the amount transferred, i.e., perform a credit transaction to account (card) holder.

Benefits of application - Administration orders

Order Management is the application of the GP web pay and gives merchants the following benefits:

- Current overview of payments made in an online store merchant
- Current overview of the status of your order (authorized, paid, dismissed, processed, credited)
- In the event of a complaint by the card holder can return the amount transferred, i.e., to make a credit transaction to your account (card) holder.

Merchants have possibility during implementation to choose one of the following settings of two types of symptoms for transaction processing:

Automatic symptom - after authorization (i.e., after verifying the availability of means the holder of the card and block them) will automatically process transaction.

Manual symptom - after authorization of the transaction is waiting for manual confirmation from merchants that could transaction be done. This functionality can be used, for example if the merchant does not have the goods available in stock.

Assumptions and conditions of acceptance of this service

Prerequisite for acceptance of online services is that the merchant (legal or individual person / entrepreneur is registered in the Czech Republic) enables its clients to offer subscription goods or services through their Web site (e-shop). Second condition for acceptance is that merchant have account / accounts maintained / kept with ČSOB. The amount for transactions made through credit cards is the merchant credited to the account / accounts in ČSOB, the next working day after transaction.

Acceptance of credit cards by this service ČSOB provides for example for the following companies: Internet Mall, Czech Railways, Tipsport, Fortuna, Bohemia Ticket, Slevomat.cz, etc. Within these online shops are possible to check the speed and stability of proposed solution.

8. Conclusion

The new world of electronic banking is changing day by day. It is important to understand the customer's perception on internet banking. Today, many financial services organizations are rushing to become more customer focused. To be competitive in the Internet economy, not just in banking sector but companies in all branches need to harness the power of the Internet successfully. Online banking is a young way for banks to reach and attract new and old customers. At the moment I cannot imagine any bank in the whole world without online banking and similar services as I have explained in my case study that is impossible. Banks without internet banking will be definitely unuseful. The key of good promotions and bank success is to follow trends in e-Business industry and to keep following updates in the field of security and trust. Users all around the world are changing habits and moving from traditional banking to online banking, they understand that online banking is more efficient and faster way of doing business and ordinary life. For sure this is happening under influence of technology and internet growth.

Regarding my research about online service provided by ČSOB Bank I must say that according to literature and my own experience they are doing best to keep update whole system of online banking to work properly and secure. ČSOB Bank have a very strong customer care that is very important for this kind of services. Whole interface is very user friendly and it is very easy for operations and uses, there are 3 languages supported (Czech, German, English) as a well and this is very important fact because is rare case in Czech Republic. ČSOB Bank is always trying to be first with innovations, example for that is service called Comfort Billing and cooperation with ČSOB Pojišťovna and UPC Česká republika which are the first companies that are enable electronic documents invoicing instead of hard copies inside of client online banking.

Collaboration with company Global Payments Europe s.r.o., which is leading supplier of cashless payments for banks and financial institutions in the Czech Republic is just one more proof that managerial decision of ČSOB Bank are focused in good directions and trying to be up to date in all spheres of e-Business. Providing Payment Gateway GP web pay (acceptance of credit cards in online payments) for merchants and e-shops in Czech Republic, ČSOB Bank is directly involved in promotion and growth of internet business.

From literature and praxis is very easy to conclude that in next year's we are going to see real "bum" in expansion of mobile banking and everything connected with m-commerce and mobile applications for bank institutions all around the world. More and more banks will start to provide m-banking and more and more mobile users will start to use it. A great many people are shifting to online banking and are readily accepting the usefulness of this bounty. Online banking service allows customers to manage their accounts from any place at any time for minimum cost; it gives abundant compensation to the client in terms of price and ease.

For the end to review some facts about my research, Internet banking of ČSOB Bank enables to clients to manage their finances safely and conveniently. It gives the freedom to attend to personal and/or business banking 24 hours a day and 7 days in a week. I'm sure, that those who make use of online banking will all agree it's worth every cent, because the benefits far outweigh the risks.

9. Bibliography

1. HOLLENSEN, Svend. Global Marketing: A Decision-Oriented Approach. 5th ed. New Jersey: Prentice Hall, 2010. 800 p. ISBN 0-273-72622-6
2. PAPAZOGLOU, Michael P., RIBBERS, Pieter. e-Business: Organizational and Technical Foundations. 1st ed. Chichester: John Wiley & Sons, 2006. 750 p. ISBN: 0-470-84376-4
3. CHIMAY, J.Anumba, RUIKAR, Kirti, MCCAFFER Ronald. E-business in construction. 1st ed. Hoboken: Wiley-Blackwell, 2008. 304 p. ISBN: 1405182342
4. XU, Jun, QUADDUS Mohammed. E-business in the 21st century. 2nd ed. Hackensack: World Scientific Publishing, 2009, 464 p. ISBN: 9789812836748
5. WATSON T.R., BERTHON P., PITT L. Electronic commerce: the strategic perspective. 4th ed. Texas: Dryden Press, 2000, 162 p. ISBN: 0-03-026533-9
6. Kalkota, Ravi, ROBINSON, Marcia, TAPSCOTT, Don. E-Business: Roadmap for Success. 1st ed. Addison-Wesley, 1999, 378 p. ISBN: 0201604809
7. EFFY, Oz. Management information systems. 6th ed. Course Technology, 2008, 592 p. ISB: 9781423901785

Internet sources

1. [On-line]. [accessed on 2011-03-29]. [http://www.ehow.com/list_6949866_types-internet-banking.html]
2. [On-line]. [accessed on 2011-03-26]. http://www.internetworldstats.com/top20.htm
3. [On-line]. [accessed on 2011-03-25]. http://www.internetworldstats.com/stats.htm
4. [On-line]. [accessed on 2011-03-21] http://www.csob.cz/en/CSOB/About-CSOB/Profile-CSOB/Stranky/default.aspx