

E-COMMERCE: HOW CAN BUSINESSES BENEFIT FROM E-COMMERCE?

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Abstract

E-business in general and e-commerce in particular is changing the way people do business and sell their product and services to the entire world without the need of physically existing around the globe. As enterprises exploit business opportunities via the Internet, they have discovered that not only they need a reliable and scalable IT infrastructure to support their online business, but also they must have the capability to deploy new online applications rapidly and integrate e-commerce to their already existing business model.

The paper concentrates on the description of e-commerce, how businesses transform to e-commerce and the technical details about the necessary IT infrastructure, business model for the transformation, payment schemes and success factors.

1. INTRODUCTION

Many businesses believe that Internet and other commercial networks provide new business opportunities and its about time for switching to e-commerce. However, many businesses are not capable of making the decisions on actually what is e-commerce, how to transform their already existing business into e-commerce, what technology to use, what are the problems related to the security issues, technology issues, target markets, customer profile, suitable product range, human resources etc. Many e-businesses success stories published, covering the headlines of major media services since the year 2000, (amazon.com, dell.com) had excited businessman about the miraculous advantages and opportunities of e-commerce but they also continuously reminded the weaknesses and threats that are borrowed along with e-commerce.

E-commerce is not a new way of commerce or a new business model but it is the traditional business performed in a new platform; the Internet is the new platform. Internet enables businesses to exist, with low expenses, around the globe, without the need for physical existence. This creates an attractive market for all products, especially those that can be electronically transported.

Secure payment methods boosted the developments in e-commerce but, so far, the developments were limited. With the latest advent in secure payment methods in the last decade, the system that allows low cost and universal payments is realized and payment of small amounts on the internet is made possible.

2. E-COMMERCE: DEFINITION AND SCOPE

Designing a web page is not e-commerce. E-commerce is the type of commerce where all transactions are done in electronic processing and communication media [1,2,3]. For a business to be classified as e-commerce, there should be:

- new inputs to the business system and new transactions to accompany the digital business transformation issues,
- online selling,
- Customer Relations Management system integrated in the new business model,
- On-line processing of orders, billing and delivery of products and services,
- fast and secure money and service flow between the business and customers, business and other businesses, business and the government and the supply chain.

Most of the Internet users today are in USA or European Union, as shown in Table 1 and Figure 1 [4]. Since the e-customers are most likely to be from the regions where Internet usage is widespread and welfare is high, the business that is to transform into e-business should aim these markets and expand their product portfolio to include products suitable for these markets.

Table 1: Number of Internet users in different regions around the world (in million)

Africa	4,15
Asia/Pacific	157,49
Europa	171,35
Middle East	4,65
America and Canada	181,23
Latin America	25,33
World Total	544,20

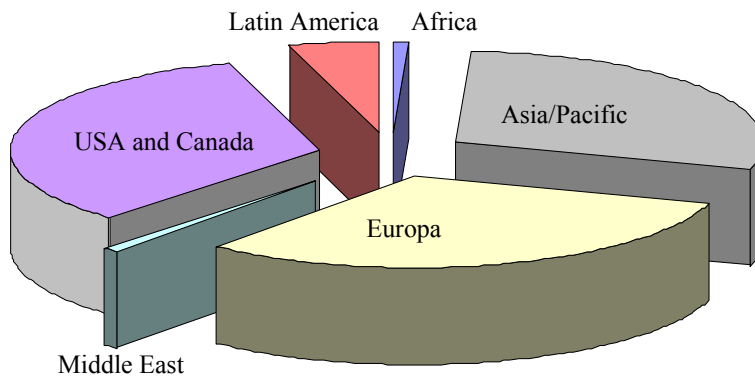


Figure 1: Internet usage through the world

There are many different forms of e-commerce. These include:

- Business-to-Business (B2B)
- Business-to-Consumer (B2C)
- Consumer-to-Consumer (C2C)
- Business-to-Government (B2G)
- Government-to-Education (G2E)
- Education-to-Consumer (E2C)

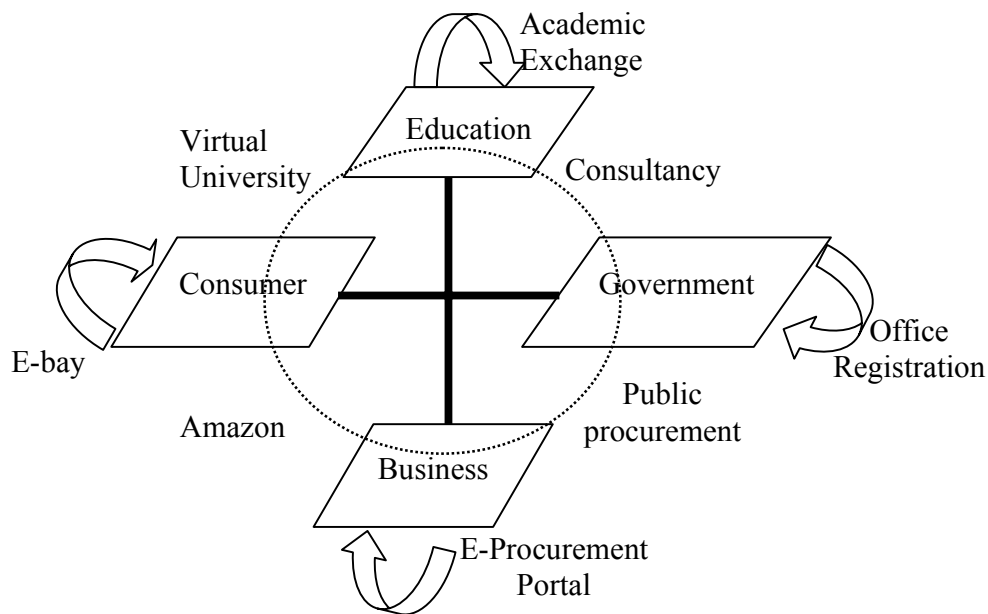


Figure 2: Various forms of e-commerce.

The various forms of e-commerce are depicted in Figure 2. Amazon.com is regarded as one of the most successful business-to-consumer (B2C) type e-commerce business site. However, most of the e-commerce is done between businesses, i.e. business-to-business (B2B), as shown in Figure 3.

Despite the fact that e-commerce is always connected to the Internet, there are other networks, such as extranets, over which e-commerce is done. Many businesses perform transactions with their business partners and customers through partner extranets. Travel agents are a good example to the users of extranet platform, where, all agents of a business around the world are connected to each other through leased lines and form their own closed-loop communication network.

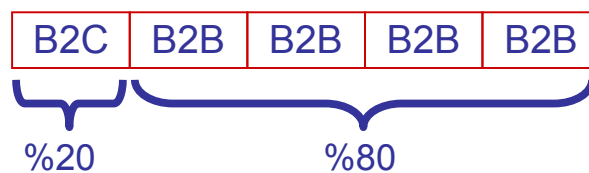


Figure 3: 80% of e-commerce is done between businesses (B2B).

Some security system providers and their customers are also using extranets for their connection, rather than the Internet. Carnival Cruise Lines, Travel Agent Extranet is a real example to this.

Many businesses are now either fully transformed into digital domain or in the process of being transformed. These businesses, when transformed into digital domain, are preceded with the prefix e, after transformation. Example e-business names include:

- e-commerce
- e-ticket
- e-catalogue
- e-bulletin
- e-magazine
- e-state
- e-shop
- e-company
- e-business
- e-government
- e-meeting

Just as the businesses themselves, the domains are also being transformed into digital. Examples to these are:

- e-book
- e-market
- e-person
- e-europe
- e-noter

amazon.com is one of world's most important Business to Consumer e-commerce sites while hepsiburada.com is one of Turkey's most important Business to Consumer e-commerce sites

3. SECTORS SUITABLE FOR E-COMMERCE

E-commerce usage rate is the highest in the finance and entertainment sectors as shown in Figure 4. E-commerce may take place between or inside the sectors. Government related business transactions can be done successfully on the Internet. Such transactions may include:

- tax payments
- obtaining health certificates
- obtaining licences to run a business
- passport issues
- changing identification information
- registering your dog
- applying for resident permit

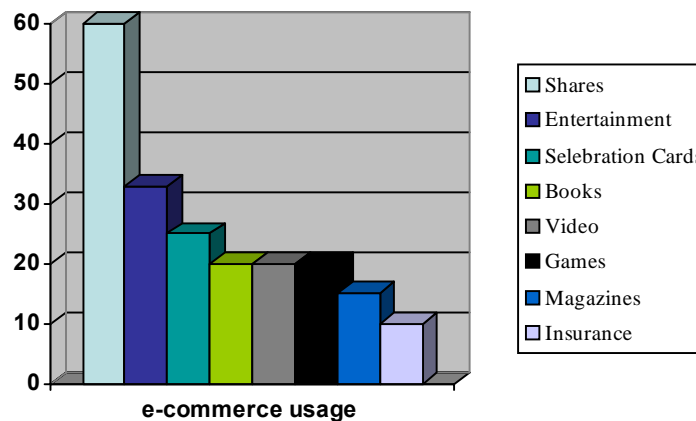


Figure 4: E-commerce usage rate among sectors.

4. E-COMMERCE TECHNOLOGIES AVAILABLE TODAY

One of the most important decisions to make is the choice of technology to adopt. Most of the simple web sites which require no advanced functions are managed through simple web servers. Such sites are suitable for publishing online catalogues. This is shown in Figure 5.

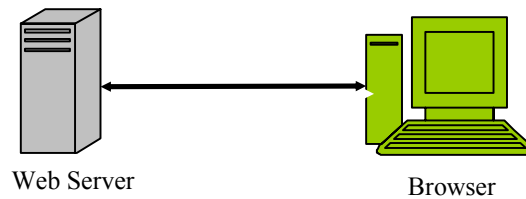


Figure 5: A simple web server model

An application server environment is more complicated but it involves much more business logic. This is shown in Figure 6.

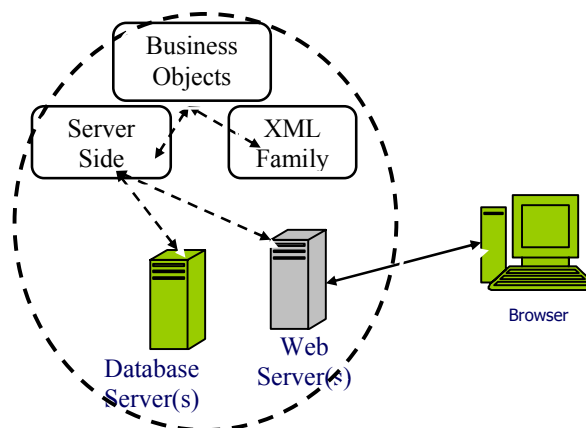


Figure 6: An application server environment

You can do e-commerce with your mobile through WAP Gateway as shown in Figure 7 below. However, due to the high per minute call charges of mobile telephones, the mobile e-commerce has not yet taken off (despite the fact that \$/kpbs ratings are kept very low to encourage the use of wireless data services).

A generalized framework for transforming a business into e-commerce is shown in Figure 8. Figure 9 shows an e-commerce model developed by the Oracle company for automation of the online selling processes [5].

5. LEGAL FRAMEWORK OF THE E-COMMERCE

E-commerce is not a different form of commerce, but, it is the traditional commerce realized in a different platform, namely the networked world. The networks employed can vary from the Internet, to extranets and cable communication networks. Despite e-commerce laws exist in all of the European countries, general commerce rules apply to e-commerce equally [6,7].

During the derivation of the e-commerce laws, some areas of the general commerce laws must be rearranged. Such areas include commerce law, copyright protection law, tax law, data protection and security law, punishment law and the telecommunications law. The details about these laws are given in the next paragraph.

5.1.Commerce Law

In order to update the commerce law to include e-commerce as well, the sections governing the following items must be revised:

- a) Mobility of on-line services
- b) Conditions and adaptation of electronic agreements
- c) Conflict resolution
- d) Electronic signature and validity conditions of the receipts

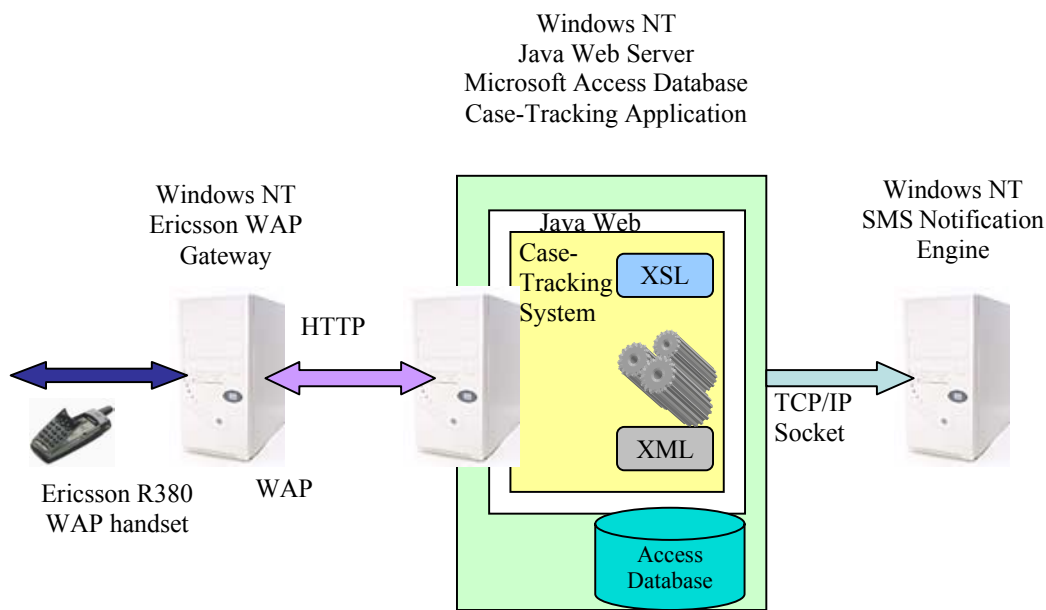


Figure 7: E-commerce with a mobile telephone.

5.2. Copyright Protection Law

- a) Protection of software and databases
- b) Protection of the Web sites design and software

5.3. Tax laws

Application of Value Added Tax (VAT) in international transactions does not have a global description. Therefore, each country must describe the ways and ratios they will issue taxing in e-commerce.

5.4. Data Protection and Security

Data Protection and Security law should be updated in order to protect personal data such as health information, personal life, bank accounts. This law must clarify the conditions and ways in which personal data can be handled by third parties. Also, conditions and ways of using spam, spy-ware, cookies etc must also be clearly described in order to protect personal privacy [8] and work efficiency [9].

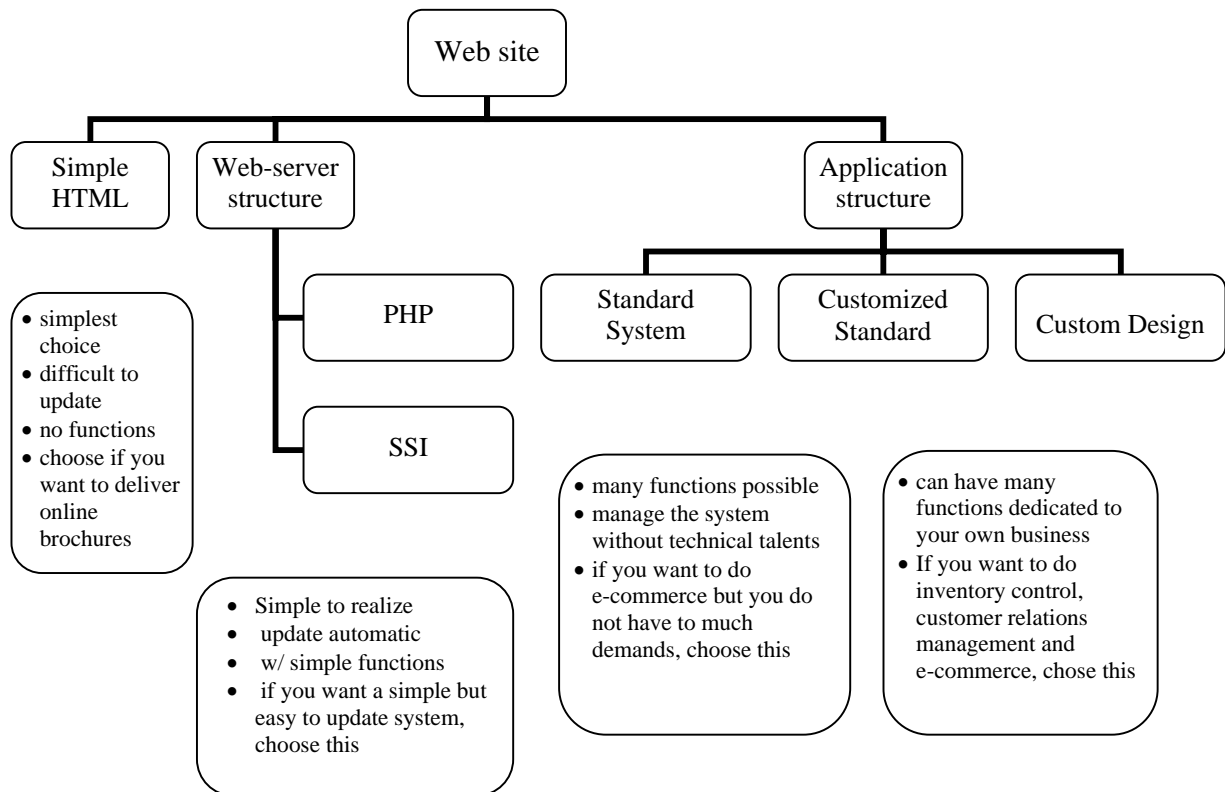


Figure 8: One of the most important decisions to make is to decide which technology to choose

5.4. Punishment Law

The punishment law of each country must be revised in order to handle attempts such as hacking, sending viruses, ‘denial of service’ attack to organizational or personal networks.

5.5. Telecommunications law

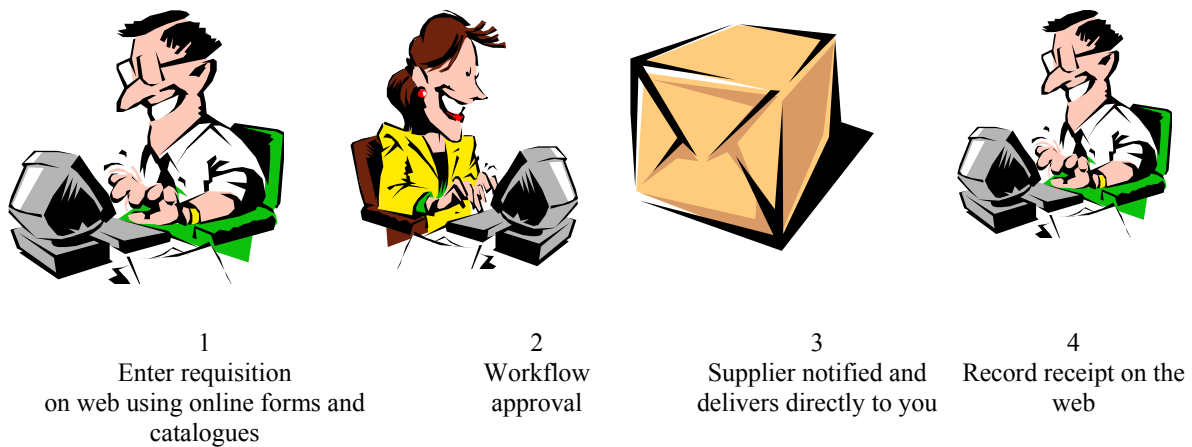
Regulatory bodies must be established to provide intense competition and low pricing among the e-commerce services.

6. E-COMMERCE PAYMENT SCHEME

Which payment scheme to use depends on different factors such as, transaction amount, the usage of the applied payment method by the target customers, the salary scale per business and consumer, transaction security, technical feasibility of approval/transaction and the default risk. The available e-commerce methods are described in the following section.

6.1. Money Transfer via the Bank

If the amount to be transferred is very large, such as 10000 USD, then the money transfer via the bank should be issued. The money transfer method engages the human resources and the physical facilities of the bank. Hence, this is the most costly method in terms of overhead expenses. This is also the most complex payment method.



System electronically routes transactions, checks employee status, checks addition, creates PO release, pays supplier on receipt, etc. Employees and suppliers may enquire online as to status of transaction anytime.

Figure 9: Oracle Self Service Purchasing.

6.2. Payment by Credit Card

The most common payment tool for e-commerce is the credit card. It is suitable for payment of smaller amounts, such as, typically, \$1000 or less. This method is less complex payment method than the money transfer and it has a standard payment infrastructure all around the world.

The credit card payment method is the only payment method on Internet based commerce in many developing countries such as Turkey.

Based on the encoding of information, SSL and SET protocols are used during e-commerce in order to avoid the credit card information to be obtained by third parties [10]. E-commerce security is easily provided through this method in conjunction with the Digital Signature law [11,12].

6.3. Electronic money

Electronic money can be used for payment of smaller amounts. Electronic money is a form of money developed to be used in the Internet. To benefit from the Electronic money system, special software of the companies giving electronic money service should be installed in your computer and an account should be opened in one of the banks working with the electronic money service providing company.

Electronic money software enables a certain amount of money to be drawn from the bank account and saved in electronic media in order to be used in payment of Internet based expenses. Electronic money has a serial number just like the real money we use in our everyday life.

Some examples to companies giving electronic money services are: cybercash [13] and digicash [14].

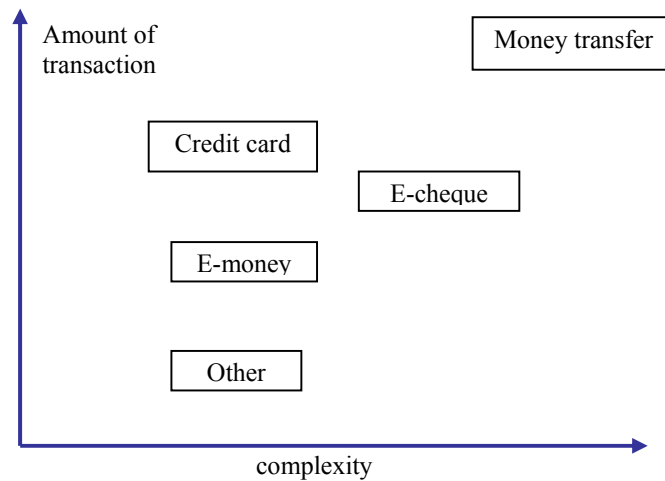


Figure 10: Payment Schemes, amount of money paid and complexity relationship.

6.4. Electronic Cheque

Electronic cheque can be used instead of credit card in a similar efficiency and frequency. This payment system enables payment of the e-commerce transactions by electronic cheque in a very similar way to the cheque used in everyday life. In developing/underdeveloped countries such as Iran and Pakistan, where the use of credit card is limited to a very small percentage of the society, e-commerce can be carried out using the e-cheque.

In electronic cheque system, payments can be done without a credit card by entering the necessary bank account information to the forms in the e-commerce site. The user, in a sense, pays the expenses by issuing a cheque to the e-commerce business site. The bank system clears the money transfers every day and controls

the necessary conditions of the bank account to complete the e-commerce transaction. The bank, later, informs the e-commerce site through encrypted channels [15,16] about these conditions.

An example to companies giving e-cheque service is the www.echeck.org.

6.5. Other Payment Methods

There are many other payment methods used on the Internet and other networks. Some examples to these methods are:

- a) **Escrip:** Used to pay very low amounts such as charity-donations,
- b) **IPIN:** It reflects the e-commerce expenses on the ISP bills,
- c) **PCPay:** Smart Card based payment method,
- d) **ECharge My Phone:** Method that integrates the e-commerce expenses and mobile phone bill,
- e) **First Virtual:** A third party collects the payments and delivers them to the related party,

The comparison of e-commerce payment schemes with respect to the amount to be paid and the resulting complexity is shown in Figure 10 below.

7. USES OF E-COMMERCE FOR YOUR BUSINESS

First comers, such as www.amazon.com and www.dell.com take the largest bite in the e-commerce market and win against their rivals in the long term. Any business can be transformed into e-commerce with a little investment and have the chance of entering the global market and doing business all around the world. The sale costs will also be reduced due to automation of the processes and smaller number of people employed at the counter. No face-to-face talk is necessary any more.

When doing e-commerce, there is no limit imposed on business by time, region and climate differences around the world. Sale can continue for 24 hours a day, 365 days a year.

8. THE BENEFITS OF E-COMMERCE

Among the benefits of e-commerce, the following are the most important ones:

- Low marketing and sale costs,
- Low design and production costs,
- Entering the remote markets,
- Equal opportunity to reach the market,
- Accessing the new markets,
- Customer supported product and service quality,
- Avoids unfair competition among commercial businesses,
- When e-commerce develops, production quality improves and export potential of the country grows. Hence, national economy grows proportionally.

9. E-COMMERCE TRANSFORMATION STRATEGY

9.1. Integrate e-commerce into your business strategy

E-Commerce is not a new business model, but, it is obtained by integrating the e-business model done in the digital media and the Internet into your traditional business model. The resulting business will be as successful as your old business and all of your business talents will be directly applicable to the e-commerce business created. The integration of the e-commerce in the business strategy is shown in Figure 11 below.

9.2. Critical Success Factors

The success of any Internet venture is a combination of distinctive value propositions and six main factors.

- a) **Virtual Customer Intimacy:** Collection and intelligent analyses of customer data for forecasting customer needs,

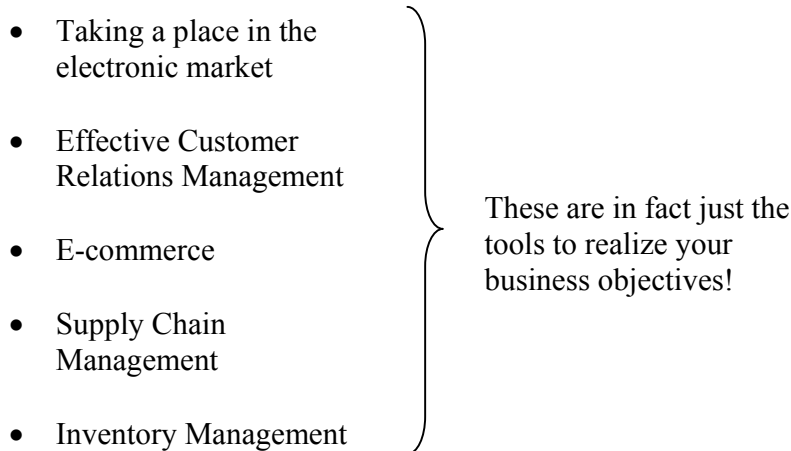


Figure 11: Integration of e-commerce into the business strategy.

- b) **Innovation/Experimentation:** Experimentation with emerging web models for continuous improvement,
- c) **Alliances:** Development of strategic alliances to meet customer demands by utilizing core competencies of other providers,
- d) **Service Excellence:** Development of world class customer service over all available channels,
- e) **Channel Integration:** Leveraging multiple channels to serve the on-line customer,
- f) **Electronic Communities:** Design of value added content and functionality for strengthening relationships among online customers in order to form a community.

9.3. Prepare a Business Plan Before Entering Internet and the E-Commerce

The business plan prepared before entering Internet and the e-commerce should include:

a) *Description of the business model*

- What are the most important merits of your business
- Who are your customers?
- Who are your online customers?
- What kind of role can e-commerce play in your business success?
- How can you manage customer relations through Internet?

b) *Technical Strategy*

- What are your current systems?
- Will you built a new system or do Integration?
- What are the functions you need?
- How will you design your web page?
- What is the content?

- Who will update the system?
- How shall we attract customers attention continuously?

c) Marketing Plan

- How will you promote your web site?
- How many visitors are you planning per week?

d) Cost

- How much are you planning to invest?

e) Income

- What do you need to reach the break-even point?

f) Timing

- When will you reach the break-even point? In other words, when will you come to the point where you regained all the Money you invested and started making profit?

g) Conditions

- In what conditions will you reach the break-even point?

10. CONCLUSION

Every business these days need to update its operational strategy, efficiency, quality and speed of service in order to survive in the ever competing global business world. To be successful, automation of operations, improving product and service quality and reducing service time is made possible by transforming the business into e-business, and likewise, commerce into e-commerce. Otherwise, it's a big risk to take if you don't, when all your rivals are doing it.

E-Commerce is not a different type of commerce but it is the commerce done in a different platform, the Internet. To transform your business into e-commerce, a detailed analysis should be carried out before you can decide on the suitability of your business and the products and services to e-commerce. Once your e-commerce business is established, the goals are the same as conventional commerce: to find customers and to keep them. In order to find customers, advertising and promotion campaigns certainly help. To keep the customers, you need to keep up the standards in quality and provide fast service and delivery times.

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