CHAPTER 2: LITERATURE REVIEW
2.1 INTRODUCTION

Electronic Commerce (E-commerce) seems to be everywhere these days. It’s nearly impossible to read a magazine or newspaper without coming across an article about how e-commerce is going to change and affect our lives. It is widely accepted that e-commerce and Internet technologies can benefit an organization.

E-commerce offers tremendous opportunities to do business electronically, such as using electronic data interchange (EDI) and World Wide Web (WWW). The exponential growth of the Internet and the WWW created a new type of commerce: E-commerce on the Internet. E-commerce on the internet is the exchange of goods, services and information using the Internet’s capabilities (Shahar, 1997).

E-commerce is fundamentally changing the economy and the way businesses are conducted today (Barua et al., 2001). It forces firms to find new ways to expand the markets, to attract and retain customers by tailoring products or services to their needs, and to restructure their business processes in order to deliver high quality products and services more efficiently and effectively (Chan and Davis, 2000).

The development of e-commerce offers a promising way for businesses to meet challenges of the ever-changing market (Kaiyin, 1997). The fast-developing information infrastructure makes the connectivity to reach almost everywhere around the whole world possible. However, the main challenge and successfalusness of running e-commerce business comes not only from technology, but also from the people who do the business. This chapter reviews e-commerce definitions, the evolution of e-commerce, the acceptance and adoption of e-commerce, the benefits of e-commerce, the factors that affect e-commerce adoption and the proposed research methodology.
2.2 DEFINITION OF E-COMMERCE

Many of the implicit and explicit definitions of e-commerce rely on past experience rather than on possible futures. There are various ways to define e-commerce by different people, different books or different parties.

E-commerce is a general term for any type of business, or commercial electronic transaction that involves the transfer of information across the Internet. Or we can say that e-commerce is defined as the use of computers and electronic networks to conduct business with other businesses or with customers over the Internet or another electronic network. Since there are various definitions of e-commerce, the United Nations Conference on Trade and Development (UNCTAD, 2000) has summarized the descriptive definitions of electronic commerce as stated below:

2.2.1 Definition by U.S. Executive Office of the President

E-commerce is commercial interaction over the internet, which can lower costs dramatically and facilitating new types of commercial transactions. As the Internet empowers citizens and democratizes societies, it is also changing classic economic paradigms. New models of commercial interaction are developing as businesses and consumers participate in an electronic marketplace and reap the resultant benefits. The Internet has the potential to revolutionize commerce and other areas. The Internet will revolutionize retail marketing. Commerce on the Internet could total tens of billions of dollars by the turn of the century. (UNCTAD, 2000)

2.2.2 Definition by European Information Technology Observatory

Electronic commerce is the carrying out of business activities that lead to an exchange of value across telecommunication networks. (UNCTAD, 2000)
2.2.3 Definition by Organization for Economic Co-operation and Development (OECD)

E-commerce refers generally to all forms of transactions relating to commercial activities, including both organizations and individuals that are based upon the processing and transmission of digitized data, including text, sound, and visual images. (UNCTAD, 2000)

2.2.4 Definition by European Commission

Electronic commerce is about doing business electronically. It is based on the electronic processing and transmission of data, including text, sound, and video (UNCTAD, 2000). It encompasses many diverse activities, including electronic trading of goods and services, online delivery of digital content, electronic fund transfers, electronic share trading, electronic bills of lading, commercial auctions, collaborative design and engineering, online sourcing, public procurement, direct consumer marketing, and after-sales service (European Commission, 1998). It involves both products (consumer goods, specialized medical equipment) and services (information services, financial and legal services); traditional activities (healthcare, education) and new activities (virtual malls).

2.2.5 Definition by Ministry of International Trade and Industry, Japan

“... electronic commerce, which has been limited to a number of specified companies, is entering a new era where many unspecified persons, including general consumers, are involved on the networks. In addition, its contents have come to include not only simple transactions of data concerning placement of orders or order acceptance but also to general commercial acts such as publicity, advertisements, negotiations, contracts, and fund settlements.” (UNCTAD, 2000)
2.2.6 Definition by Transatlantic Business Dialogue Electronic Commerce White Paper

Electronic commerce, defined simply, is the commercial transaction of services in an electronic format. (UNCTAD, 2000)

2.2.7 Definition by MIMOS, Malaysia

The researcher has conducted interview with few IT experts from MIMOS Berhad, Malaysia and gets the following definition by them. E-commerce builds on the structures of traditional commerce by adding more flexibility with computerized business transactions using the Internet, networks, and other digital technologies.

2.2.8 Definition by Malaysian International Chamber Of Commerce & Industry

E-commerce is commerce that is transacted electronically over the Internet, such as transact or facilitate the selling of products or services online (MICCI, 2006).

Among all the definitions, the researcher think that the definition by European Commission is the best one as its covers all the scope of e-commerce. In a simple way, the researcher can conclude that the e-commerce is doing business electronically, with the use of electronic transmission mediums (over computer or electronic networks).

2.3 EVOLUTION OF E-COMMERCE

The goal of e-commerce is to use electronic data transmission technologies, such as the Internet and the web, to improve existing business processes, and to identify new business opportunities. Over the thousands of years that people have conducted business with each other, they have adopted new tools and technologies as they have become available (Gary P., 2002).
According to WorldHistory.com (2000), the meaning of the term "electronic commerce" has changed over time. In the early days, e-commerce meant the facilitation of commercial transactions electronically, usually using technology like Electronic Data Interchange (EDI, introduced in the late 1970s) to send commercial documents like purchase orders or invoices electronically (WorldHistory.Com, 2000).

E-commerce then includes activities more precisely termed "Web commerce" -- the purchase of goods or services over the World Wide Web (WWW) via secure servers, such as HTTPS, with e-shopping carts and with electronic pay services, like credit card payment authorizations (WorldHistory.Com, 2000). Nowadays, when most people mention e-commerce it means the exchange of information or doing business over computers or electronic networks using electronic data transmission technologies, such as the Internet and the web. There are very few companies using EDI, due to cost of implementing it being higher than using the Internet or the web.

The Internet was opened to commercial use during the early 1990s. That time period also saw the development of Web servers and Web browser software. By 1995, the rapid growth of the Internet and the web had combined with the proliferation of personal computers (PCs) in homes and businesses to create a new communications network that could support business transactions as nothing ever had before. These three factors combined to make e-commerce possible. The emergence of the Internet and the Web as new data communication tools is just another step in the increasing efficiency of business processes (Gary P., 2002).
2.4 ELECTRONIC COMMERCE OR ELECTRONIC BUSINESS?

Some people and businesses use the term electronic business (e-business) when they are discussing electronic commerce (e-commerce) in a broader sense. However, most people use the term e-commerce and e-business interchangeably.

According to Jean Talbot, professor at the Ecole des Hautes Etudes Commerciales, “e-commerce means using internet technologies for processes affecting clients and suppliers, in other words, processes outside the business. E-business involves both external and internal processes,” such as business support systems, human resource management and supply and management of stocks. E-business therefore has a wider scope than e-commerce (Communication Canada, 2001).

We can also say that e-business is a new way of doing business that involves connectivity, transparency, sharing, and integration. It requires the integration and alignment of business processes, technology, and people with continuously evolving e-business strategy (Murkhopadyay et al., 1995).

![Figure 2.1: Terminology of Electronic Commerce (Huff et al., 2000)](image-url)
Figure 2.1 above illustrates the relationship among a number of terms. The largest oval is labeled “Electronic Business”. E-business includes everything having to do with the application of information and communication technology (ICT) to the conduct of business between organisations or from company to consumers.

Within the e-business oval is a smaller oval labeled “Electronic Commerce.” This highlights the fact that there are numerous forms of business-related ICT-based interactions that can occur between businesses, or between a business and an end customer, which do not directly concern buying and selling. Only those forms of interaction having to do with commerce are included in the electronic commerce oval. This includes advertising products or services, electronic shopping, and direct after-sales support (Huff et al., 2000).

However, from the researcher point of view, both the term e-commerce and e-business have the same meaning, which is a business approach in which some or all of the sales and customer support processes are managed electronically, usually via the Internet or the web.

2.5 ACCEPTANCE OF E-COMMERCE

In order to understand what influences the acceptance of a technology, the Technology Acceptance Model (TAM) (Davis, 1986) will be reviewed. Due to the ownership and decision-making power of organisations being held by one or more people, adoption of e-commerce into their organisation depends on these people’s acceptance of the technology. It is therefore important to understand what factors lead to an individual’s acceptance of a technology.
The attributes of TAM show the processes carried out in order for acceptance to occur. The attributes can be applied to the way an individual would view e-commerce in deciding whether to accept it. The four areas of the TAM can be analysed as follows.

2.5.1 Ease of Use
The individual must be comfortable with the use of technology. A person that is frightened to embrace technology will not be willing to accept e-commerce as a trading tool. If the appropriate skills and understanding of the technology are in place then use of e-commerce will be easier, thus making its acceptance more likely (Davis, 1986). Therefore company having staff with e-commerce knowledge or skills are more likely to accept e-commerce because they know the importance of technology can make work easier.

2.5.2 Intention
The individual must intend to embrace e-commerce and have a positive attitude towards it. A person that views e-commerce as a tool that has no potential role in what they are doing is unlikely to accept the potential of e-commerce (Davis, 1986). An individual personal view towards the IT technology and e-commerce is very important. The individual or company must realise the importance of e-commerce and willing to take up e-commerce, else it’s hardly to force them to embrace e-commerce.
2.5.3 External Variables

These are the factors affecting a person’s acceptance of the technology that is beyond the control of the individual (Davis, 1986). External variables that affect a person’s acceptance of the technology can be due to the system characteristics, organisational factors, individual differences and environmental factors. These factors demonstrated the important role external variables played in influencing individual user’s behavior.

System factors affect a user’s perception of ease of use of the system. The easier the system is to use, the greater the likelihood that users will use the system. Organisation plays an important role in acceptance of technology, because they need to create a favourable environment to support and encourage their employees in using technology. Individual differences can be analysed from different perspectives, such as personality, demographic and situational variables, which can effect on user’s beliefs, attitudes and intentions to the technology. Environmental factors include factors such as culture.

2.5.4 Usefulness

The individual must be convinced of the relevant advantage of using e-commerce. Embracing e-commerce should be perceived as easier, faster, and cheaper than current manual processes of doing business. E-commerce would need to be understood and seen to be useful by the individual (Davis, 1986). The degree to which an individual believes that using a particular system would enhance his or her job performance and productivity is important. If the company unconvinced of the potential benefits of e-commerce and has negative view on e-commerce, it’s hardly to have them adopt e-commerce in their business.
2.6 BENEFITS OF E-COMMERCE

E-commerce is fundamentally changing the economy and the way businesses are conducted today (Barua et al., 2001). It forces organisations to find new ways to expand their markets, to attract and retain customers by tailoring products and services to their needs, and to restructure their business processes in order to deliver high quality products and services more efficiently and effectively (Chan and Davis, 2000).

There are lots of benefits that organisations need to be aware of when deciding whether the use of e-commerce in their business can benefit their organisation. Different people might view the importance level of the e-commerce benefits differently. Some benefits of adopting e-commerce for the companies or organisations include improved customer service, better inventory control, lower marketing and distribution costs, reduced cycle time, increased market reach, reduced operation costs, global connectivity, high accessibility, scalability, interoperability, and interactivity (Turban et al., 2000).

Despite the economic slowdowns, e-business continues to grow (George, 2002). Yet, it is not certain if companies adopting e-commerce are actually realizing the benefits or are implementing e-commerce just to remain competitive.

2.6.1 Improved speed of delivery

Speed of delivery is the time it takes for an organization to deliver its products or services to their business partners. It means the total time it takes to deliver the product will decrease because of e-commerce technology adoption. E-commerce system can make the business process faster since it works 24 hours as long as the server is on. Besides that, certain things can be delivered online immediately after the customer has made the payment, such as software and songs can be downloaded online and voucher can be self printed.
2.6.2 Improved markets reach

E-commerce is not restricted by geographical location. Market reach is the ability of an organization to reach a larger number of trading partners and consumers. Since e-commerce is using World Wide Web, it can reach larger market in world easily and not only those who is near by.

2.6.3 Reduced cycle time and time to market

The time it takes from start to finish to produce one unit of product or the time it takes to provide a service from beginning through completion is known as cycle time. An operational benefit is perceived if after e-commerce adoption the organization realizes reduced cycle times. The time from the inception of an idea until the actual product is made available for sale in the market is the definition of time to market. An operational benefit is perceived if the organization is able to increase its production and provide services to their customers faster than prior to e-commerce adoption (Pauline, 2002). Some businessmen spend most of their time on traveling for business purposes. The organization can reduce unnecessary traveling by search and order the raw material online, which will then reduce the production and cycle time.

2.6.4 Improved customer service

Improved customer service refers to the quality of tasks that an organisation performs to increase sales, retain its customers and improve the quality of services provided to the customer. It is achieved if the level of satisfaction the customer experiences from conducting business with the organisation is raised after e-commerce adoption. This in turn increases the customer's loyalty and purchasing behaviors (Mcknight and Chervany, 2002). By having more information available and a well-designed database, businesses can add value to their customers by providing better services such as personalized advertising and offering goods based on their shopping history.
2.6.5 Reduced errors

E-commerce transactions have reference numbers so that transactions reach the receiving trading partners in a correct, complete and accurate manner. By enforcing proper integrity mechanisms, organisations are able to experience reduced errors (Pauline, 2002). Some errors occurred in business process are human error due to lots of paperwork are involved. Therefore, e-commerce will be able to reduce errors since most of the transaction run automatically by computer, especially those e-commerce systems which have been implemented and tested for long time.

2.6.6 Better inventory management

The daily production involves maintaining, organizing, and accounting for product inventory. It was realised when the inventory control processes are made simpler or eliminated and at the same time are able to handle inventory, thus ensuring that there will be no large stockpiles of inventory, while simultaneously reducing out of stock situations (Pauline, 2002). Some of the companies, especially those big organizations, are facing inventory problem as keeping track of warehouse or stock is not easy. So, with the use of e-commerce which come with computerize inventory system, the organization will be able to manage their inventory easier.

2.6.7 Reduced costs

The costs experienced by organisations in their daily business operations from paperwork, paying bills and making products or delivering services are largely reduced due to the automation processes of e-commerce applications. These include operational costs, administrative costs, and transaction costs. This benefit is realized when the total costs after e-commerce adoption are lower than the costs of operating the business before adopting e-commerce (Hruska, 1995).
2.6.8 Improved flow of information

Improved flow of information refers to the ability of e-commerce applications to provide compatible technology infrastructures and authorized mechanisms both internally and externally to accurately communicate information between employees, customers and trading partners. Communication channel is able to transmit timely, accurate and correct information thus enabling strategic decisions to be made (Pauline, 2002). Since e-commerce is running online, it not only allows the sharing of data in controlled environments, but also to manage work flows efficiently.

2.7 ADOPTION OF E-COMMERCE

Online shopping was introduced to the market in the last decade as many individuals and organizations purchase through the World Wide Web. Recently, e-commerce or commercial activity on the Internet is a rapidly growing business medium in Malaysia. However, most users don’t know how it works and little has been published concerning the views of e-commerce users.

Year 1995 was considered the beginning of the internet age in Malaysia. The growth in the number of internet hosts in Malaysia began around 1996. It is hard to determine the actual figure of online users in Malaysia, as some of the online users are not registered as Internet subscribers, and access the Internet at their workplaces, schools, colleges, universities, Internet cafes or friends’ places.

Table 2.1 below indicates the total number of registered third-level domain names from January 1995 to December 2004 in Malaysia, provided by Malaysian Network Information Centre (MIMOS, 2005).
Table 2.1: Total number of registrations to date (Jan 1995 - Dec 2004)

<table>
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<tr>
<td>1995</td>
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<td>3</td>
<td>4</td>
<td>31</td>
<td>13</td>
<td>0</td>
<td>0</td>
<td>151</td>
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<tr>
<td>1996</td>
<td>537</td>
<td>32</td>
<td>30</td>
<td>73</td>
<td>42</td>
<td>0</td>
<td>0</td>
<td>714</td>
</tr>
<tr>
<td>1997</td>
<td>1306</td>
<td>61</td>
<td>37</td>
<td>57</td>
<td>30</td>
<td>0</td>
<td>0</td>
<td>1491</td>
</tr>
<tr>
<td>1998</td>
<td>2061</td>
<td>86</td>
<td>42</td>
<td>62</td>
<td>61</td>
<td>0</td>
<td>0</td>
<td>2312</td>
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<tr>
<td>1999</td>
<td>4738</td>
<td>222</td>
<td>144</td>
<td>64</td>
<td>63</td>
<td>0</td>
<td>0</td>
<td>5231</td>
</tr>
<tr>
<td>2000</td>
<td>10048</td>
<td>378</td>
<td>192</td>
<td>51</td>
<td>74</td>
<td>0</td>
<td>0</td>
<td>10743</td>
</tr>
<tr>
<td>2001</td>
<td>7372</td>
<td>348</td>
<td>204</td>
<td>83</td>
<td>111</td>
<td>0</td>
<td>0</td>
<td>8118</td>
</tr>
<tr>
<td>2002</td>
<td>7514</td>
<td>334</td>
<td>216</td>
<td>81</td>
<td>126</td>
<td>1</td>
<td>0</td>
<td>8272</td>
</tr>
<tr>
<td>2003</td>
<td>8030</td>
<td>408</td>
<td>289</td>
<td>99</td>
<td>154</td>
<td>3</td>
<td>0</td>
<td>8983</td>
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<tr>
<td>2004</td>
<td>9086</td>
<td>404</td>
<td>293</td>
<td>123</td>
<td>168</td>
<td>1</td>
<td>173</td>
<td>10284</td>
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<tr>
<td>Total (1995-2004)</td>
<td>50792</td>
<td>2276</td>
<td>1451</td>
<td>724</td>
<td>842</td>
<td>5</td>
<td>173</td>
<td>56263</td>
</tr>
</tbody>
</table>

*Source: MYNIC (Malaysian Network Information Centre)*

From the table above, we can see that the number of websites in Malaysia is growing rapidly. The Internet is becoming popular in Malaysia, as it is a virtual place where people share their ideas, build communities, shape the future democratically, and promote a new way of doing business. The Internet is the world’s biggest shopping mall that allows enterprises to do their business with low costs involved, yet covering global market (Paynter and Lim, 2001). Although the number of websites in Malaysia is growing rapidly but e-commerce adoption is not growing rapidly because most companies only registered the domain name for future use and for showing their products or their company’s information.

E-commerce is a potentially-growing business for today’s market. The traditional boundaries will soon be replaced with a whole new technology as well as a mechanism and media for purchasing goods and services. The electronic payment system provides opportunities for new global and national trading relationships (Paynter and Lim, 2001). Doing transactions online may bring many benefits to both companies and consumers.
E-commerce in Malaysia is in its infancy because Malaysia can be considered a late starter given the recent spate of Internet interest. Although it has been a few years since the commercialization of the Internet, Malaysian still mainly regard it as a novel means of communication and entertainment, but not yet as a medium for commerce (Paynter and Lim, 2001).

Committing a transaction online in Malaysia is not as popular as in western countries. Almost every Internet user surveyed said in general that they like the idea of shopping on the Internet, but in fact only a small number of Malaysians actually buy online (Taylor Nelson Sofres Malaysia Sdn Bhd, 2000). The researcher found some Malaysian still worried about the security and the accuracy of the product bought when it’s delivered, since security issues have been creating unnecessary anxieties for many businesses and consumers (Paynter and Lim, 2001).

It is important to recognize that e-commerce activities range from entry-level activities such as having web browsers, web sites, and e-mail, to sophisticated activities such as online purchasing, online payment, customer services, and video conferencing. Akkeren and Cavaye (1999) stated that the adoption of e-commerce practices is a progression and sophisticated technologies are unlikely to be adopted before those at the entry level have been successfully adopted. These entry-level activities provide the necessary technological infrastructure from which more sophisticated e-commerce activities can be developed.
An e-adoption ladder, adapted from Cisco in the Information Age Performance Study (2000), explains this progression. The e-adoption ladder has provides a picture of how businesses progress from relatively simple to more complex e-commerce activities. The adoption ladder is a useful tool to analyze where a business lies within the e-commerce adoption process.

As an organization progresses up the ladder, it must undergo changes and become more sophisticated in its use of technology. As an organization implements these new changes, the business is ultimately able to improve business efficiencies. There are five steps that an organization may go through are show in Figure 2.3 below.

![Model of e-adoption ladder](source)

**Source:** Cisco led Information Age Partnership

**Figure 2.3: Model of e-adoption ladder**

The five stages that an organization may go through in the e-adoption ladder are explained below by Courtney and Fintz (2001):-
(1) **Email**

This is defined as the use of e-mail to send messages, either to provide internal communication between staff, or to allow communication between businesses and their suppliers and customers. In e-commerce, the focus is on the external use of e-mail. Some elements of Electronic Data Interchange (EDI) can also be regarded as messaging, such as sending a request for a quotation.

(2) **Website**

This is the establishment by a business of a website or e-mail list to publish information about products and services, so that their customers can access this information online. It gives the business an opportunity to create a greater awareness of its products to its customers. The website can publish marketing information, prices, and stock levels. In relation to supply-side activities, this is the use of other businesses’ websites to identify suppliers and to acquire information on products and services. Checking the availability of products and services can also be done online.

(3) **E-commerce**

This is the online interaction between a business and its customers, or a business and its suppliers, for the placement of an order. Online activities include issuing or receiving an invoice and an electronic payment.

(4) **E-business**

This is the use of e-commerce to support the business relationship between a customer and a supplier, for example through, the provision of interactive order progress tracking or online support. An integration of the supply chain links suppliers, manufacturing, and delivery, thus improving efficiencies and minimizing waste.
(5) **Transformed Organizations**

The final outcome is the integration of all these activities with the internal processes of a business. The focus is customer service orientated.

According to the researcher’s review, most of the Malaysian companies are in stage 2 and a small number of the medium or large size companies are now in stage 3 or stage 4. While there are only few companies such as Amway and Cosway are in the stage 5.

### 2.8 FACTORS THAT AFFECT E-COMMERCE ADOPTION

The factors that affect e-commerce adoption are useful in determining the reason why organisations refuse to adopt e-commerce. Researchers have identified different factors that affect e-commerce adoption among organisations. Below are the two main factors that are identified by different researchers.

#### 2.8.1 Owner's Characteristics

E-commerce adoption depends on the acceptance of e-commerce by the business owner. If the business owner understands the potential and perceives the technology to be useful, they won’t be reluctant to adopt it. The researcher also found that owner’s characteristics is related to Technology Acceptance Model (TAM), because adoption of e-commerce into their organisation depends on owner’s acceptance of the technology.

Besides that, the level of computer literacy of the owner and lack of knowledge on e-commerce technology will also result the business owner being less likely to adopt e-commerce. However, the level of assertiveness and rationality of the owner in decision-making would make the owner more likely to adopt e-commerce if it suited the organisation (Eric et al., 2002).
If the owner is subjective and refers to the opinions of experienced people who recommend the adoption of e-commerce in the organisation, then he is also more likely to accept their opinions (Harrison et al., 1997). As a result, owners are often hesitant to make substantial investments when short-term returns are not guaranteed.

2.8.2 Organization’s Characteristics

Some factors that effect the adoption of e-commerce are related with the organisation itself. The amount of technology currently in use in the organisation indirectly related to the adoption of e-commerce, such as PCs with modems and e-mail facilities can help and make it easier for the process of adoption. Adoption has also been found to be largely dependent on external pressure from the business’ competitors as well as its supply chain (Thong and Yap, 1995). Businesses might adopt e-commerce as a result of their competitors using it so as not to lose their competitive advantage. If an organisation has large amounts of data and transactions, then it is more likely to adopt technology which can help streamline operations.

2.9 BARRIERS AND OBSTACLES OF E-COMMERCE ADOPTION

Besides business owner characteristics and organization’s characteristics, which are the main two factors that can affect e-commerce adoption, there are still a lot of other reasons, limitations, obstacles or barriers that impact the adoption of e-commerce. Researchers have identified a number of additional issues that can affect the adoption of e-commerce in business. These are summarised by Courtney and Fintz, (2001) below.

2.9.1 Unconvinced of benefits to the company

There is a lack of e-commerce success stories available to demonstrate its potential. Many businesses have not achieved all the benefits that they thought they would. The
result is that other organization become more hesitant to adopt e-commerce. Therefore, researcher found that it’s important to let everyone know the benefits and importance of e-commerce as a potential tool in their business.

2.9.2 Low use of E-commerce by Customers and Suppliers

Akkeren and Cavaye (1999) and McGowan and Madey (1998) have found the main inhibitor to e-commerce adoption amongst SMEs as being the low use of e-commerce by their main customers and suppliers. These customers and suppliers would play an integral part in business online commerce activities, and there is little incentive for them to engage e-commerce until their customers and suppliers are also using it (Akkeren and Cavaye, 1999; McGowan and Madey, 1998). The researcher found that this is an external factors that can affect someone to adopt e-commerce in their business, because they found it as unnecessary to implement it since the customers and suppliers are not using it.

2.9.3 Security Issues

The issue of online payment is still an aspect of concern for customers when trading online. While secure methods of payment have been established it was noted in the APEC SME Electronic Commerce Study (1999) that security is a problem of perception and that perceived risk could still have a big impact on SMEs (APEC, 1999). This particularly affects consumer confidence, such as non-willingness by consumers to trade online due to security issues (Zaitun A.B. and Sazili M., 2004). The researcher also found that one of the reasons for low participation of Malaysia in e-commerce is organization is lack of confidence in on-line payment systems. Besides that, Mukti (2000) stated that privacy is the fifth most cited reasons that could limit the emergence of e-commerce. This is because if the instantaneous transmission of information is not managed carefully, it will diminish personal privacy.
2.9.4 Limited knowledge of e-commerce models and methodologies

The APEC SME Electronic Commerce Study (1999) found that many SMEs have limited access to information about the business models and technologies that are the basis for e-commerce success. It found that businesses had difficulty in demonstrating a positive return on investment to justify their investment in e-commerce implementation. Often lack of IT skilled personnel are one of the fourth most cited reasons (Mukti, 2000) that could limit the emergence of e-commerce.

2.9.5 High costs of development and computer and networking technologies

The development of an effective website is costly. E-commerce activities require the training of staff and establishing distribution channels. Computer and networking technologies also need to be invested in. These costs can inhibit an organization, especially in an SME, when deciding on adopting e-commerce (Nath et al., 1998). The researcher found that financial issue is one of the main barriers of e-commerce adoption cited (Mukti, 2000) as implementing a good e-commerce site is not cheap.

2.9.6 Concerns about legal and liability aspects

Often businesses thinking about adopting the use of e-commerce into their organisation do not fully understand the legal implications. These include enforceability of electronic contracts, the legal jurisdiction of international transactions, intellectual property rights, copyright laws, as well as tax issues.

Due to the Internet’s relatively short life, legislation is still new and developing. Business owners are concerned that they lack adequate knowledge of the e-commerce legislation and laws. The researcher found that legal issue is one of the main concerns in e-commerce adoption in Malaysia because there is poor understanding of the legal framework governing ecommerce (PIKOM, 2006).
2.10 CURRENT RESEARCH OF OTHER RESEARCHERS

There are a lot of researches about the e-commerce adoption in other countries, such as Japan, Australia, Singapore, China, India and others. The researcher found that there are a lot of e-commerce researches in other countries, which have more advanced technology. Most of the research scopes are narrowed down to more specified areas, such as “Factor Affecting the Adoption of E-commerce Technologies by Small Business in Australia”. by Akkeren and Cavaye (1999) focusing only on the small business area. There are also some research on gender and ICT discussing about inequities in the ICT arena, and the gender dimensions of the inequities.

In Malaysia, there are only a few researches on e-commerce adoption, such as:

- “Consumer Protection in E-commerce in Malaysia: An Overview” by Kaur, K. (2005) focused on the issues of consumer protection in the online marketplace,
- “Web-based Customer Service and E-commerce Success: A Malaysian Perspective” by Abdul Aziz and Lee (2001) strives to establish the current outlook of the adoption of web-based customer service in Malaysia and to look at ways in which businesses can use it to build competitive advantage.
- “Drivers and Impediments to E-commerce in Malaysia” by Paynter and Lim (2001) focused on the development, current status, future trends and demographics of the use of online shopping in Malaysia.
- “Barriers to Putting Businesses on the Internet in Malaysia” by Mukti, N. (2000) investigated the kind of barriers faced by companies in putting their business in the internet in Malaysia.
So far, the researcher found that, there is no specific research on e-commerce adoption among women but there are some researches on women in ICT, such as:

- “Portals for Women: Do Women need them?” by Proboyekti et al. (2004) examined women needs for resources in the internet and discovered whether portals for women are needed for information.
- “ICT Content for Women: Content Creations in Women’s Portals” by Yusof A. et al. (2004) studied on women portals and proposed a framework for women content creation.

The researcher believes that the e-commerce adoption in Malaysia nowadays is very different compared with the situation a few years back. Therefore the researcher has proposed to study the e-commerce area as discussed in section 2.11 below.

2.11 PROPOSED STUDY

There are very few studies about e-commerce adoption in Malaysia. In addition to that, there isn’t any detailed study about the adoption of e-commerce among Malaysian women at all. So, the researcher has proposed to study this area to investigate the extent of Malaysian women’s involvement with e-commerce applications in Malaysia and find a set of guidelines on the best practices of e-commerce adoption which might help them. According to the studies’ analysis, a web portal would be developed in order to network Malaysian women in e-commerce and promote e-commerce adoption among Malaysian
women. Some information of the studies would be put on the web portal as well, in order to help Malaysian women understand better about e-commerce adoption.

2.12 PROPOSED RESEARCH METHODOLOGY

This section explains the research design for this exploratory study and the manner in which the research was conducted.

2.12.1 Population and Sample

Since the population is too larger for the researcher attempt to survey. A small, but carefully chosen sample has been used to represent the population. Stratified Sampling has been used as the sampling technique in this research because it used probability methods, which can reduces sampling error. First, the researcher has identifies the targeted population of this research is any female or male who own a company or working in a company with the right to decide on a business plan, within Peninsular Malaysia. The targeted subjects are likely to have e-commerce knowledge or experience.

2.12.2 Data Collection Method

It was decided that the data collection method to be utilised would be mail surveys (distribution of questionnaires), e-mail surveys (distribution of questionnaires) and personal interviews. Mail survey is where the questionnaire is distributed to each individual in the sample by mail, with a request that it be completed and then returned by a given date. Besides that, the researcher will also conduct face-to-face interviews with the respondents. All the respondents are expected to be aware of company’s IT related information. Survey instrument packages consisting of a cover letter, questionnaire and a self-addressed stamped envelope were included to facilitate the return of the completed questionnaire.
The first set of questionnaire (refer to Appendix A) was mailed to the 150 samples, which include 75 males and 75 females. The female respondents, who returned the first set of questionnaire, were then mailed the second set of questionnaire (refer to Appendix B), so that the researcher can study more in-depth for e-commerce adoption among Malaysian women. In order to meet the minimum of sample amount the researcher need, the researcher has conducted some interview to collect data as well.

2.12.3 Research Instrument

The survey instrument used was two different sets of questionnaires. The first set of questionnaire consists of 5 sections (shorter version of questionnaire) is for the businessmen only. The second set of questionnaire consists of 7 sections (with more questions) is for the businesswomen, so the researcher can collect more details in order to study how to network Malaysia women in e-commerce.

The questionnaire is also used for the face-to-face interview. Questionnaire was used to test e-commerce adoption levels amongst Malaysian in Peninsular Malaysia because questionnaires covered a wide range of subjects and provide a format for large and quick data collection. Besides that, it also provides a standardised form of response, reducing biasness, and finally allowing easier way for analysis.

The first set of questionnaire is developed for Malaysian, both men and women, and is divided into five main sections. The first section requested general information about the respondent. The second section is about the company’s general information, including the company’s primary business and number of employees. The third section is about the respondents’ perception of e-commerce and the fourth section is about the e-commerce adoption in respondents’ company. The final section is for the respondents to give extra opinions.
The second set of questionnaire is developed for Malaysian women and is divided into seven main sections. The first section requested general information about the respondent. The second section is about the company’s general information, such as the company’s primary business and primary market, and the percentage of imports and exports. The third section enquired about the respondent’s perception of e-commerce. This includes rating potential benefits and limitations of e-commerce in terms of importance. The fourth section enquired about the company’s adoption of e-commerce, and requested information about the company’s technological and e-commerce capabilities. The fifth section is regarding the internet connection and communication in the company. The sixth section is regarding the respondent’s perception on how to promote e-commerce adoption. The final section requires the respondent to give other opinions. The response options for the sub-questions were in accordance with the five point likert scale in order to get more accurate information. (Refer to Appendix A for the questionnaire).

2.12.4 Questionnaire Distribution and Return

Three methods of distribution were used for the questionnaire:

✓ Post
✓ Fax
✓ E-mail
✓ By hand (Personal)

All companies with e-mail addresses received the questionnaires via this medium. Alternatively, questionnaires were faxed or posted. Business responses were predominantly via post. However, some companies responded via fax or e-mail.
2.12.5 Data Analysis Techniques

The results from the questionnaires were initially entered into a Microsoft Excel spreadsheet to allow for the easy generation of graphs and tables. Other software such as SPSS was not used since all the data collected were descriptive data.

2.13 PROPOSED SYSTEM DEVELOPMENT METHODOLOGY

In order to develop the M-wic system, Rapid Application Development (RAD) will be as the system development methodology. RAD is chosen because it provides the abilities to quickly develop an application and to make modifications when needed without leading to an iterative development environment. By using RAD, solutions that meet the major objectives of this project and gets things started can be provided quickly.

2.14 CONCLUSION

There are many implicit and explicit definitions of e-commerce and there are various ways to define e-commerce by different people or parties. Anyway, in this thesis, e-commerce is defined as the use of computers and electronic networks to conduct business with other businesses or with customers over the Internet or another electronic network.

A number of factors affect e-commerce adoption. These are the results of the owner’s perception and acceptance of e-commerce, the characteristics of the organisation, and the context in which the business finds itself. Various benefits and inhibitors to e-commerce adoption have been identified. There has been no significant study undertaken in Malaysia regarding the adoption of e-commerce in Malaysia, especially among Malaysian women. Further research is needed to determine current e-commerce perceptions and adoption strategies.