

A CONSUMER PERCEPTION TRUST MODEL FOR E-COMMERCE

(MODEL KEPERCAYAAN UNTUK E-DAGANG BERASASKAN PERSEPSI PENGGUNA)

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ABSTRACT

Trust is a vital element to the success of e-commerce. The research on the concept of trust has emerged rapidly due to the need of understanding it in order to improve current and future e-commerce implementation. The lack of consumer trust is one of the focused issues today as the world moves toward advanced information and technology era. This research aims to find a practical solution on how to integrate trust during the design and development process of an e-commerce website. The research examines consumers' trust and behavior by understanding the concept of trust, reviewing several trust related models, mechanisms and technologies proposed and recommended by other scholars. The research also proposed a model that shows how consumer trust is developed and communicated between two parties. It is found that there are six categories of trust mechanisms and technologies that web merchants can utilize in order to integrate trust in their website. It is also found that consumer characteristics have direct influenced on consumer purchasing intentions while web merchants should have trustworthiness characteristics such as ability, integrity and benevolence for consumer to evaluate and decide. This research provides guidelines for web merchants to understand more about consumer trust in order for them to build a secured and trusted e-commerce website.

ABSTRAK

Kepercayaan merupakan satu element penting terhadap kejayaan sesebuah laman web e-dagang. Kajian terhadap konsep kepercayaan ini telah berkembang dengan drastik disebabkan lahirnya keperluan untuk memahaminya sebagai penyelesaian untuk meningkatkan mutu implementasi laman web e-dagang pada masa kini dan masa hadapan. Kurangnya kepercayaan pengguna merupakan salah satu isu yang diberi tumpuan pada masa kini setelah dunia bergerak ke arah era kemajuan teknologi maklumat. Kajian ini bertujuan untuk mencari satu penyelesaian yang praktikal tentang bagaimana untuk menggabungkan kepercayaan semasa proses perancangan dan pembangunan sebuah laman web e-dagang. Kajian ini memeriksa kepercayaan dan kelakuan pengguna melalui pemahaman terhadap konsep kepercayaan, meneliti beberapa model kepercayaan, mekanisma kepercayaan dan teknologi yang dicadangkan oleh para sarjana. Kajian ini juga mencadangkan satu model yang menggambarkan bagaimana kepercayaan pengguna dibina dan berinteraksi antara dua pihak iaitu pihak pengguna dan pihak pengusaha laman web e-dagang. Kajian ini mendapati bahawa terdapat enam kategori mekanisma kepercayaan dan teknologi dimana pengusaha laman web e-dagang boleh adaptasi untuk digabungkan ke dalam laman web mereka. Kajian ini juga mendapati bahawa karakteristik pengguna mempunyai pengaruh terus terhadap keinginan pengguna untuk membeli manakala pengusaha laman web e-dagang perlu mempunyai karakteristik keboleh-percayaan seperti kemampuan, integriti dan niat yang baik dalam menjalankan perniagaan yang dapat menguntungkan kedua-dua pihak. Kajian ini memberi beberapa garis panduan untuk pengusaha laman web e-dagang memahami tentang kepercayaan pengguna dalam rangka untuk mereka membina sebuah laman web e-dagang yang boleh dipercayai dan selamat.

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CHAPTER 1

INTRODUCTION

1.1 Introduction

Internet has been a commonly accepted means of technology to conduct daily activities. The growth of the Internet since the starting of a new millennium has been extraordinary. Recent statistic developed by Miniwatts Marketing Group (2007) indicates that the Internet users in Asia region alone has exceeded to about 450 million. In Malaysia, the Internet penetration over the total population has increased from 15 % in 2000 to 47.8 % in 2007. This is due to the increasing number of Internet subscribers as Malaysia moved towards advance information, communication and multimedia services.

The true potential of Internet technology is now being exploited at a higher rate as a medium of selling and purchasing goods (Lee & Turban, 2001). It is widely agreed that e-commerce can only become a broad success if the general public trusts the virtual environment (Tan & Thoen, 2000). Most scholars in the field of e-business have agreed that the lack of trust in e-commerce is the main factor that contributed to the decreasing number of consumer engaging in e-commerce (Tan & Thoen 2000; Lee & Turban 2001; Reigelsberger et al. 2003; Patton & Josang 2004; Pennanen 2005). Consumer trust may be even more important in electronic, “cyber” transaction than it is in traditional, “real world” transactions (Kim et al, 2008). This is because in real world environment, consumer can experience the item physically and

if they are satisfied, then they will purchase the item. Apart from that, an electronic transaction has numerous disadvantages and it involved a lot of risk rather than normal or traditional transaction.

Several studies have focused on various aspects of trust to understand more about the concept of consumer trust in an online environment. These studies include proposing different kinds of models and frameworks (Tan and Thoen, 2000; Lee and Turban, 2001; McKnight and Chevany, 2001; Delone and McLean, 2004; Corritore *et al*, 2003; Pennanen, 2005), discussing the issue on consumer behavior and intentions when engaging in e-commerce activities (Schiffman and Kanuk, 1994; Holt, 1995; Koufaris *et al*, 2001; Kotler and Armstrong, 2002; Turban and King, 2003; Sheth and Mittal, 2004; Solomon *et al*, 2006; Chen and Barnes, 2007), looking into the trustworthiness of e-commerce websites (Mayer *et al*, 1995; Belanger *et al*, 2002; Nielsen *et al*, 2000; Che Hussin *et al*, 2003), arguing about trust and web design (Yang *et al*, 2005; Lumsden and MacKay, 2006; Corritore *et al*, 2001; Friedman *et al*, 1999), and also provide an understandable guideline on how trust can be integrated during web development process (Nah and Davis, 2002; Yang *et al*, 2005).

Yet, there are no researches conducted that focuses on constructing and testing a functional e-commerce website that incorporated consumer trust in its development process. Thus, this study focuses on how consumer trust can be integrated when developing an e-commerce website and also proposing a trust model that takes into account the user behavior aspects.

1.2 Problem Background

Building an e-commerce website has grown to be a trend for entrepreneurs and inventors to market their product and services in cyberspace. When dealing with an untouched and unseen environment, users or consumers tend to question the trustworthiness of this electronic environment. This will trigger their trust feeling towards it. Although there are some studies that discussed about trustworthiness of

an e-commerce website such as site attributes (Belanger et al. 2002 ; Che Hussin et al 2003) yet there is still issues related to trust and trustworthiness that exist today. Different approach and method have been discussed for the past few years on understanding the trust issue but there is no clear or direct solution.

As discussed, many studies have been conducted regarding this issue that focused more on understanding consumer's trust when he or she visits an e-commerce website. Many of the result from these various studies have come out with different sorts of models, frameworks or approaches on how to understand consumers' experience and feeling (mostly about trust) or react when they engaged in e-commerce activities. All of them gave a much clearer approach on how to understand consumer trust and how it is formed but none of them did a study on the development processes of e-commerce website itself besides focusing on the characteristics of the websites.

If an e-commerce website can be build based on all the models and frameworks related to trust, the author would assume that this would furthermore increase the level of trust among consumer. Thus, this study is about integrating consumer trust when building or developing an e-commerce website. A part from that, this study also proposed a model that studies the aspect of user or consumer behavior associated with trust that can be utilize when constructing the e-commerce website.

Nowadays, newly established companies are experimenting and marketing their services related to technologies for building trust. Trust seal programs, digital certificates, socket secure layer and etc. are among the most famous technologies that emerged due to the decreasing number of consumer engaging in e-commerce because of trust and security reasons. Few studies have been conducted regarding the effectiveness of these technologies to improve consumer trust (Head and Hassanein, 2002; Patton and Jøsang, 2004).

1.3 Problem Statement

The main question that requires an answer is “How to build an e-commerce website that take into account issues that is associated with consumer trust?”

1.4 Project Objectives

The objectives of this project are as follow:

- i) To identify trust indicators in an e-commerce website and to study the different kind of trust models.
- ii) To propose a consumer trust model that take into account user behavior aspect.
- iii) To develop an e-commerce prototype that supports the research findings.

1.5 Project Scope

- i) This study will only focus on trust issue although there are other issues associated with e-commerce.
- ii) The prototype will not operate as a complete e-commerce website but consumer trust will be the main priority in the development process.
- iii) This study is focused on business to consumer (B2C) concept in e-commerce
- iv) E-commerce websites in Malaysia

1.6 The project importance

Trust will always exist no matter how perfect the security is or how small the risk is in e-commerce environment. Finding a clearer solution to this matter will encourage more researchers in this field to uncover the weaknesses and find a better solution. If trust can be level down, a brighter prospect awaits for e-commerce. This study hopes to reveal the benefits when integrating trust in constructing an e-commerce website and provide few guidelines for incorporating trusts elements in the website. The model and website prototype developed will hope to guide developer and business oriented individuals or organizations to build a trusted and customer oriented e-commerce website. It is also hope to give a better understanding about trust related technologies and general knowledge on how these technologies can be adopt in an e-commerce website to increase the level of trust and the intention to purchase.

1.7 Summary

This chapter discussed the overview of this study where a brief introduction was explained concerning the trust issues that are related to e-commerce. The problem of this study and why it is initiated are discussed in the problem background section. Problem statement is the main question that needs to be answered after the completion of this project. There are three main objectives of this project that require a complete understanding if they're to be achieved successfully. It is hope that this project will contribute some knowledge in the study field.

CHAPTER 2

LITERATURE REVIEW

2.1 Introduction

E-Commerce (EC) is now becoming one of the important commodities for business organizations to perform transaction over the Internet in today's networked and technology-based economy. Today, EC has the potential to revolutionize business implementations, change business-to-business operations and business-to-consumer operations. Although EC has emerged as a powerful and sophisticated electronic medium for business transactions, there are few issues that can diminish the growth of EC.

This chapter is divided into seven sections that focus on reviewing and studying various literatures that are related to the research. The first section discussed about the overview of EC such as EC definitions, based on different perspectives, EC different classification and business models and also EC limitations. The second section focuses more on understanding user or consumer behavior in EC, which include trust formation process, behavioral intentions, decision-making process and etc. Section three discussed about subjects concerning trust in EC such as trust indicators that exist in an EC website, how consumer form trust towards an EC website and others. There are numerous issues in the field of electronic commerce that concerns many parties including scholars. In section four, these issues will be discussed in details while in section five, the study present several common models

related to EC that can be used as a guideline in identifying and constructing a new model which is one of the objectives that needs to be achieved in this study. Technologies plays an important role in EC where developers or business people are searching for new technologies to be implement in their EC website for performance and security purposes. Section 6 involve topics related to technologies for building and examining trust such as trust technologies in the market today, privacy and security policies, etc.

Developing a new electronic commerce is easy and effortless when people can acquire knowledge about it anywhere in the Internet. There are step-by-step guide to construct an EC website but building a website that focus on increasing the level of trust in consumer requires a huge amount of research and studies. Section 7 discussed about the web development process in EC done by other researchers. Figure 2.1 shows the literature review framework.

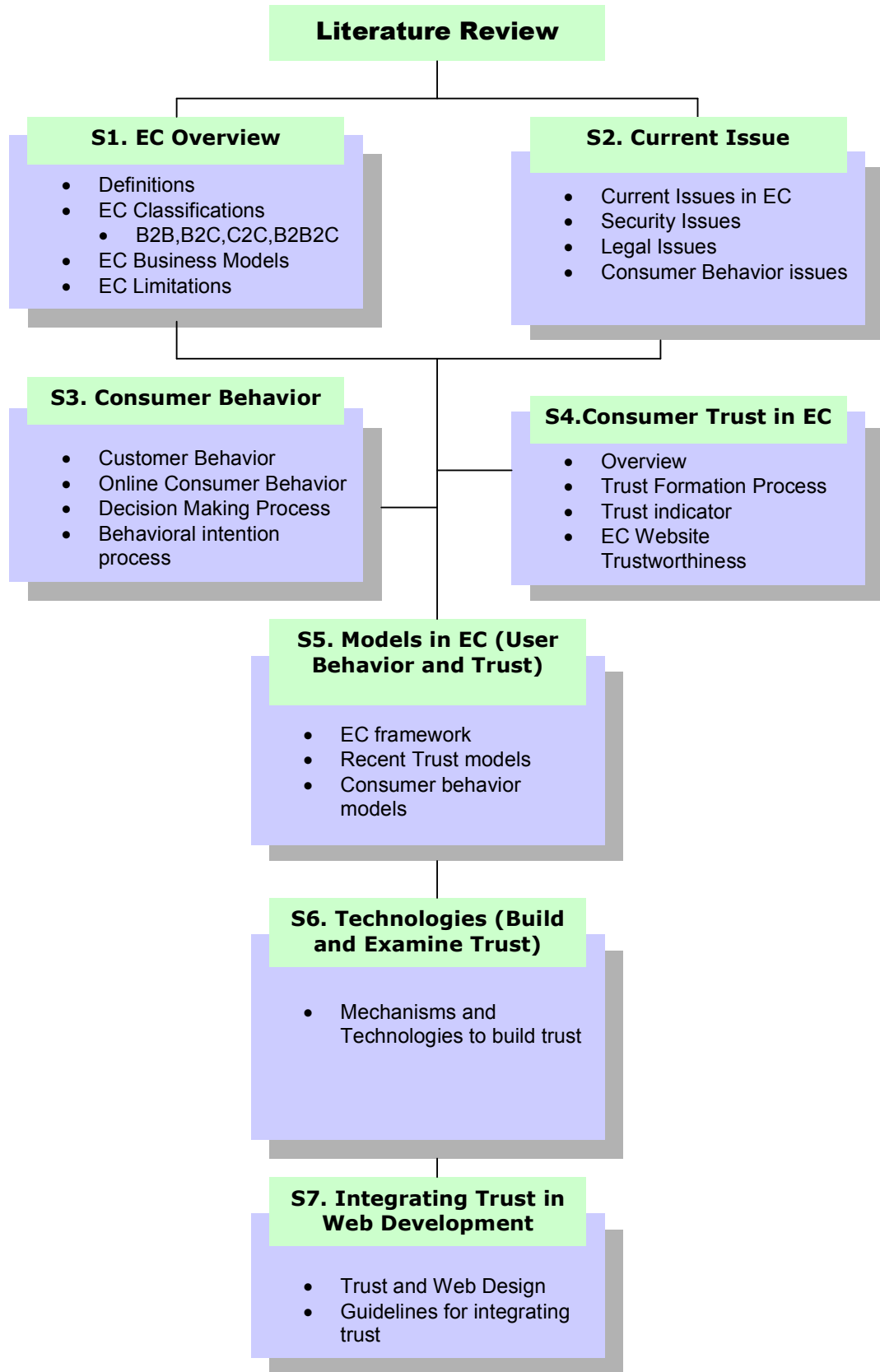


Figure 2.1: Literature Review Framework

2.2 A Terminology of Electronic Commerce

There are various definitions of electronic commerce (EC) coined by famous scholars. New definitions arise parallel with the evolving of technologies to adapt with the current situation and environment. Yet, there is one definition that still remains intact with the real meaning of electronic commerce. Kalakota and Whinston (1997) define EC from four different perspectives, which somehow described the role that EC plays in different area. Several EC related books have adopted these definitions:

- i) *From a communications perspective*, EC is the delivery of goods, services, information, or payment over computer networks or by any other electronic means.
- ii) *From a business perspective*, EC is the application of technology toward the automation of business transactions and workflow.
- iii) *From a service perspective*, EC is a tool that addresses the desire of firms, consumers, and management to cut service costs while improving the quality of customer service and increasing the speed of service delivery.
- iv) *From an online perspective*, EC provides the capability of buying and selling products and information over the Internet and other online services.

Turban and King (2003) added two more perspectives to the list.

- v) *From a collaborations perspective*, EC is the facilitator for inter- and intra- organizational collaboration
- vi) *From a community perspective*, EC provides a gathering place for community members, to learn, transact and collaborate.

Lee and Rahman (2003) also added one perspective to the list.

- vii) *From a production process perspective*, EC converts digital inputs into value-added outputs through a set of intermediaries.

From the above definitions, the authors manage to define EC as the use of an electronic-based medium such as the Internet to perform various activities or processes electronically, that include transaction, automation, collaboration and services.

2.3 Electronic Commerce: Classifications, Types or Categories?

EC can be divided into several sub categories depending on their functions. Some scholars refer these sub categories as types, models and classification. But in the context of EC as a tool to conduct business activities, the author agreed for these sub categories to be referred as categories of EC. Although there are several categories emerged based on the evolving and complex way of EC implementations, only four categories are consider the basic foundation for this emergence. This study focused on B2C implementations, as it is suitable with the objectives of study, which is related to consumer behavior generally, and consumer trust in EC specifically. Figure 2.2 shows the different type of e-commerce categories.

There are many books and papers that explain and discussed about each of these categories but the author chose the definitions from (Rayport and Jowarski, 2002) because their definitions are more understandable and direct in the context of EC implementations.

i) *Business-to-business (B2B)*

B2B activity refers to the full spectrum of e-commerce that can occur between two organizations. Among other activities, this includes purchasing and procurement, supplier management, inventory management, channel management, sales activities, payment management and service and support.

ii) *Business-to-consumer (B2C)*

B2C refers to exchanges between business and consumers, such as those managed by Amazon, Yahoo, Dell, and Charles Schwab & Co. Often,

transactions take place that are similar to those in the B2B context. For instance, as with smaller B2B interactions, transactions that relate to the “back-office” of the customer (e.g., inventory management at the home) are often not tracked electronically. However, all customer-facing, or front office, activities are typically tracked. These include sales activities, consumer search, frequently asked questions, and service and support.

iii) *Consumer-to-consumer (C2C)*

C2C exchanges involve transactions between or among consumers. These exchanges can include third-party involvement, as in the case of the auction website eBay. Other activities include classified ads, games, jobs, web-based communications, and personal services. C2C is also often referred to as peer-to-peer (P2P).

iv) *Consumer-to-business (C2B)*

Consumer can band together to present themselves as a buyer group in a C2B relationship. These groups may be caused-related advocacy groups at SpeakOut.com.

	<i>Business (Organizations)</i>	<i>Consumer (Individual)</i>
<i>Business (Organizations)</i>	B2B	B2C
<i>Consumer (Individual)</i>	C2B	C2C

Figure 2.2: Different types of e-commerce (Chan et. al, 2001)

Some of the categories in EC implementations are described briefly by Turban and King (2003). They provide several categories that are rising rapidly in the field of EC today.

v) *Mobile Commerce*

E-commerce transactions and activities conducted in a wireless environment. Most of the wireless device used to conduct this type of business is mobile phones. Entrepreneurs and business people are trying to adapt this environment because of its potential for conducting small and quick business transaction.

vi) *Intrabusiness (organizational) EC*

This category includes all internal organizational activities that involve the exchange of goods, services, or information among various units and individuals in that organization. Activities can range from selling corporate products to employees to online training and collaborative design efforts. It is usually performed on intranets or corporate portals.

vii) *Exchange-to-exchange (E2E)*

An exchange describes a public electronic market with many buyers and sellers. As these proliferate, it is logical for exchanges to connect to one another. E2E is a formal system that connects exchanges.

viii) *E-government: Government-to-citizens (G2C)*

In e-government EC, a government entity buys or provides goods, services or information to businesses or individual citizens.

ix) *Business-to-business-to-consumer (B2B2C)*

Firms and companies in this category usually practiced the concept of supply chain management in their operations. A typical example is the world largest retail company, Wal-Mart. Wal-Mart run their business by dealing with other organization, mostly manufactures. They bought product from the manufacturers in huge bundle and sell the product to the consumer at cheaper price.

2.4 Doing Business Online: Several EC Business Models

Businesses today are implementing numerous ways to make their business available online and can be accepted by all levels of Internet users. Achieving a common goal, which is to sell goods and services with low cost and high profit, are the aspirations for most business opportunist. Manipulating the benefits of information and technology (in this context is e-commerce) to meet with their business needs and the expectations of their target customer has brought out various business models implemented today.

The term value proposition refers to the benefits a company can derive from using electronic commerce and in B2C e-commerce; a value proposition defines how a company product or service fulfills a customer need. The value proposition is an important part of the marketing plan of any product or services (Turban and King, 2003).

2.4.1 Online Marketing

The most widely and obvious models used in EC today. Newly emerge company are utilizing this model to market and sell their products digitally. It is usually adopted when selling online from manufacturers to customers (eliminating intermediaries) or from retailers to consumers (making distribution more efficient). Obviously, is implemented in B2C and B2B environment.

2.4.2 Online Auctions

Auction activities are performed electronically where shoppers will bid the item they like to purchase and a famous online auction is eBay. The highest bidder will get the item and payment is done using a third party service such as PayPal.

2.4.3 Products and Services Customization

These types of model focused on delivering product and service according to the customer's specifications. It means that a customer will specify how the product will be produce based on their interest. Dell Computers through it website, are among the companies that utilizes this kind of model to sell their products. Customers will have the option to build their own computers from scratch or buy the recommended specification offered. Product customization also exists in automotive industries where buyers will decide their vehicle specifications and appearance.

2.4.4 Supply Chain Improvers

Companies that use the concept of supply chain management are best described using this business model. Supply chain helps big retail company such as Wal-Mart to fill-up their inventory efficiently and quick. Reduction of time and cost are the main benefits of this business models.

2.5 Improving EC by Learning the Limitations

Every technology that existed today has its advantages and disadvantages including electronic commerce. Although EC has its own limitations, EC is growing exponentially in today electronic and network economy. Table 2.1 shows several limitations of electronic commerce identified by Turban and King (2003) and the author highlighted the limitations that are related to the study. Trust in EC is among the non-technological limitations identified. Trust always becomes a priority when it comes to doing business in an unseen and untouched environment. When the environment is with uncertainty and risk, people need to trust to serve as mechanism to reduce the complexity of human conduct. E-commerce situation as the virtual environment is more highly uncertain than the traditional settings for economic transactions (Zhong and Shao, 2003).

Table 2.1: Highlighted Limitations of E-Commerce (Turban and King, 2003)

Technological Limitation	Non-technological Limitations
1. There is a lack of universal accepted standards for quality, security, and reliability.	1. Security and privacy concerns defer customers from buying.
2. The telecommunications bandwidth is insufficient.	2. Trust in EC an in unknown sellers hinders buying.
3. Software development tools are still evolving	3. National and international government regulations sometimes get in the way.
4. There are difficulties in integrating the Internet and EC software with some existing (legacy) applications and databases	4. It is difficult to measure the benefits of EC, such as the effectiveness of online advertising. There is a lack of mature methodology.
5. Special Web servers in addition to the network serves are needed (added cost).	5. Some customers like to feel and touch products. Customers are resistant to the change from a real to an online store.
6. Internet accessibility is still expensive and/or inconvenient.	6. People do not yet sufficiently trust paperless, faceless transactions.
	7. There is insufficient number (critical mass) of sellers and buyers needed for profitable EC operations.

B2C e-commerce is expected to grow and expand in the future as Internet users' increase in number due to high broadband Web access in household. Consumer will have the opportunity to gain more knowledge about the online environment hence become an online shopper. In business-to consumer environment, there are two types of transformation that occurs. The first is the transformation of consumer into a computer user and the second, the transformation of physical store into a digital store or a Website in other word (Koufaris *et al*, 2001).

Although, the growth of B2C e-commerce is predictable, there are few potential limitations on the escalation of B2C e-commerce. Table 2.2 shows the potential limitation on B2C e-commerce growth.

Table 2.2: Potential Limitations on the growth of B2C e-commerce (Laudon and Traver, 2007)

LIMITING FACTOR	COMMENT
Expensive technology	Using the Internet requires a \$4000 PC (minimal) and a connect charge ranging from about \$10 to \$60 depending on the speed of service
Sophisticated skill set	The skills required to make effective use of the Internet and e-commerce capabilities are far more sophisticated than, say, for television or newspaper.
Persistent cultural attraction of physical markets and traditional shopping experience	For many, shopping is a cultural and social event where people meet directly with merchants and other consumers. This social experience has not yet been fully duplicated in digital form.
Persistent global inequity limiting access to telephones and personal computers	Much of the world's population does not have telephone service, PCs, or cell phones

2.6 Current Issues Related to E-Commerce

The Internet has revolutionized the way business is conducted online. Various statistics and forecasts have shown the promising future for e-commerce. E-commerce websites are emerging and growing more rapidly than traditional stores due to the acceptance of new and easy methods to build a business empire through the Internet. Internet merchants are trying their best by adopting new technologies into their web to encourage targeted consumers and online shoppers to participate in the e-commerce market. Yet, they (Internet merchants) are unaware of the critical issues that might contribute to the main reason why consumers are afraid or reluctant to engage in any e-commerce activities. Understanding these issues might probably guide many researchers and scholars in the direction of conducting more study in the

field of e-commerce to provide a more understandable explanation for this complex situation.

2.6.1 E-Commerce Site Breached: Security Issues in E-Commerce

Security is one of the most challenging problems faced by consumers who wish to trade in the e-commerce world. The problem results from the vulnerabilities of the Internet upon which e-commerce is based (Suh and Han, 2003). E-commerce relies on the information that is transmitted through computer network. We never know whether while transmitting the information, it might have stopped at any point of transfer and viewed by an eavesdropper. If weaknesses in software systems have been detected by hackers and use them to their advantage, catastrophe may follow (Lee and Rahman, 2003). Internet merchant will have to face the loss of consumer trust and loyalty and probably affect consumer not to purchase online anymore if this situation occurs. The damage faced by consumers may affect their perception about the security of any e-commerce website because their privacy has been invaded.

Until today, security issues in any technological-based domain especially e-commerce are still undergoing research and development to identify the common issue that are haunting the security aspect in the development of e-commerce sites. Businesses are spending more of their IT budget allocation on improving the security of core systems and enterprise applications. Although there is a critical need for a more reliable security approach, management a more focuses on keeping the customers rather than looking into the internal security situations (Olkowski, 2001). Olkowski also stated that when an e-commerce site is breached or attacked, the customer retention factor is so volatile in e-commerce that it could kill the merchant and business just by the fear and mistrust instilled in customer.

The growth of e-commerce in the future is depending on the critical measures taken today to search for a better solutions and guidelines. E-commerce should not be led to emerge as an alternative way to conduct business while there are vital risks and circumstances still awaits the online consumer. Taking the responsibility of reducing

threat and increasing Internet reliance for e-commerce, a Worldwide E-commerce Prevention Network was formed by American Express and e-tailers such as Amazon.com and Buy.com. This group has proposed several strategies for merchants to adopt as a secure and safety precaution such as obtaining real-time information from a credit card company, use of address verifications system, use of credit card verification codes, purchased of rule-based detection system, and purchase of predictive statistical models (Merkow, 2001).

Suh and Han (2003) stated that security control for confidentiality, reliability, and protection of information is a crucial prerequisite for the functioning of e-commerce. They summarize five categories of security control requirement from various scholars' research and study, which are: authentication, nonrepudiation, confidentiality, privacy protection, and data integrity. Table 2.3 shows the summarization of these requirements.

Table 2.3: Security Controls (Suh and Han, 2003)

Security Control	Comment
1. Authentication	Ensures that the trading parties in an electronic transaction or communication are who they claim to be.
2. Non-repudiation	Neither of the trading parties should be able to deny having to participate in transaction after the fact.
3. Confidentiality	Warrants that all communication between trading parties are restricted to the parties involved in the transaction.
4. Privacy protection	Ensures that personal information about customers collected from their electronic transaction is protected from disclosure without permission
5. Data Integrity	Data in transmissions are not created, intercepted, modified and deleted illicitly.

The result in this study indicate that customer perceived non-repudiation, privacy protection and data integrity as the most important security controls that have an affect on trust and actual use. This is due to well-publicized security breaches.

2.6.2 Online Purchasing Intention: Consumer Behavior Issues

Consumers are the main players that contribute to the future direction of EC. In this era of ICT, cyber crimes have emerge as one of the most frequent crimes committed and the main victims of these unethical activities are consumer who participated in Internet activities. This cause has influenced the decision-making and perception of consumer about engaging in any online transaction or purchasing activities. They're concern about their privacy and personal information that maybe misused by uninvited parties.

Many scholars have conducted empirical study on online consumer behavior that focus on different criteria in the context of online trust. Some studies are focus on the technological and economical aspect of a consumer profile. According to (Mahmood *et al*, 2004), economic condition and technological savvy of online shoppers significantly affected their trust of an e-business. The study also supports the hypothesis that technological savvy plays an important role in building online shoppers' trust for an e-business. Another study by (Alesina and Ferrera, 2004) stated that there is a relationship between income and trust while (Zak and Knack, 2001) indicated that trust is lower when investor's wages are low.

Each consumer that visits an e-commerce website, has different needs and intention. Whether it is just to search for information about a certain product or purchase the product that fulfills their needs, it all depends on the level of trust built during visiting the site. Web trust is built in three-stage cumulative process that establishes (1) trust in the Internet and the specific web site, (2) trust in the information displayed, and (3) trust in delivery fulfillment and service (Urban *et al*, 2000). Urban *et al* suggested that web sites could use software enabled virtual advisors in the form of personal shopping consultants. These virtual advisors could

interact with customers to understand their needs and could provide customers with suggestion to fulfill those needs.

A study of 299 consumers across 12 countries in three broad regions of the world (North America, Western Europe, and Latin and South America) indicate that the three important critical factors that affect customer's online purchase intention and loyalty are quality, affect and trust. The trustworthiness of the site has a positive impact on both purchase intention and loyalty. It follows that web sites need to engender trust by providing such things as service guarantees, privacy policies, third-party credentials of credibility, and customer testimonials (Lynch *et al*, 2001).

2.6.3 Purchasing Legal Product Online: E-Commerce Legal Issues

Businesses that operate on the Web must comply with the same laws and regulations that govern the operations of all business. If they do not, they face the same set of penalties – fines, reparation payments, court-imposed dissolution, and even jail time for officers and owners (Schneider, 2007). Businesses operating on the Web face two additional complicating factors as they try to comply with the law. First, the Web extends a company's reach beyond traditional boundaries. It means that, when a business uses the Internet or the Web as foundation, it immediately becomes an international business. Second, the Web increases the speed and efficiency of business communications. Customers often have much interactive and complex relationship with online merchants than they do with traditional merchants.

According to Schneider, legal issues that affect a company's ability to conduct electronic commerce are:

i) *Borders and Jurisdiction*

In physical world, geographic boundaries almost always coincide with legal and cultural boundaries. The limits of acceptable ethical behavior and the laws that are adopted in a geographic area are the result of influences of the area's dominant culture.

ii) *Jurisdiction on the Internet*

Defining, establishing, and asserting jurisdictions are much more difficult on the Internet than they are in the physical world. Governments that want to enforce laws regarding business conduct on the Internet must establish jurisdiction over that conduct.

iii) *Conflict of Laws*

Since online businesses usually serve broad markets that span many localities and many states, they generally look to federal laws for guidance that can lead to problems with state and local laws.

iv) *Contracting and Contract Enforcement in EC*

Contracts are a key element of traditional business practices, and they are equally important on the Internet. An implied contract can be formed by two or more parties that act as if a contract exists, even if no contract has been written and signed. Every kind of agreement or exchange between parties, no matter how simple, is a type of contract. There are several type of contract written on the Web such as warranty disclaimers, terms of service agreement and etc.

v) *Use and Protection of Intellectual Property in Online Business*

Online business must take care to avoid deceptive trade practices, false advertising claims, defamation or product disparagement, and violations of intellectual property rights by using unauthorized content on their Web sites. A number of legal issues can arise regarding Web page content of EC sites. The most common concerns involve the use of intellectual property that is protected by other parties' copyrights, patents, trademarks and service marks.

2.7 Consumer Behavior Typology

Consumer behavior disciplinary has become one of the most researched domains as business firms and corporations are evolving rapidly due to the advance growth of business and ICT opportunities. Businesses are striving to stay competitive in the market by conducting research and development to understand the complex area of customer behavior. Finding a clearer approach to understand what are the customer intentions and needs, will give extra benefits and advantages to any business organizations.

At the early development of this field, *buyer behavior* was used as the term to reflect an emphasis on the interaction between consumers and producers at the time of purchase but now marketer have recognize that consumer behavior is a process, not merely what happens at the moment a consumer hands over money or a credit card and in turn receives some good or service. Sheth and Mittal (2004) viewed customers as one entity that play it part in two context where they define customer behavior is the mental and physical activities undertaken by household and business customers that result in decisions and actions to pay for, purchase, and use products and services. Conventionally, the term ‘consumer’ has referred to household market while the term ‘customer’ is corresponding to business market Figure 2.3 shows the types, roles and behaviors of customer. A customer can play one or all three of the following roles: (1) a buyer (i.e., selecting a product), (2) a payer (i.e., paying for a product), or (3) a user/consumer (i.e., using or consuming a product).

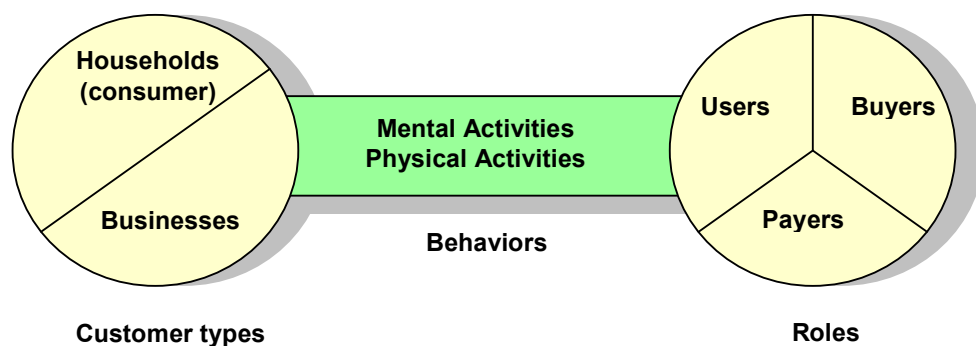


Figure 2.3: Customers: Types, Roles, and Behaviors (Sheth and Mittal, 2006)

Their definition of consumer behavior includes both mental and physical activities. Examples of mental activities are assessing the suitability of a product or service brand, making inferences about a product's or service's qualities from advertising information, and evaluating actual experience with the product. Physical activities include visiting stores, searching for information on the Net, talking to salespeople, and issuing a purchase order.

According to Shiffman and Kunak (1994), consumer behavior refers to the behavior that consumers display in searching for, purchasing, using, evaluating, and disposing of products and services that they expect will satisfy their needs while Solomon *et al* (2006) gave a definition that is more sensible in the context of consumer behavior as a process, where they define consumer behavior as the study of the process involved when individuals or groups select, purchase, use, or dispose of products, services, ideas and experiences to satisfy needs and desires. These definitions explain about the actions (purchase, use, etc) and process (from actions to satisfying needs) that a consumer involved in while engaging in business activities to achieve a common goal (satisfying needs).

Consumers take many forms, ranging from 6-year-old child pleading with her mother for win gums to an executive in a large corporation deciding on an extremely expensive computer system. The items that are consumed can include anything from tinned beans to a message, democracy, rap music, and even other people (the image of rock stars, for example). A consumer researcher has developed a classifications scheme in an attempt to explore the different ways that products and experiences can provide meaning to people (Holt, 1995). The analysis conducted by Holt, identified four distinct types of consumption activities:

- i) *Consuming as experience* – when the consumption is a personal emotional or aesthetic goal in itself. This would include activities like pleasure derived from learning how to interpret the offside rule, or appreciating the athletic ability of a favorite player.

- ii) *Consuming as integration* – using and manipulating consumption objects to express aspects of the self. For example, some fans express their solidarity with the team by identifying with, say, the mascot and adopting some of its characteristic traits.
- iii) *Consuming as classification* – the activities that consumers engage in to communicate their association with objects, both to self and to others. For example, spectators might dress up in the team’s colors and buy souvenirs to demonstrate to others that they are diehard fans.
- iv) *Consuming as play* – consumers use objects to participate in a mutual experience and merge their identities with that of a group. For example, happy fans might scream in unison and engage in an orgy of jumping and hugging when their team scores a goal.

2.7.1 Online Consumer Behavior

Consumers act and behave in a different way when engaging in business actions, which involve different trading atmosphere. The behavioral patterns and intention differs in conventional business activities (purchasing from physically located stores) and online business activities (purchasing from Internet merchant). From the discussion about consumer behavior above, the author defines online consumer behavior as “the process of performing actions (search, purchase, sell, etc) by a consumer while engaging in online trading activities that satisfy their needs and intentions”. Figure 2.4 shows the basic of consumer behavior models, adjusted to fit the EC environment.

According to this model, the purchasing decision process is triggered by a customer’s reaction to stimuli. The process is then influenced by the buyer’s characteristics, by the purchasing environment, by the relevant technology, by the EC logistics, and by other seller-controlled factors.

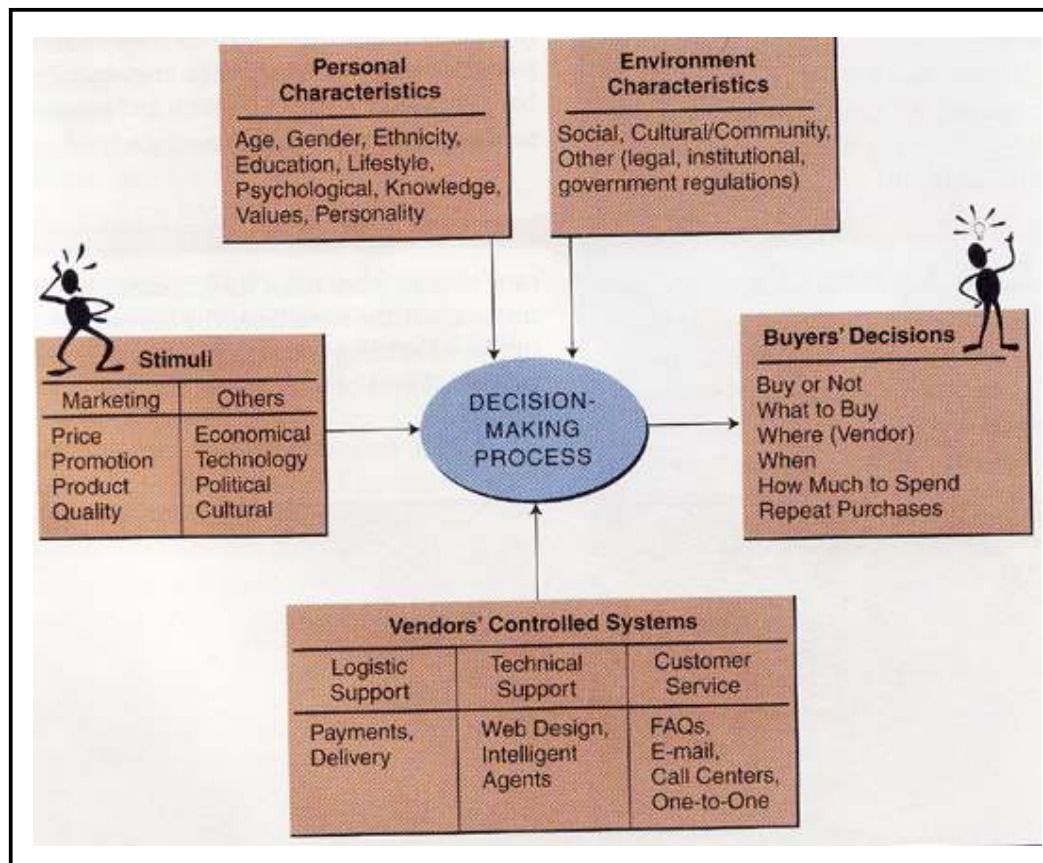


Figure 2.4: EC Consumer Behavior Model (Turban and King, 2003)

Koufaris et al (2002) proposed a theoretical framework for consumer attitude and behavior on the Web shown in Figure 2.5. The model includes shopping enjoyment and perceived control as attitudinal variables that directly affect online consumer behavior. While convenience and control are at the top of consumers' lists of benefits from online shopping (Clawson, 1993), enjoyment of the online shopping experience may also be an important determinant of customer loyalty (Rice, 1997). The study found that a Web-based company must provide new customers with both an enjoyable experience and high levels of perceived control to entice them to return.

The results also show that customers' product involvement can have a significant impact on their on-line experience. For new customers, involvement is less important, and the novelty of the Web site can prove sufficiently interesting even if the customer is not as involved in the product or service. However, for repeat

customers, novelty quickly wears off, and product involvement is more important in increasing shopping enjoyment. This relationship seems to increase with the number of past visits to the Web store.

The study also shows that value-added search mechanisms are used more when customer needs are less specific. In other words, the less certain customers are about what they are looking for, the more they will use search mechanisms that provide value-added information.

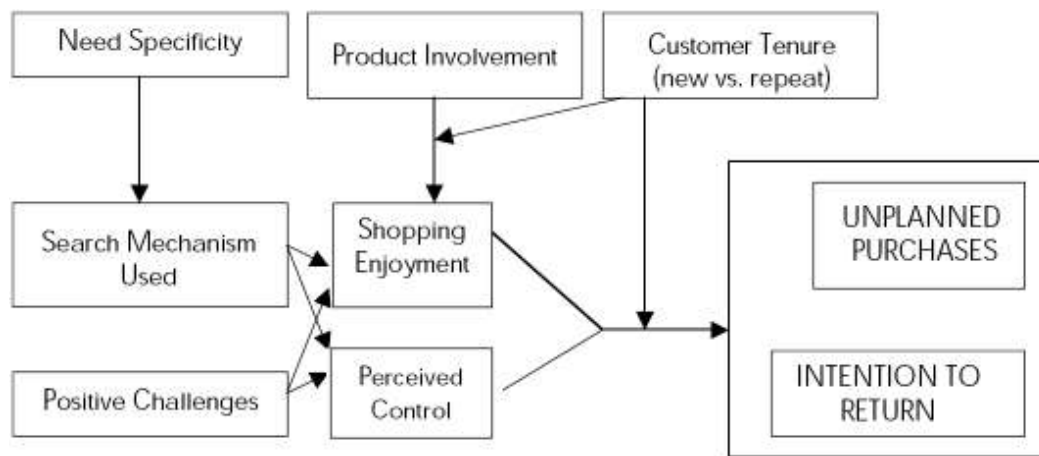


Figure 2.5: Theoretical Framework of Consumer Attitudes and Behavior on the Web (Koufaris *et al*, 2002)

Online consumer can be divided into two types: individual consumers, who get much of the media attention, and organizational buyers, who do most of the actual shopping in cyberspace. Organizational buyers include governments, private corporations, resellers, and public organizations. Purchases by organizational buyers are generally used to create other products (services) by adding value to the products.

Manufacturing companies must buy the raw materials and other components needed to manufacture and sell their own products; service companies must buy the equipment necessary to render the services they sell; government agencies must buy the materials they need to maintain themselves and their population (Shiffman and Kunak, 1995).

2.7.2 Customer Decision Making

Consumers are the parties that make the choice and decision in any online business. Consumers possessed the power to decide which online business will emerge as the top player in the market and which will face its downfall. Customer decisions are decisions that they make in the marketplace as buyers, payers and users. These decisions include *whether* to purchase, *what* to purchase, *when* to purchase, from *whom* to purchase, and *how* to pay for it (Sheth and Mittal, 2004). When a consumer makes a decision whether to engage in any online transaction, there a certain roles played by the consumer that contribute in the decision making process. According to Kotler and Armstrong (2002), there are five roles played by consumer concerning the decision-making process:

- i) *Initiator*. The person who first suggest or thinks of the idea of buying a particular product or service.
- ii) *Influencer*. A person whose advice or view carries some weight in making a final purchasing decision.
- iii) *Decider*. The person who ultimately makes a buying decision or any part of it – whether to buy, what to buy, how to buy, or where to buy.
- iv) *Buyer*. The person who makes an actual purchase.
- v) *User*. The person who consumes or uses a product or service.

The process of making decisions and end up with purchase is an act of response to a problem (Solomon et al, 2006). Solomon et al has indicated the stages in consumer decision-making shown in Figure 2.6. The stages focus on how consumers recognize the problem, or need for a product; their search for information about product choices; and the ways in which they evaluate alternatives to arrive at a decision.

Problem recognition occurs whenever the consumer sees a significant difference between his or her current state or affairs and some desired or ideal state. Once a problem has been recognized, consumers need adequate information to resolve it. Information search is the process by which the consumer surveys his or her

environment for appropriate data to make a reasonable decision. Much of the effort that goes into a purchase decision occurs at the stage in which a choice must be made from the available alternatives.

Once the relevant options from a category have been assembled and evaluated, a choice must be made among them (Putsis and Srinivasan, 1994). The choice can be influenced by integrating information from sources such as prior experience with the product or a similar one, information present at the time of purchase, and beliefs about brands that have been created by advertising (Smith, 1993).

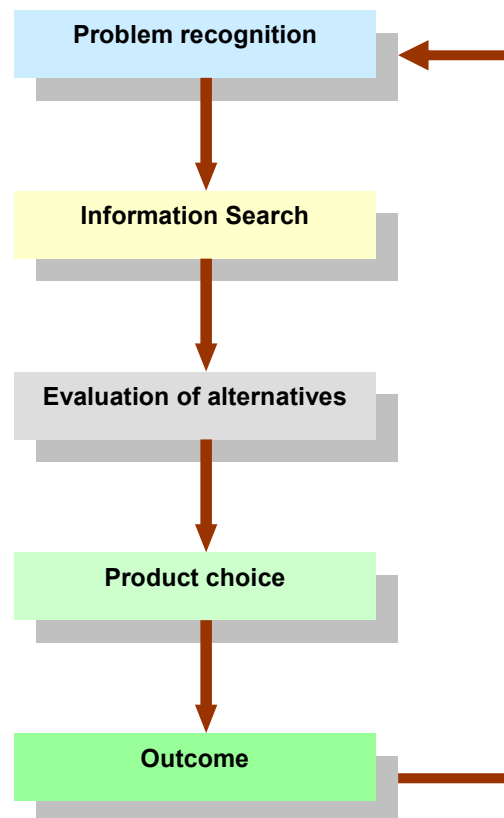


Figure 2.6: Stages in consumer decision-making (Solomon *et al*, 2002)

2.7.2.1 Online Consumer Decision Making Process Model

In order to understand the buying behavior of Internet consumers, it is first necessary to understand how consumers make their decisions on what product or services to purchase online. The Internet affects customer decision-making behavior in all three stages: pre-purchase, purchase and post purchase. Figure 2.7 shows the conceptual framework of online consumer behavior consist of the three stages and each component or process in the stages.

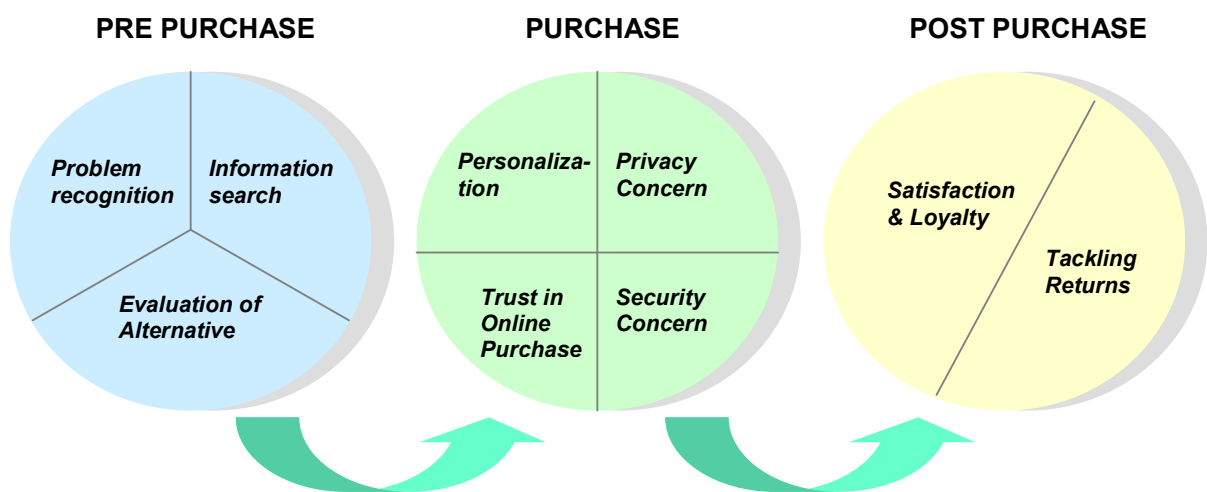


Figure 2.7: Conceptual Framework of Online Consumer Behavior (Sheth and Mittal, 2004)

The behavior of consumer who purchase from Internet merchant and traditional merchant differs when it comes to the stages to make a payment. This is when trust came into place in the electronic environment. This is because of some of the characteristics of Internet cyber transactions — they are blind, borderless, can occur 24 h a day and 7 days a week, and are non-instantaneous (payment may occur days or weeks before delivery is completed) — can cause consumers to be concerned that the seller won't adhere to its transactional obligations (Kim *et al*, 2007).

Consequently, trust in an Internet business is focused much more on transaction processes (Kim *et al*, 2005), in contrast to that of traditional transactions involving

brick-and mortar stores where trust tends to be focused on face-to-face personal relationships. Figure 2.8 shows the basic theoretical trust-based decision making model in electronic commerce proposed from the research conducted by Kim *et al* (2007). The result of the study suggest that a consumer's trust directly and indirectly affects his or hers purchasing intention. The study also provides evidence that a consumer's perceived risk reduces the consumer's intention to purchase, whereas a consumer's perceived benefit increases the consumer's purchasing intention.

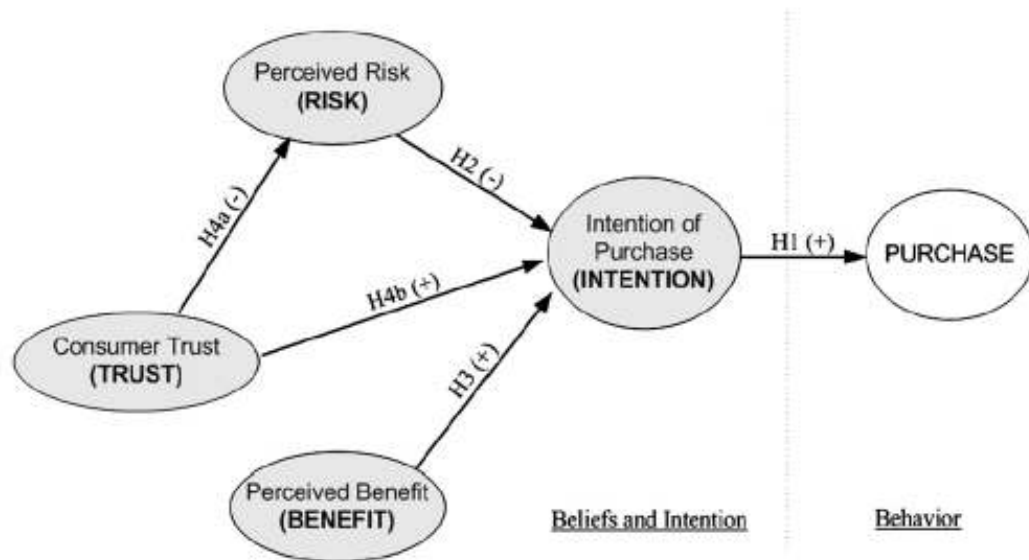


Figure 2.8: A Basic Theoretical Trust-based Decision Making Model in Electronic Commerce (Kim *et al*, 2007)

2.8 Trust in Electronic Commerce

2.8.1 Definition of Trust

Trust is an especially important factor under conditions of uncertainty and risk. As a new form of commercial activity, Internet shopping involves more uncertainty

and risk than traditional shopping (Lee and Turban, 2001). The importance of trust is elevated in e-commerce because of the high degree of uncertainty and risk present in most on line transactions (Benassi, 1999; Fung and Lee, 1999). In today's electronic world of business, trust is the center component between the consumer and the Internet Merchant. Researchers found trust very important, especially, in the relationships between consumers and e-vendors (Ratnasingham 1998; Merrilees & Frye 2003). Figure 2.9 shows the basic relationship between consumer and Internet merchant when trust initiated as consumers makes decisions due to risky and uncertainty situations.

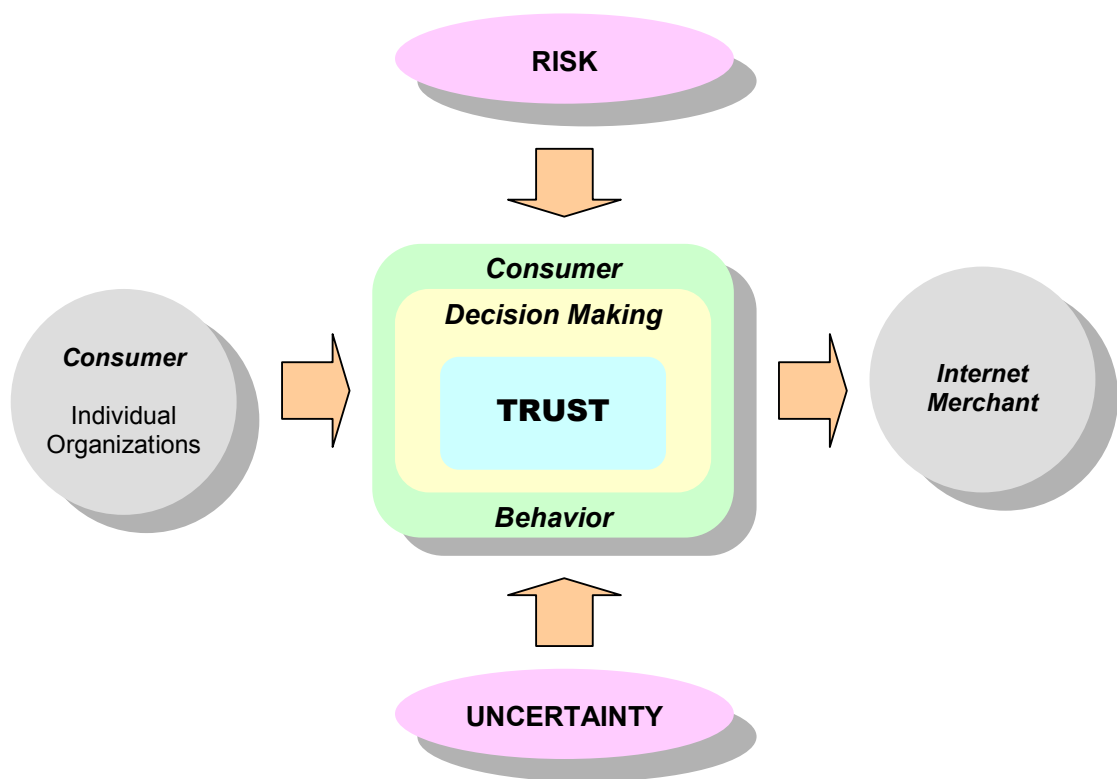


Figure 2.9: A Relationship between Consumer and Internet Merchant

Although many scholars have acknowledge that trust is a critical requirement for the growth of e-commerce, yet, the true concept of consumer trust in the electronic environment is still in its infancy. In order to focus on trust in e-commerce, understanding the basic definition of trust is crucial in this study. Various scholars have used the trust definition below as the foundation of conducting research related to trust (Zand, 1972; Boss, 1978; Mayer *et al.*, 1995; McAllister, 1995; Rocco, 1998; Corritore *et al.*,2001) but few scholars noted that the definition is abstract because it

does not name any source of the vulnerabilities nor does it clarify the structure of trust requiring situation (Corritore et al, 2001; Reigelsberger et al, 2003). Thus, newer definition emerged as the context of the online environment changes to adapt and understand clearly the concept of trust.

“Trust is the willingness to be vulnerable based on positive expectations about the action of others”.

Mayer et al (1995) defines trust as:

“The willingness of a party to be vulnerable to the actions of another party based on the expectation that the other will perform a particular action important to the trustor, irrespective to the ability to monitor or control that other party.”

Trust is a complex, multidimensional, context-dependent construct (Gefen, 2000; McKnight et al, 2002). According to Nah and Davis (2002), consumer trust in the context of e-commerce can be define as

“The willingness of the consumer (trustor) to be vulnerable to the actions of an online party (trustee) by engaging in online relationship exchanges with the party.”

By providing sensitive information to the online party as part of the exchanges, the consumer, who has limited ability to monitor or control the behavior of the online party, becomes vulnerable to the action of the party.

2.8.2 The Concept of Trust in Online Environment

Most scholars in the field of e-business have agreed that the lack of trust in e-commerce is the main factor that contributed to the decreasing number of consumer

engaging in electronic commerce (Tan & Thoen 2000-2001; Lee & Turban 2001; Reigelsberger *et al* 2003; Patton & Josang 2004; Pennanen 2005). A key reason for people's lack of willingness to provide information or shop online is "the fundamental lack of faith (or trust) between most businesses and consumers on the Web" (Hoffman *et al* 1999).

In order to understand the why this situation occurs, it is first necessary to understand the concept of consumer trust in the online environment. Several famous researchers have proposed the concept of consumer trust in electronic commerce (Jarvenpaa *et al* 1998; Lee and Turban; 2001; Gefen *et al* 2003; McKnight *et al* 1998). The conceptual trust definition in electronic commerce proposed by the scholars have been summarized in Table 2.4

It is inadequate just understanding the different elements of trust but not really focusing on the real issue about how the trust is formed when consumers engage in e-commerce activities. E-commerce domains are similar to traditional stores when consumers start the process of buying by identifying the problem as discussed early but when it comes to the method or ways of conducting the payment, there is a strong barrier that separates the decision to leave the site and to purchase the item. This so-called barrier is trust.

Table 2.4: A Table of Summarized Conceptual Trust Definitions (Zhong and Shao, 2001)

Researchers	Conceptual Trust Definition	Trust Object
Jarvenpaa et al.	Willingness to be vulnerable based on expectations that the other party will behave appropriate even without monitoring	Online student teams
	Willingness to rely when there is vulnerability	Internet Store
	A governance mechanism in buyer-seller relationships	
M.K.O.Lee et al	The willingness of a consumer to be vulnerable to the actions of an Internet merchant in an Internet shopping transaction, based on the expectation that the Internet merchant will behave in certain agreeable ways, irrespective of the ability of the consumer to monitor or control the Internet merchant.	Internet Shopping
Gefen et al.	Willingness to depend	General e-commerce context
	A set of specific belief including integrity, benevolence, ability and predictability.	Online Shopping
McKnight et al.	Trusting beliefs dealing with benevolence, competence, honesty, and predictability that lead to a trusting intention.	Interpersonal trust in organizational settings
	Interpersonal trust including trusting beliefs that one believes that the other party has one or more characteristics beneficial to oneself and trusting intentions means that one is willing to depend on or intends to depend on, the other party even though one cannot control that party	E-vendor
	Institutional Trust: one believes that favorable conditions are in place that are conducive to situational success in an endeavor or aspect of one's life	The web itself
	Disposition to trust the consistent tendency to be willing to depend on others in general across a broad spectrum of situation and person	General others

Pennanen (2005) have developed a theoretical framework to uncover the processes behind the formation of consumer. Although the model is concentrated in consumer, also e-vendors can benefit by learning how consumers build trust. Figure 2.10 shows the consumer's trust formation model. The model supports the definition of trust proposed by Mayer et al. (1995). The dispositional trust is influenced by the consumer characteristics as managers perceive trust differently in different cultures (Wang and Clegg, 2002). Pennen and Luomala (2004) also stated that consumer's personal values might affect consumer's trust formation process. Liebermann and

Stashevsky (2002), argues that demographics have a significant influence on consumer's risk perception in e-commerce.

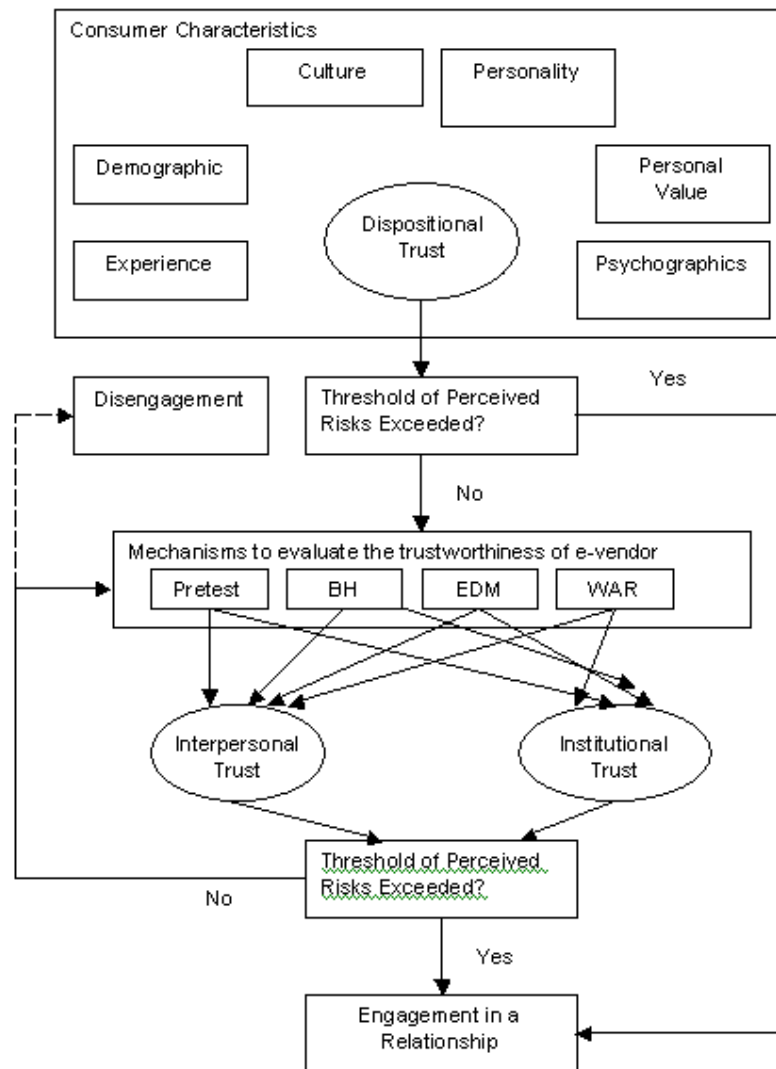


Figure 2.10: Consumer's Trust Formation Model (Pennanen, 2005)

2.8.3 Trust versus Trustworthiness

Internet shopping decisions involve trust not simply between the Internet merchant and the consumer, but also between the consumer and the computer system through which transactions are executed (Lee and Turban, 2001). The characteristics of e-commerce website trust are called trustworthiness. Mayer *et al* (1995) define trustworthiness as a characteristic of the trustee and describe three dimensions of

trustworthiness; ability, benevolence, and integrity while Belanger *et al* (2002) define trustworthiness as the perception of confidence in the electronic marketer's reliability and integrity. Belanger *et al* definition highlights the need for e-commerce firms to reliably protects (secure) the private information given by customers and to use it with integrity in order to increase electronic consumer trust. Few scholars have adopted these three dimensions in their research (Lee and Turban, 2001).

According to these scholars, the ability of a merchant is reflected in its ability to handle sales transactions and the expertise to generally conduct business over the Internet (Belanger *et al*, 2002). There are several other dimensions like honesty (Kumar *et al*, 1995), consistency, openness (Hosmer, 1995), competence (Garbarino and Lee, 2003), transaction abilities, legal integrity and ethical orientation (Edmondson and Carroll, 1999 ; Ibrahim and Angelids, 1993). The three dimensions that are related in the context of e-commerce are competence, benevolence and integrity (McKnight *et al*, 2002; Bhattacharjee 2002).

Trustworthiness is an important aspect when considering consumer trust because it directly reflects the ability of the e-commerce site to stay protective against other unauthorized party and also protect its consumer's personal information. It gives the first impression that influences the consumer's decisions to purchase or just leave the website at the end of the process.

This study is focus on integrating trust when starting to build a website so all the element that are influencing consumer trust should be studied and examine. There are several factors identified by scholars that may influence the perceptions of trustworthiness. According to Belanger *et al*, (2002), the use of the TRUSTe symbol, the CPA WebTrust and the activities of the Online Better Business Bureau are examples of private activities designed to build trustworthy images. Singh and Sirdeshmukh (2002) in their research found that technical competence as measured by the technical ability of Web merchant to conduct the e-commerce transactions correctly is one of the factors influencing trustworthiness.

The Nielson Norman Group User Experience (Nielsen *et al*, 2000) study also makes recommendations for communicating trustworthiness that include providing:

- i) Company information that is easy to find
- ii) Pricing including taxes and shipping costs
- iii) Early in interaction
- iv) Balanced information about products
- v) Professional Web Design with human error message
- vi) Clear and friendly privacy
- vii) Security and return policies
- viii) Appropriate request for personal information and clear explanation for why information is being sought
- ix) Alternative methods of ordering
- x) Access to helpful people through email or live chat

2.8.4 E-Commerce Trust Indicator or Attributes

Trust attributes can exist in different formats and have different purposes (Reigelberger *et al*, 2003; Che-Hussin and Macaulay, 2003). Trust attributes can provide sufficient knowledge and trust for online consumer about the trustworthiness of an e-commerce website. The important step in establishing consumer trust is providing assurances that the consumer's personal information will be protected (Cheskin Research, 1999).

According to (Che-Hussin *et al*, 2003), incorporating features of trust or trust attributes can provide the assurance needed for consumer's to know that their personal information are being protected. Thus, the research conducted through online questionnaires by Che-Hussin *et al* (2003), have identified the ten top ranked trust attributes which can be included at the first page of e-commerce website in order to communicate the trustworthiness of e-commerce website. Table 2.5 shows the top ten ranks of trust attributes.

Table 2.5: Top ten trust attributes (Che-Hussin et al, 2003)

Trust Dimension	Rank	Trust Attributes
	1.	Company telephone number
	2.	Company e-mail address
	3.	Privacy Policy
	4.	Company address
Merchant-Trust	5.	Third party for secure transaction (e.g. VerSign)
	6.	Third party for personal data protection (e.g. Truste)
	7.	Consumer feedback form
	8.	Recommendation of website by a third party (e.g. Shopsafe)
	9.	Specific staff name
	10.	Photo of staff

2.8.5 Various Trust Models in Electronic Commerce

The complexity on understanding trust has encourages scholars and researchers to conduct well known and internationally recognized research on numerous trust related issues in the field of e-commerce. Due to the need in explaining and clarifying the concept of trust in e-commerce, various trust related models arises to provide a better and more focused understanding on how trust affects the functional side of e-commerce. Che-Hussin (2007) have explore existing e-commerce trust models by reviewing the two top e-commerce journals which are *International Journal of e-Commerce (IJEC)* and the *International Journal of Human-Computer Studies (IJHCS)*. Table 2.6 shows the related papers from IJEC and IJHCS.

Table 2.6: The related study of trust in EC

Author(s)	Title
Tan and Thoen (2000)	Toward a generic model of trust for e-Commerce
Lee and Turban (2001)	A trust model for consumer internet shopping
McKnight and Chervany (2001)	What trust means in e-Commerce customer relationships: An interdisciplinary conceptual typology
Koufaris, Kambil and Labarbera (2001)	Consumer behavior in web-based commerce: An empirical study
Pavlou (2003)	Consumer acceptance of e-commerce: Integrating trust and risk with the TAM
Suh and Han (2003)	The impact of consumer trust and perception of security control on the acceptance of electronic commerce
Gupta and Walter (2004)	An empirical study of consumer switching from traditional to electronic channels: A purchase-decision process perspective
Mahmood, Bagchi and Ford (2004)	On-line shopping behavior: Cross-country empirical research
DeLone and McLean (2004)	Measuring e-Commerce success: Applying the DeLone & McLean information systems success model
Miles, Howes and Davies (2002)	A framework for understanding human factors in web-based e-Commerce
Gabner-Kräuter and Kaluscha (2003)	Empirical research in on-line trust: A review and critical assessment
Reigelsberger, Sasse and McCarthy(2003)	The researcher's dilemma: Evaluating trust in computer-mediated communication
Corritore, Kracher, and Wiedenback (2003)	On-line trust: Concept, evolving themes, a model
Reigelsberge, Sasse and McCarthy (2005)	The mechanics of trust: A framework for research and design

Paper from IJEC

Paper from IJEC

Based on Table 2.7, the author identified that four papers from IJEC and two papers from IJHCS are closely related to the context of this research. Table 2.3 shows the summary of those papers.

Table 2.7: Previous studies that closely related to this research

	Author(s)	Key Content	Consumer Behavior	Key to trust attributes
IJEC	Lee and Turban (2001)	Trust is based on Internet merchant, Internet technology, infrastructure, and other factors.	-	Security, third-party certification, company size and demographic variables.
	McKnight and Chervany (2001)	Trust is based on disposition to trust, institutional based, and trust in vendor.	Purchasing, cooperating, and information sharing.	Privacy policy, 3 rd party seals, interacting with customers, reputation building, links to other sites and guarantees.
	Koufaris, Kambil and Labarbera (2001)	Trust is based on individual factors and website factors.	Unplanned purchase and intention to return.	Internal search engine, navigation, interface, layout, classification of product, product presentation, on-click shopping cart, music, color and customer review.
	DeLone and McLean (2004)	Identified six success dimensions i.e. system quality, information quality, service quality, usage, user satisfaction, and net benefits.	-	Security, navigation, privacy, feedback, help, accuracy, relevance. Completeness, content personalization, search, purchase order and entertainment.
IJHCS	Corritore, Kracher and Wiedenbeck (2003)	Factors that impact on-line trust are based on perception of credibility, ease of use and risk.	-	Search and navigation.
	Reigelsberger, Sasse and McCarthy (2005)	Trust between customer and vendor is based on the signals that show the trustworthiness of the vendor.	-	Recommendation, feedback, reputation, brand, trust seal, location and privacy.

2.9 Mechanisms and Technologies to Build Trust

As discussed earlier, the rapid advancement in information and communication technology (ICT) have change the way people live their live directly and indirectly in today's information age. These changes have developed a new kind of technology-based society that rely and depend fully on technologies to get thing done. According to Lee and Rahman (2002), information systems play increasingly important roles in our society, which make society increasingly dependent on their correct functioning. This results in high demands for consistent functionality, reliability and availability of such systems.

There is a strong relation between consumer trust and security aspects that govern the whole transaction processes in an e-commerce website. As a new form of commercial activity, e-commerce involves more uncertainty and risks that traditional commerce because they are less well known to consumers. Factors that affecting trust in e-commerce for consumers include security risks, privacy issue and lack of reliability e-commerce processes in general (Patton and Josang, 2004). A consumer cannot monitor the safety and security of sending sensitive personal and financial information (Lee and Turban, 2001). Online business organizations should search for high-tech security mechanism to protect itself from intrusion and also protect it customer from being indirectly invaded. There are two lines of defense for e-commerce which are technology solutions and policy solutions (Laudon and Traver, 2007).

A great deal of progress has been made by both private security firms, corporate and home users, network administrators, technology firms and government agencies to overcome and reduces the issue of security breaches and invasion of privacy since the past few years. There are also several technologies and mechanisms that focus on building trust and provide a safety online business transaction in the market today.

2.9.1 Encryption Approach

Encryption is the process of transforming plain text or data into cipher text that cannot be read by anyone other than the sender and the receiver. The purpose of encryption is (a) to secure stored information and (b) to secure information transmission. There are several types of encryption that differ in the context of their functionalities. In *Symmetric Key Encryption*, both the sender and the receiver use the same key to encrypt and decrypt messages while *Public Key Encryption* uses two mathematically related digital keys which are public key and private key.

2.9.2 Secure Socket Layer

The most common form of securing channels is through the Secure Sockets Layer (SSL) of TCP/IP. The SSL protocol provides data encryption, server authentication, optional client authentication, and message integrity for TCP/IP connections. Secure Socket Layer (SSL) is a security protocol, first developed by Netscape Communications Corporation and now taken over by the transport layer security working groups. The design goal of the protocol is to prevent eavesdropping, tampering or message forgery when a data is transported over the Internet between two communicating applications (Lee and Rahman, 2003).

2.9.3 Secure Hypertext Transfer Protocol (S-HTTP)

S-HTTP is a secure message-oriented communications protocol designed for use in conjunction with HTTP. It is designed to coexist with HTTP and to be easily integrated with HTTP applications. Whereas SSL is designed to establish a secure connection between two computers, S-HTTP is designed to send individual messages securely. Using S-HTTP, any message may be signed, authenticated, encrypted or any combination of these. Generally, S-HTTP attempts to make HTTP more secure.

2.9.4 Trust Seals Programs

A number of Trustmark seals have been developed to provide assurance about Web business practices and policies through the Web interface. One example is TRUSTe, which audits a site's stated privacy policies and allows sites to display the TRUSTe seal if privacy policies and disclosure meet specific standards (Patton and Josang, 2004). Cheskin and Sapiant (1999) found that where trustmark seals were recognized, they increase consumer perceptions of a site's trustworthiness. Seal programs such as TRUSTe, BBBOnline, MultiCheck and WebTrust allow licensees who abide by posted privacy policies and/or allow compliance monitoring to display means for addressing consumer privacy concerns (Meinert *et al*, 2006). Figure 2.11 shows an example of a secured seal from VeriSign. Third party security seals are increasingly used by business to communicate their commitment to security (Belanger *et al*, 2002). A survey conducted for Privacy and American Business found that 62% of consumers believe that third party privacy seals would reduce their privacy concerns (Newsbyte, 2002)



Figure 2.11: VeriSign Secure Seal

2.9.5 Visual Advisor

Reserchers at MIT's Media Lab have developed prototypes called Embodied Conventional Agents (ECAs) and one of their designed is designed specifically for the e-commerce domain of real estate (Bickmore and Cassell, 2001). Linguistics researchers, who have an understanding of the way trust is build through conversational rituals, are working with information technology researchers, to create computer-generated agents in a human-like form, with the ability to engage in social dialogue (Patton and Josang, 2004).

2.9.6 Digital Signature

Digital signature means a digital method executed by a party with the intent to authenticate a record, which is a unique to the person using it and is capable of verification. It is linked to the data in such a manner that if the data is changed, the electronic signature is invalidated. A digital signature is normally a hash of the message which is encrypted with the owner's private key (Lee and Rahman, 2003).

2.9.7 Secure Electronic Transaction (SET)

A SET specification for credit/payment card transactions is required for the safety of all involved in e-commerce. It is designed to meet three main objectives. First, it will enable payment security for all involved, authenticate card holders and merchants, provide confidentiality for payment data and define protocols and potential electronic security service providers. It will also enable interoperability among applications developed by various vendors and among different operating systems and platform (Lee and Rahman, 2003).

2.9.8 Privacy Policy Statements

A privacy policy statement is a contractual commitment to consumers outlining how their personal information will be treated. The evidence suggests that posting a self-reported guarantee of compliance with e-commerce standards is an effective means of increasing consumer trust (Pennington et al, 2003; Ranganathan & Ganapathy, 2002) Privacy policy statements appear to be most beneficial to the web merchants that have the greatest need to increase consumer trust (Grewal et al, 2003). Privacy is the willingness of consumers to share information over the Internet that allows purchases to be conducted (Belanger *et al*, 2002).

2.9.9 Digital Certificate

A digital certificate is a digital document issued by a trusted third party institution known as a certification authority that contains the name of the subject or company, the subject's public key, a digital certificate serial number, an expiration date, an issuance date, the digital signature of the certification authority and other identifying information (Laudon and Traver, 2007). The Certification Authority (CA) is a trusted third party that hands out certificates and publishes identities and public keys in a directory. The certificate is signed with the private key of the Certification Authority; therefore, its authenticity can be confirmed by using the known public key of the CA (Lee and Rahman, 2003).

2.10 Trust and Web Design

Building online trust is an essential component for vendors to succeed in an e-commerce environment – where transactions are more impersonal and anonymous – as this affects consumers' purchase intentions (Chen and Barnes, 2007). Online initial trust is important when consumers engage or visit an e-commerce website that ensures the final result which is purchasing something. The author have discussed earlier about how consumer behave when they involve in e-commerce and provide the model on how trust is formed when influenced by other characteristics such as demographic, culture and etc. Personality also effects the consumer decision making and purchase intentions. According to Head and Hassanein (2002), individual consumers differ in their trusting personality and what they experience from online vendors might influence their level of trust.

Online initial trust exists due to the uncertainty situation experience by the consumer whether the website can be trusted or not. The trustworthiness of the website can somehow induce the level of trust and reduces uncertainty situations (perceived risk) when consumers are aware of the trust attributes, triggers or indicators that are incorporated in the website. Perceived risk is an uncertainty in the purchase environment where consumers may consider the purchase outcomes and the importance or serious results associated with making a wrong or unsuitable decision (Hunter *et al.*, 2004). It is crucial for Internet merchants to build this initial trust among consumers to provide the feel of safety and confidence to search for information and purchase item. E-commerce website should be design effective and structurally to provide a positive first impression. An e-commerce website provides a consumer with a first impression about the vendor's trustworthiness and this impression strongly influences the consumer's development of initial trust (Akhter, 2004; Basso *et al.*, 2001; Kim *et al.*, 2003; Wang and Emurian, 2004).

Yang et al (2005) have proposed a web trust-inducing model to explore web interface design implications to maximize consumer's trust. In their research, they have identified 12 trust inducing features that can be implemented by online vendors to foster the level of trust their customers. Table 2.8 shows the inducing features and its design dimension. Nah and Davis (2002) also provide guidelines that are divided

into three main categories for establishing trust in online stores as shown in Table 2.9. These guidelines are more understandable and focus on the every aspect of e-commerce web development process.

Table 2.8: Trust Inducing Features for Web Design (Yang *et al.*, 2005)

Dimensions	Trust Inducing Features
Graphic Design	1. Symmetric Framework
	2. 3D dynamic and half screen size graphs
	3. Well chosen and good shot photograph
Structure Design	4. Logical e-catalog and retrieval access
	5. Easy to use navigation
	6. Product instruction and purchasing guide
	7. Without broken links and missing pictures
Content Design	8. Displaying its seals of approval or third party certificates
	9. Involve some representative audio or video clips
	10. Former buyer and feedback information
Social Cue or Signals Design	11. Synchronous communication media
	12. BBS and Newsgroup

Table 2.9: Guidelines for Integrating Trust in Online Stores (Nah & Davis, 2002)

Categories	Guidelines
Content	1. Provide Identity of Company
	2. Disclose Performance History
	3. Post a Clear Privacy and Security Policy
	4. Provide Comprehensive & Accurate Product and Pricing Information
Design	5. Disclose All Aspects of the Customer Relationship Up-front
	6. Timely and Professional Web Site Design
	7. Reliable and Secure Technology
	8. Informed Consent
	9. Personalization
External Certifications and References	10. Get Certifications from Third Parties
	11. Use Third Party Services
	12. Credible Third Parties' Referrals and Connectivity
	13. Provide References from Past and Current Users

Initial trust can be triggered when a new consumer view an e-commerce websites that he or she never visits. Initial trust usually is triggered by the characteristics of the website itself. While searching for information in a new website, the level of trust increases if the websites shows poor characteristics or trustworthiness. For website that incorporated any trust attributes or inducing features, the level of trust decreases as consumer feel that the website can be trusted in terms of its characteristics. As for this, scholars are identifying and conducting studies on some of the features and attributes that consumer look for in a website to continue using the website or leave the website immediately.

According to Lumsden and MacKay (2006), factors such as branding, ease of use, professional look-and-feel, website structure, channels available for communication with the vendor, privacy, policies, and third party assurance mechanisms have been collectively recognized as being essential to consumers' assessment of trust. They have provided several trust triggers – website element that serve as circumstantial signals for consumer during the assessment of vendor's trustworthiness. Table 2.10 shows the trust triggers. Immediate trust triggers are those triggers which come into effect as soon as a consumer views a website. Interaction-based trust triggers in the other hand impact on consumers' assessment of trust as a result of dynamic interaction with the website (Lumsden and MacKay, 2006).

Table 2.10: Trust Triggers (Lumsden and MacKay, 2006)

Immediate Trust Triggers
Customer testimonials and feedback
Professional web design
Branding
Third party security seals
Up-to-date technology and security measures
Alternative channels of communication between consumers and the vendor
Clearly stated policies and vendor's information
Interaction-Based Trust Triggers
Ease of navigation
Consistent (professional) graphic design

2.11 Summary and Discussion

The author has discussed all the related references and literature from previous study in this chapter to understand more about the trust issue surrounding e-commerce implementation. Starting from presenting the overview of e-commerce that basically includes several e-commerce definitions, business models, classification and limitations. This information provides a basic understanding about e-commerce generally. The author also looks into some of the top talk about and current issues in field of e-commerce. Among the issues discussed are security issue, privacy issue, legal issue and consumer behavior issue. Security issues are the most critical issue address by scholars because in B2C e-commerce, security is reflected in the technologies used to protect and secure consumer data.

Consumer behavior is one of the research fields in human computer interaction (HCI) that provide some knowledge for this project about how consumers react when they engage in online activities. From the literature review conducted, the author found that there are various roles that a consumer plays when making decision. The author also found that in the process of making a decision to purchase, consumer characteristics does influence in the process. The author has discussed some of the stages in consumer decision making process. Consumer intention to purchase is due to problem recognition. When a consumer experiences a problem, they intend to search for information to overcome the problem. Basically there are 3 levels in the decision making process which are pre purchase, purchase and post purchase. Trust usually exists during the purchase level due to the perceived risk of the payment and security mechanisms used by Internet merchant. Consumer tends to leave the website when their level of trust exceeds their personal threshold.

E-Commerce trust related studies by various scholars have presented some knowledge and guidelines on understanding the concept and how it affects the implementation of e-commerce. The author has explain and presented some information in this study from providing the basic concept about trust through presenting various trust definitions to few guidelines and recommendation made by scholars on integrating trust in a website. Trust models are graphical representation of the concept of trust introduce or adapted by scholars. It is widely accepted that,

these presentation can provide more meaning to what the scholars are trying to address. Various trust models exists today discussing about different aspect in the trust issue. From these models, the author found that there are many key to trust attributes or features that can be incorporated when designing and developing an e-commerce website. These features that represent the trustworthiness of the Internet merchant have found to directly influence consumer trust and initiated the initial trust.

The use of secure and reliable technology for security measures is crucial in e-commerce. Consumers rely on these advance technologies to protect their personal information. There are several widely use technology for securing communication media between consumer and Internet merchant such Secure Socket Layers (SSL), Secure Electronic Transfer (SEL), Secure Hypertext Transfer Protocol (S-HTTP) and etc. These technologies work differently but provide a common goal that is securing the communication channels from other parties. Company such as VeriSign and Thawte are among many business organizations that provide a third party services for this purposes. Mechanisms to build online trust such as incorporating feedback mechanisms, using third party services that provide security seals and certificates, stating a clear privacy policy, providing company information and etc has proven to be effective in communicating trust through online environment.

CHAPTER 3

RESEARCH METHODOLOGY

3.1 Introduction

Building an e-commerce website and developing a system is not an easy task when there is no proper planning and systematic framework. A system development methodology is a pre-requisite in any system development process. Various academic commentators have noted the apparent lack of a consistent methodology within the Web industry. Coda et al. (1988) noted, "Web site development is usually carried out without following well defined processes". Lowe (1999) surmised "Web development is currently in a similar state to that which software development was in 30 years ago." Only recently have systematic approaches to Web development begun to appear. E-Commerce application development lacks the type of specialized methodologies that exists for more traditional IS. There are tools to document Web sites and monitor their activity but they do not form an integrated suite of tools for the development process (Standing, 2001).

Methodology is a collection of systematic activities that consist of software design, implementation, and testing to optimize production and maintenance (Sommerville, 2001). Choosing a proper and best-fit methodology can provide better understanding and guideline to develop a functional, quality and user-required system. With the existence of a methodology, it can provide a guideline so that the process of building a system can be manage and implement systematically.

There are several system and web development methodologies exists today such as Structured Analysis, Object-Oriented Analysis, Joint Application Development (JAD), Rapid Application Development (RAD) and other development strategies. Choosing the most suitable methodology for a project is a tedious process as researchers and developers need to understand well about the strengths and weaknesses of the chosen method before adopting it. In this study, the author chose to adopt the most widely accepted system development methodology, which is the structured analysis. Justification for choosing this method will be discussed later in this chapter. This chapter will cover every aspect of the chosen research methodology by discussing the framework of the whole system development processes and system requirement.

3.2 Structured Analysis Methodology

Structured analysis uses a concept called the systems development life cycle (SDLC). SDLC is a methodology for understanding business objectives of any system and designing an appropriate solution. Adopting a life cycle methodology does not guarantee success, but it is far better than having no plan at all. The SDLC method also helps in creating documents that can be presented to senior management about the objectives of the site, important milestones and the uses of resources (Laudon and Traver, 2007). Adapted from Shelly *et al* (2006) the SDLC describes activities and functions that all systems developers perform, regardless of which approach they use. The SDLC model includes the following phases:

- i) Planning Phase
- ii) Analysis Phase
- iii) Design Phase
- iv) Implementation Phase
- v) Testing, Operation and Support Phase

Commonly, the SDLC is pictured as a waterfall model shown in Figure 3.1, where the result of each phase, which is called a deliverables or end product, flows sequentially into the next phase.

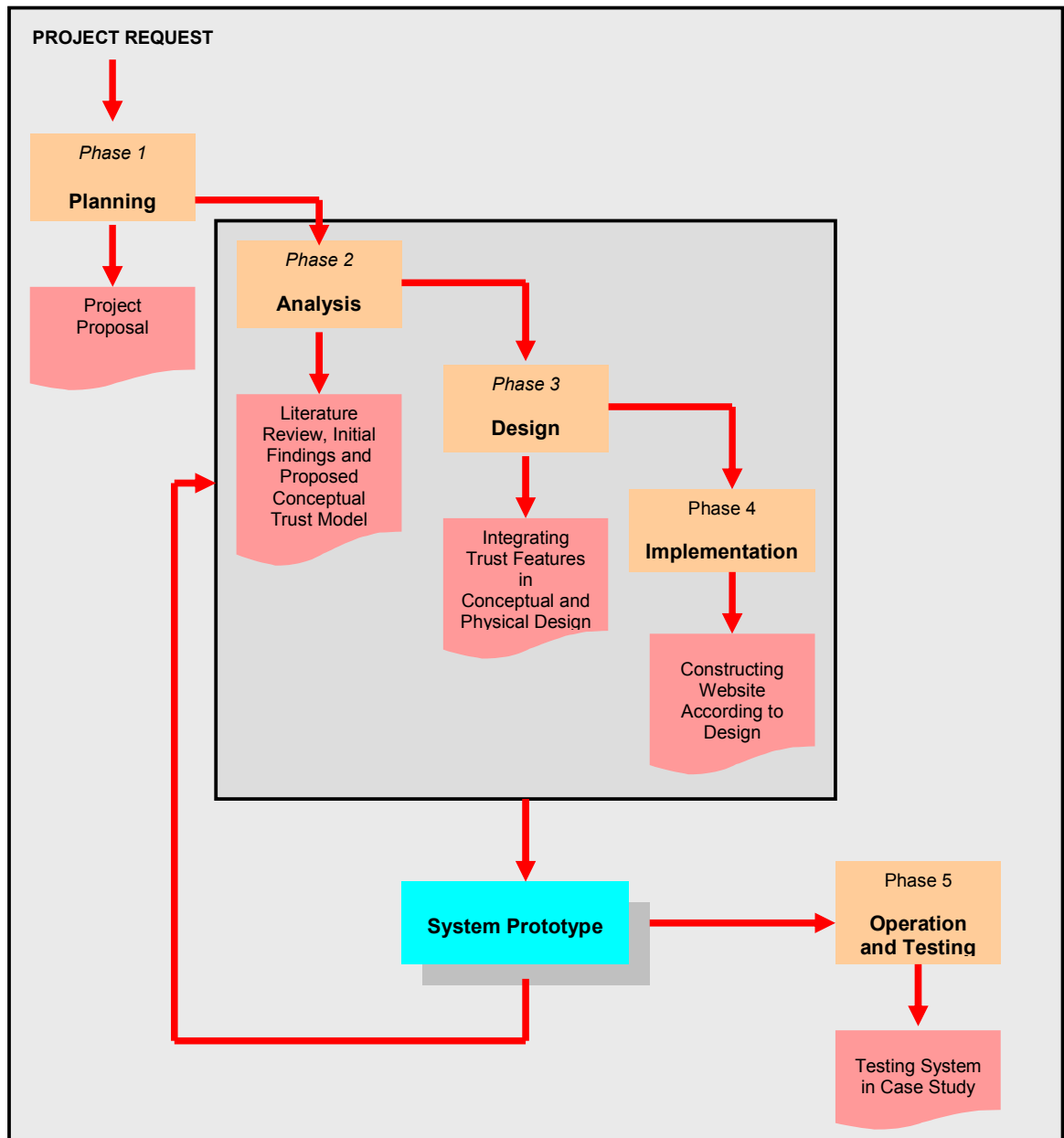


Figure 3.1: Research Methodology adapted from (Shelly *et al*, 2006) and (Suhaimi *et al*, 1999)

3.2.1 Planning Phase

The planning phase is the initial stage in any research and system development. It is a critical requirement that determine the successful of a project. This phase can also be called strategic planning because it provides a road map and guideline for the author to pursue and achieve the project goal. The purpose of this phase is to gather all required data and information related to the project so that a proper planning process can be taken and documented. The deliverables or outcome of this phase will be the documented Project Proposal and Introduction. For this project, planning phase consist of identifying the background of the problem, constructing the objective that needs to be achieve, evaluating the scope of the project and also determining the importance of the project. All of these components are included in Chapter 1 as this chapter focus on providing a general knowledge about the entire project.

Identifying the background of the problem involve searching for information and real issues that contribute to the root or foundation of problem. The objectives of the project then constructed based on the identified problem. In constructing the objectives, the author implemented a SMART approach which outlines the objectives to be specific, measurable, achievable, realistic and according to the time given. A project scope will act as the research boundary so that the gathered information and research conducted is according to the objectives and time given. It is important to provide some of the benefits of the project when it is completed to convince top management or in this research context are the project supervisor and examiners.

3.2.2 Analysis Phase

The second phase in this research methodology is the analysis phase. The purpose of this phase is to analyze all the gathered information from the literatures to see whether it is relevant or not to the project. This includes searching and identifying literatures that are most suitable to the scope and objectives of this project. Literature review is an important component of the analysis phase as it

provides understanding about the whole aspect of the project from understanding the root of the problem to testing the system using properly guided literatures and references. The deliverable of this phase is the documented literature review and initial findings. Literature review consists of several studies related to the project and can be found in Chapter 2 Literature Review.

This phase also includes proposing a conceptual model that is constructed based on the author's understanding about the concept of online consumer trust and behavior. Furthermore, an online survey was conducted to validate the proposed model and the respondents were active online shoppers. The purpose of the survey was to see online shopper's acceptance towards the elements and components in the proposed model. At the end of this phase, a revised conceptual model was presented. Refer to Appendix A for the online survey and results.

3.2.3 Design Phase

The result of the analysis phase is utilized in this phase, which is designing the systems. The purpose design phase is to create a blueprint that will satisfy all documented requirements for the project. The initial findings of the project are the components that contribute initially to the designing of the system. The result of previous studies, what other scholars are pointing out in their research and recommendation propose will be use to design the system. For this project, it is crucial to design the system based on the initial findings due to the complexity of the research conducted. Trust is something that is abstract because it involves human emotions. Consumer personality, behavior, experiences, characteristics have found to affect their level of trust. In this project, designing an e-commerce website that integrates trust is a tedious process taking into account various aspect of individual personality. As for that, designing a trustworthiness website that can generalize all of these different individual personalities is essential.

The author has evaluated, considered and chose a designing approach from various alternatives that suite with the project requirement. As for now, a common

designing approach that suits best with this project is the System Development Life Cycle (SDLC). Microsoft Vision is the software used to construct the design. As an integrated approach, the system flow diagram is also be utilized in designing the system because it provides a basic understanding on how the system will function.

A part from that, a conceptual and physical design of the system database and the required data is design in this phase. Designing the interface for the project is also vital as it shows the first impression of the website trustworthiness to the consumer or user. Designing the interface according to recommendations and guidelines proposed by other scholars will provide effectiveness in communicating trust in online environment. Integrating trust into the web design will be the priority in this phase. The result of this phase is a documented system design specification that can be found in Chapter 4 System Design.

3.2.4 Implementation Phase

When a proper design is ready, the next phase is to construct the e-commerce website. The objective of the systems implementation phase is to deliver a completely functioning and documented information system in this case, a web application. But based on the scope of the project, the author will construct a prototype of the e-commerce website that incorporated minor functional components. This phase typically involves activities such as applying the proposed web design (system design, database design, and interface design), using the chosen programming language to code the modules and functions, testing each module and function for errors and importantly, meeting with the overall project objectives and requirement.

The result of this phase was the semi-functional web application prototype. If the prototype does not meet the project requirement, an iterative process should be conducted starting from the analysis phase. This is vital to determine that the user accepts system. As for that, every aspect of the design was tested thoroughly in this

phase. The prototype had undergone an iterative testing process to check for small errors.

3.2.5 Operation and Testing Phase

This is the final phase of the web development methodology. A complete system is now ready to be tested and deploy. The e-commerce website was tested using a survey by selecting respondent that have at least 1 year of online buying experience. Each of them will be given a questionnaire comprising relevant questions according to the research and are ask to answer the questions presented while assessing the e-commerce prototype website. The important point that will be outline in the survey is assessing every aspect of trust issues in the website. The questionnaire comprises of 7 main sections and each section focused on different aspect based on the mechanisms proposed. Respondents are asked to open a URL that will direct them to the prototype web page. At the beginning, there is a significant question that asked respondents to indicate their level of trust before exploring the website and at the end; respondents were again asked similar questions to indicate their level of trust, after exploring the website. Please refer to Appendix B for the questionnaires.

3.3 Justification for Choosing SDLC as the Research Methodology

The author decides to choose this methodology after evaluating and considering various reasons. Among those reasons are:

- i) SDLC is commonly used and widely accepted system development methodology today. Although there are several other new methodologies emerged, developers are still incorporating this methodology in their planning and development processes.

- ii) SDLC is easy to use and understand.
- iii) SDLC can adapt in any system development process regardless of the technologies used to develop the system including developing web application.
- iv) There are various references and books that discuss and provide a complete explanation of every phase in SDLC and the process or activities involve in each phase.
- v) The author system development knowledge. Due to the time limit given to finish this project, it is wise to use a method that is well understood. Understanding new methodologies requires more time and effort.

3.4 Systems Requirement

Systems requirement is an important element that contributes directly to the final product. A poor feasibility study of the whole project requirement will result in poor quality and doesn't meet the client needs and expectations. This section is divided into two important requirement which are hardware requirement and software requirement. The hardware requirement stated in this study is the minimal requirement that is needed to assure a well operational and functional web application. These are the hardwares and softwares used in this study:

3.4.1 Hardware Requirement

The hardwares for the e-commerce prototype are as follow:

- i) A Computer with Intel Dual Core Processor
- ii) 2 Gigabyte (GB) of random access memory (RAM)
- iii) 256MB of graphic accelerator card
- iv) 1GB capacity of hard drive
- v) Monitor with quality image representation
- vi) Internet connection (10 Mbps)
- vii) A virtual private server (VPS) with free domain and 30 days subscription period – hosting the prototype that will be during testing.

3.4.2 Software Requirement

The softwares that are used in this study are as follows:

- i) An E-commerce Open Source Software – Integrated with PHP 5 and MySQL
- ii) Database Management System (DBMS) - MySQL
- iii) Microsoft Office – including MS Project to build the Gantt chart.
- iv) Web Browser (e.g. Mozilla, Internet Explorer 7.0 and Safari)
- v) Microsoft Visio – producing diagram for conceptual and physical design.
- vi) SPSS version 10 – data analysis.
- vii) Adobe Photoshop CS3 – image editing.

3.5 Project Work Plan

A well-planned and organized work planning is crucial for the purposes of finishing the whole project according to the timeframe given. It can also monitor the progress of each work and notify what is the critical work that needs more attention

and focus. This work plan is divided into two phases for Project 1 and Project 2. The work plan schedule provides a guideline and progress benchmarking of the entire project. Microsoft Project is used to construct the Gantt chart.

3.6 Chapter Summary

This chapter discussed about the methodology that will be utilize during the project execution. A suitable methodology is identified and chosen as a guideline in the project development. Apart from that, the project work plan was also constructed to assure a systematic and smooth project execution.

CHAPTER 4

ANALYSIS AND SYSTEM DESIGN

4.1 Introduction

This chapter discussed about the findings that have been identified during reviewing previous literatures and conducting preliminary analysis to determine the system design based on the findings. Several design models consist of conceptual and physical design is discussed in detail throughout this chapter. Prior to designing the prototype, all the trust mechanisms is incorporated into the prototype. A model that relates to consumer behavior and trust is proposed and discussed at the end of this chapter.

4.2 Findings on Three Related Trust Models

As discussed earlier in Chapter 2, there are different kind of trust models proposed by various scholars that emerged due to addressing and finding solutions to cater with the trust issues in e-commerce. The conceptual trust model that takes into account user behavior proposed in this study is adapted from models presented by (Riegelsberger *et al*, 2005; Pennanen 2005; and Chen & Barnes, 2007) in their research because these three models are identified to have a connection with the study conducted. The model proposed by Riegelsberger *et al* (2005) is regarding

technology-mediated interactions. They also presented some trust factors that are called truthfull signal in communicating trustworthiness in e-commerce website. The author chooses this model because it provides an understandable approach about the interaction that consumer and Internet merchant plays. The model proposed by Pennanen in the other hand focused on the consumer's trust itself by presenting some of the types of trust address by McKnight and Chervany (2001) such as Dispositional Trust, Interpersonal Trust and Institutional Trust. This model shows a strong concept on how consumer's trust is form and factors influencing the trust formation process. Perceived risk acts as a decision maker that establishes boundaries among both parties (consumer and Internet merchant). The model proposed by Chen and Barnes (2007) describe how online initial trust in form and result in the purchase intention. Initial trust is the first impression when consumer visits a new website. If initial trust is insufficient, consumer will evaluate other trust attributes or mechanisms found on the website. Chen and Barnes stated that experience and familiarity with the online transaction will result in the purchase intention.

4.3 Findings on Mechanisms and Technologies to Integrate Web Trust

From the research conducted, there are several effective mechanisms and technologies to build trust based on the findings and research done by other scholars. The author have gather and concluded the common mechanisms that recommended by scholars in their research. These mechanisms can be divided into 6 categories which are Technology for Securing Communication Channels, Interacting with Customer, Stating a Clear Policy, Professional Design, Third Party Services and Vendor's and Product Information. Table 4.1 shows the common mechanism and technologies pointed out by scholars to integrate trust in online environment.

Table 4.1: Common mechanism and technologies to integrate trust online

Categories	Mechanisms or Technologies
Technology for Securing Communication Channels	<ul style="list-style-type: none"> • <i>Secure Socket Layer (SSL)</i> • <i>Secure Electronic Transfer (SET)</i> • <i>Secure HTTP (S-HTTP)</i>
Interacting with Consumer	<ul style="list-style-type: none"> • <i>Customer Feedback</i> • <i>User Testimonials</i> • <i>Reference from Past Users</i>
Stating A Clear Policy	<ul style="list-style-type: none"> • <i>Privacy Statement</i> • <i>Security Policy</i>
Professional Design	<ul style="list-style-type: none"> • <i>Graphical</i> • <i>Personalization</i> • <i>Easy to use Navigation</i>
Third Party Services	<ul style="list-style-type: none"> • <i>Trust seal programs</i> • <i>Digital certificate</i> • <i>SSL verification</i>
Vendor's and Product Information	<ul style="list-style-type: none"> • <i>Physical Location of Company</i> • <i>Company Contact Information</i> • <i>Product Details & Pricing</i> • <i>Product Quality</i>

4.3.1 Technology for Securing Communication Media

Consumers are very protective when involving the transfer of their personal information such as credit card number, personal identity and etc over the Internet for any purposes. A high level security controls should be in place to ensure timely and accurate completion of transactions, to detect and prevent the occurrence of fraud and manipulation and to safe guard transaction authentication (Siau and Shen, 2002). Internet merchant needs to take responsibility in ensuring that customer's information are well protected from unwanted parties outside the transaction process. In order to achieve this goal, Internet merchants must use up-to-date and advance technology to secure the communication channels between the client and the

company. There are various technologies in the market today that these companies can adopt. Table 4.2 shows the technologies for implementing security measures in the communication channels.

Table 4.2: Technologies for implementing security measures in the communication channels

Technology	Description
<i>Secure Socket Layer (SSL)</i>	<ul style="list-style-type: none"> - The SSL protocol provides data encryption, server authentication, optional client authentication, and message integrity for TCP/IP connections - The design goal of the protocol is to prevent eavesdropping, tampering or message forgery when a data is transported over the Internet between two communicating applications
<i>Secure Electronic Transfer (SET)</i>	<ul style="list-style-type: none"> - A SET specification for credit/payment card transactions is required for the safety of all involved in e-commerce - It will enable payment security for all involved, authenticate card holders and merchants, provide confidentiality for payment data and define protocols and potential electronic security service providers - It will also enable interoperability among applications developed by various vendors and among different operating systems and platform
<i>Secure Hypertext Transfer Protocol (S-HTTP)</i>	<ul style="list-style-type: none"> - S-HTTP is a secure message-oriented communications protocol designed for use in conjunction with HTTP - Whereas SSL is designed to establish a secure connection between two computers, S-HTTP is designed to send individual messages securely.

4.3.2 Interacting with Customer

Consumers are the people who will determine the success of any business organizations whether it is physical or online. Online businesses are more complicated because there are various issues such as security issues, trust issues and etc that directly and indirectly affect and influence the implementation of these businesses. Building a strong relationship with customer is vital for these businesses to compete in the electronic marketplace. For resolving trust issues in e-commerce, scholars have outlines several mechanisms and technique to build this strong relationship hence increase the level of trust. These mechanisms can be applied in developing the e-commerce website as a medium to interact with current and previous customers. According to Yang *et al* (2005), former buyer's experience and feedback information are the most significant web features to induce web's user trust.

4.3.2.1 Customer Feedback

Incorporating customer feedback is proven to be an effective approach in building confidence and trust to new customers. Positive feedback from previous customer that have engage with the business can increase the level of trust among new customers because these feedback are comments from current or previous customers that have already bought or acquire services from the vendor. E-Bay is one of the online vendors that use this mechanism as a medium to interact among bidders and users.

4.3.2.2 Testimonials and Reference from Past User

Testimonials are actually the same as feedback because customers will express their feeling after experiencing doing business with the Internet merchant. Testimonials are important to provide the assurance that the company is real and reliable for doing business. Reference such as contact number, address and etc can

provide information for new customer to interact will past customer in order to ask about the vendor's capabilities.

4.3.3 Stating a Clear Privacy and Security Policy

A privacy policy lays out information concerning how and what types of consumers' personal and transaction information will be collected, how they will be used, how they will be protected from unauthorized access. A well-designed policy statements accompanied by reports of effective enforcement will distinguish Web sites. With such information, users are able to make informed decisions concerning the benefits and risks of engaging in online business transaction with the company (Nah and Davis, 2002). According to Meinert et al, (2006), one of the most widely used security mechanisms by web merchants is a self-reported guarantee or a privacy policy. In Chapter 2, the author have explain some evidence suggest by scholars about posting self-reported guarantees to promote trust in e-commerce.

4.3.4 Professional Web Design

Web Design gives the first impression of the passion and professionalism of an Internet merchant to conduct business. Professional web design will attract consumer to search for information and maybe purchase a desired product if they trust the website. A professionally designed and user-friendly Web site instills trust and confidence in consumers. Having privacy and security policies that are easy to find, easy to read, and strictly enforced, and a transaction process that is simple to follow, also contribute to consumer trust (Nah and Davis, 2002).

Easy to use navigation is one the features in web than can promote and induce trust. A web should be design so that its web navigation functions are not to complicated and information can be found easily. That means users can easily locate the information they seek on the web site. This ease of use reflects two characteristics

of a trustworthy web site: simplicity and consistency (Yang et al, 2005). Zhang et al. (1999) suggested that accessibility of the information on a web site is also essential to the establishment of online trust. Cheskin/Sapient Report (1999) indicated that navigation reinforcement, such as prompts, guides, tutorials, and instructions, could aid and inform users to seek information or to perform transactions on the web site and, hence, promoted consumer trust.

Graphical representation and integrating the use of photograph is can affect consumer perceptions about the trustworthiness of the web merchant. According to Kim and Moon (1998), an experimental investigation of alternative cyber-banking system interfaces conducted in Korea, that the main clipart and overall color layout affected the trustworthiness of the web site. Additionally, using real photographs in a website, rather than using cartoons, was proposed by Karvonen and Parkkinen (2001). As Basso et al. (2001) indicated that web retailers use eye-catching graphics not only to grab a user's attention but also to convey competence or professionalism.

4.3.5 Third Party Services

For consumers to trust a transaction partner, they must have a degree of knowledge about them. This knowledge can be gained through previous experiences (Doney and Cannon 1997) or by gaining information from a third party (Strub and Priest 1976). According to Schneiderman (2002), certifications from third parties can increase credibility of online services. There are several company that provide third party verification services for Internet merchant and among them are TRUSTe (www.truste.com), BBBOnLine (www.bbbonline.org), and VeriSign (www.verisign.com). Approvals form these company can enhance the trustworthiness and credibility of the Internet merchant concerning the competence and quality of services offered (Nah & Davis, 2002). Among the services provided by these companies are SSL verification, digital certificate, trust seal programs and other related certification services. The incorporation of seals of approval or third-party certificates into content design has been widely accepted as a strategy to assure consumers that the web sites are trustworthy (Yang *et al*, 2005).

4.3.6 Providing Vendor Information and Product Description

Developing trust in e-commerce requires the company who is conducting the business to provide sufficient information regarding their identity such as physical location, full contact information, ownership, management, purpose and mission (Greenspan, 2002). According to Che Hussin et al (2003), in their research about ranking trust attributes, it is stated that company telephone number and company e-mail address are the top two important trusts attributes that consumers search for in an e-commerce website. This shows that, consumer will consider the company information first before engaging in any transactions. A physical location of the company will definitely induce trust because consumers are aware of the company existence in the offline world.

Online vendor should also provide the description of the product that they are selling to the consumer such as product information, pricing and etc. According to Nielsen (1999), it is the online company's responsibility to ensure that the product and pricing information is complete and accurate, and all other information posted on the Web site is correct and up-to-date.

4.4 Findings on Online Consumer Behavior

From the literature review conducted, the author found few related information concerning consumer behavior when engage in any online activities. In any typical decision making situation whether online or offline, the decision making process are influence by consumer personal characteristics such as age, gender, demographic, experience, educational background, knowledge and personality. In online environment, characteristics such as experience, knowledge and personality are the most that influence directly to the decision making process. For new customers that view a new website, experience are gains by interacting and exchanging with past customer through online forums, newsgroup, and customer feedback offered or incorporated into the website itself. For current customer, they tend to stay with the current company their engaged in because of the enjoyment and special benefits

offered by web merchant to attract current customers and make them loyal to the website. According to Koufaris et al (2002) shopping enjoyment and perceived control as attitudinal variables that directly affect online consumer.

As discussed in the literature review, there are three stages that exist in the decision making process which is pre purchase, purchase and post purchase. Trust, privacy, security are among the concerns of consumer during making purchases online. According to Kim et al, (2007) based on their theoretical model, before making a purchase, consumer trust are influence by perceived risk and perceived benefits. Others scholars also address the same issue where perceived risk reduces the consumer's intention to purchase. Based on the model proposed by Pennanen (2005), when the threshold of perceived risk is exceeded, consumers will engage in a relationship with the Internet merchant but if not, then consumers will evaluate other mechanisms such as the trustworthiness of the website. This study will focus on finding a practical approach in integrating or communicating trust by incorporating several trust induce features in the web development process.

4.5 The Proposed Conceptual Model for Integrating Trust

The proposed model in this study describes the concept of online consumer behavior that leads to building online trust and result in actual purchase. There are three threshold exist in the model that focused on consumer, the website and the web merchant. Threshold in this model is identified as the personal space and environment that surrounds.

4.5.1 Consumer Threshold

Consumer's intention to purchase or generally consumer's online shopping behavior is affected by their experience, educational level, computer literacy and personality. The author identified these four characteristics to be relevant to the

study. Consumers with high level of educational background have high job income and are likely to spend more money purchasing on-line. Most Internet studies agree that the on-line population is relatively younger, more educated, and wealthier than the general population (Mahmood *et al*, 2004). According to Mahmood *et al* (2004), most studies of on-line shopping behavior (e.g., the Wharton Virtual Test Market [WVTM], <http://wharton.upenn.edu/>; and the Georgia Tech Graphics, Visualization and Usability study [GVU], www.gvu.gatech.edu/user_surveys) agree that on-line shoppers are better educated and wealthier.

Experience plays an important role affecting the on-line shoppers' behavior and attitude. Online shopping consumers' experience is gain through frequent use of the Internet to search for information and making online purchases. According Turban *et al* (2002), the more experience on-line buyers have with the Internet, the more money they are likely to spend shopping on-line. Knowledge on everything that is to know about buying on-line is gain through consumers' past experience. Experiences also provide consumer with a better perception and knowledge about the whole Internet shopping idea hence influence their behavior. For consumers that have been using the Internet to search for information, engaged in many e-commerce activities and have a strong relationship with web merchant, it is easier for them to identify which website can be trusted. For new online shoppers, experience and knowledge can be gain by interacting with past customer, looking into customer feedback and testimonials and other method that are provided the web merchant.

In simple term, computer literacy is the ability of using a computer. In the context of this study, computer literacy refers to the knowledge of using Internet. As we all know, computers are the basic foundation for the existence inter-connected network which is the Internet. The ability to use the computer is the root of all knowledge about using the Internet. Computer literacy also affects the consumer behavior in term of gaining knowledge and confidence to shop online. According to Mahmood *et al* (2004), technological savvy plays an important role in consumer behavior related to building the trust of on-line shoppers. People who are technologically savvy have more experience with the Internet and consequently have the know-how to gather information on e-commerce they are considering for business transactions.

Consumer behavior differs among every individual because of their personality. According to a study conducted by Yang et al (2006), they have identified 4 types of personality that affect consumer behavior and trust in e-commerce as shown in Table 4.3. Based on personality type, consumers consider different aspects of their online experience to be primary contributors to their perception of negativity. The result of the study indicate that there is some evidence that different personalities attribute different importance levels to each of the trust features presented.

Table 4.3: Types of Personality (Yang *et al*, 2006)

Personality	Description
<i>Popular Sanguine</i>	<ul style="list-style-type: none"> • Individuals with this personality type are generally appealing to others; they are enthusiastic and expressive and live life in the present. • They have a tendency to make decisions quickly and are likely to take risks.
<i>Perfect Melancholy</i>	<ul style="list-style-type: none"> • Individuals with this personality type are generally deep, thoughtful, and analytical. • They tend to make decisions slowly and deliberately based on facts, and often need assurance that the information on which they base a decision will remain valid in the future.
<i>Powerful Choleric</i>	<ul style="list-style-type: none"> • Individuals with this personality type are independent and self-sufficient. • When making a decision, they can see the whole picture and typically want all the information necessary (but no more than is necessary) in order to facilitate their decision making.
<i>Peaceful Phlegmatic</i>	<ul style="list-style-type: none"> • Individuals in this category tend to be easy going and agreeable or amiable • When making decisions, they often need to feel safe and prefer to take their time and focus on personal opinions and guarantees that assure the decision carries the least amount of risk possible.

Initial trust is initiated due to the existence of perceived risk and control when consumer are uncertain about the risk they are involve in and the control mechanism

used to protect their security and privacy. When consumers' initial trust exceeds the perceived risk and perceived control of their personal threshold, consumer is willing to take part in a risky relationship. Pennanen (2005) argue that consumer can adopt different kind of strategies to build trust and by doing that surpasses the threshold of perceived risks and control. Once the perceived risks and control are exceeded, consumer will then evaluate on the trustworthiness of the website.

4.5.2 Web Merchant Threshold

In this threshold, consumer will explore more to evaluate the trustworthiness of the website. Four characteristics of the consumer will also have influenced on positive and negative perception of the website trustworthiness. As discussed in literature review, trustworthiness is the characteristics of trust in an e-commerce website. If the evaluation of the trustworthiness can build consumer online trust, the result will be the actual purchase from the website and if it failed to build consumers' online trust, this will result in consumer leaving the website.

The model adopted three web merchant trustworthiness dimensions proposed by Mayer et al (1995) which is ability (competence), benevolence and integrity. Ability (competence) is the belief in the other parties' ability, skills, and expertise within the certain domain (Tan and Sutherland, 2004). It means that consumer will have the willingness to belief the web merchant have the ability to handle sales transactions and the expertise to generally conduct business over the Internet. Benevolence means that one believes that the other party cares about one and is motivated to act in one's interest. Consumer can be sure that the web merchant will act in consumer's interest rather than their own (Pennanen, 2005). Integrity refers to the consumer perception that the web merchant acts in an honest way and take into account an accepted set of principles and standards (McKnight & Chervany, 2002; Tan and Sutherland, 2004).

This study focuses on finding the mechanism and technologies to integrate trust and outline 6 mechanisms that are commonly outline by several scholars as discussed

in the literature review. The author has incorporated these findings into the model to provide a better view of the method that can be use by web merchant to enhance the trustworthiness of e-commerce website.

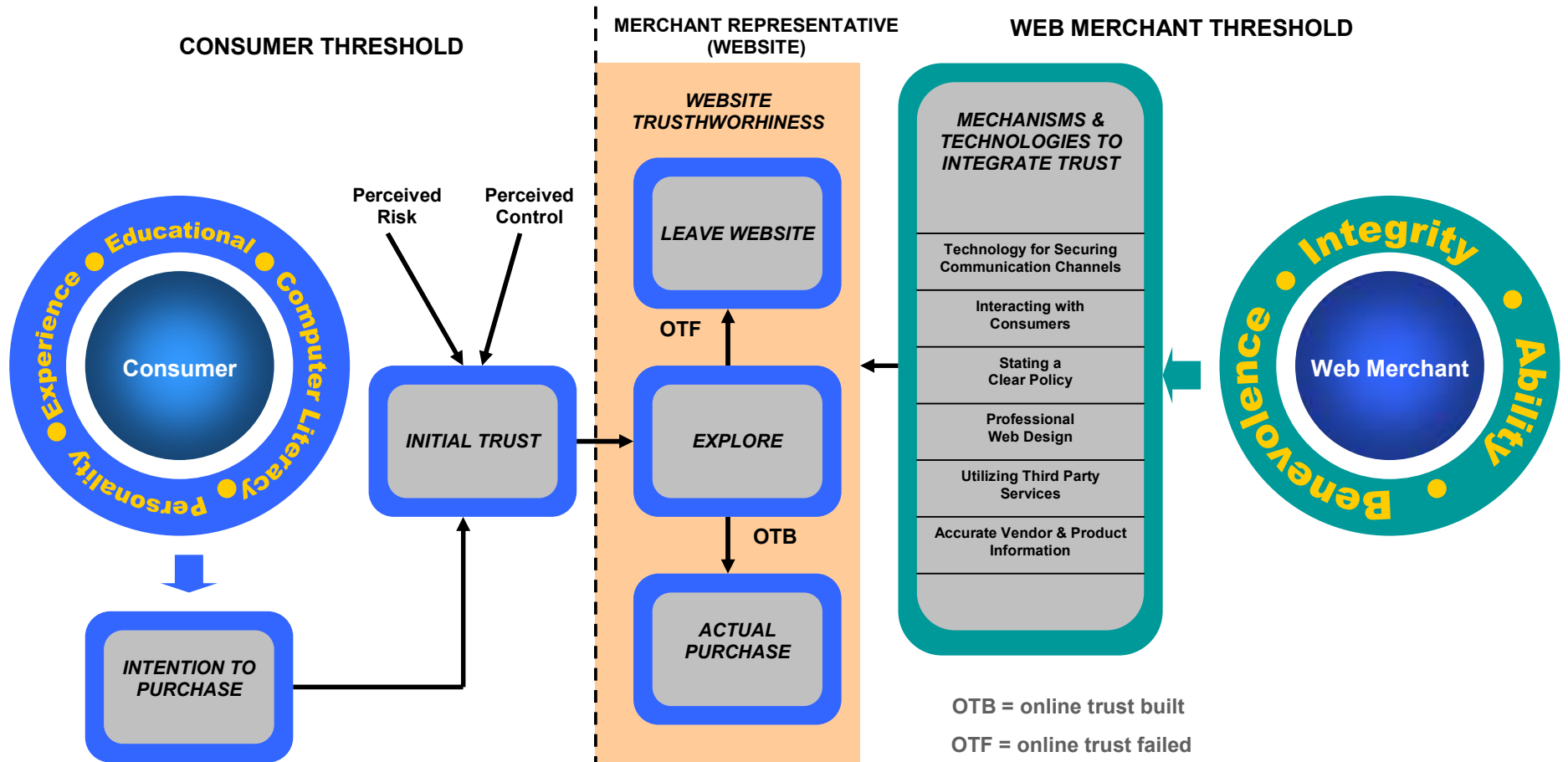


Figure 4.1: A Proposed Conceptual Model for Integrating Trust in E-Commerce Website Design and Development adapted from (Riegelsberger et al, 2005; Pennanen 2005; Chen and Barnes, 2007)

4.5.3 Online Consumer Validation Survey for Proposed Model

The author developed an online survey to view consumer's opinions and acceptance of the elements contained in the proposed model. This survey is conducted using a website that offers free accounts for researchers and businesses to conduct a survey. 19 questions were asked ranging from demographic questions to questions related to the elements in the model. The result of the survey is shown in Table 4.4 and Figure 4.2 shows the graphical representation of the result.

Table 4.4: Online survey result conducted using esurveyspro.com

78%	: are age group between 25-34 years old
48 %	: have 10 years of Internet experience
48%	: have 2 – 3 years of buying experience
62% indicate that computer literacy is very important and 44% indicate that background experience is very important	
59%	: agreed that initial trust is influenced by risk and control
67% indicate they will leave website immediately and 33% will explore more to build trust	
63%	: agreed that web merchant should have the 3 characteristics
59%	: agreed that stating a clear policy will increase trust
74%	: agreed that the use of advanced technology to secure communication channels will make people trust the website
60%	: agreed that interacting with previous buyers can increase trust
57%	: agreed that professional web design can be trusted more
59%	: agreed that acquiring a third party service will make people confident to purchase
74%	: agreed on incorporating payment method that uses SSL can build consumer trust
78%	: agreed that accurate and updated product & vendor's info is crucial in communicating consumer trust
52%	: agreed that this research is still applicable

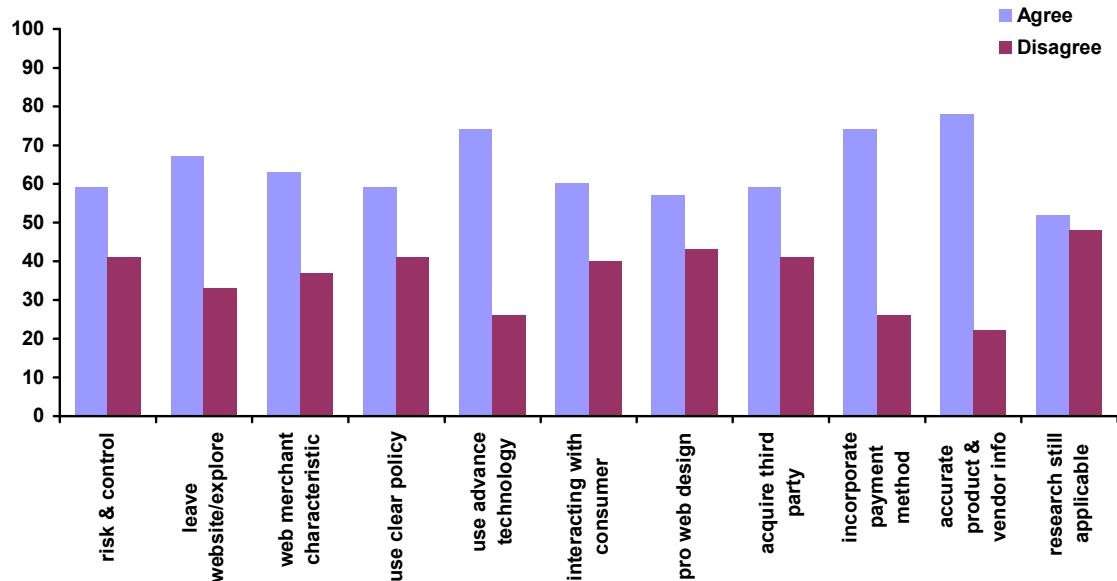


Figure 4.2: Online survey result in graphical representation

4.5.3.1 Analysis on Survey Results

The main focused of this survey was to validate consumer acceptance towards the proposed model and its elements. This model was developed to understand how consumer actions and behavior leads to building online trust and shows web merchant involvement in contributing to enhancing website trustworthiness. So it is important to let consumer know about the research conducted and weather they agree and accept the proposed model to provided a more understandable approach in discussing about consumer behavior and trust. The survey has managed to attract 47 numbers of respondents with various age groups, educational background, Internet experience and buying experience.

This survey was intended for consumer that have at least 1 year of buying experience so among the 47 respondents, 20 respondents have been identified, failed to meet this requirement so their answers are not counted. It is very important to have a good computer literacy as an influencer when it comes to building online trust. This is based on the result where 62% said that computer literacy is very important apart from educational background (44%), personality (29%) and buying experience (40%). The result of the survey shows that 59% agreed that initial trust is

influenced by perceives risk and control. This is due to the increasing security awareness of the respondent towards engaging in any uncertainty situation involved in any e-commerce transaction.

67% also agreed that they will leave the website immediately if they do not trust the website they visited and 33% agreed upon exploring more to build their trust. Most e-commerce website that faced this kind of situation does not have proper or enough trust inducing features that can make consumer stay until making a purchase. Utilizing advanced technologies for securing communication channels is crucial in providing any e-commerce website with security and privacy protection against eavesdropping as 74% of respondent agreed with this statement. Apart from securing communications channels, 74 % agreed that the use of payment method that incorporated SSL encryption is also vital for building consumer trust.

From the survey results, the author acknowledges the existence of high consumer trust awareness among the 27 respondents as it shows positive feedbacks towards the model proposed. This is due to consumer are taking preventive measures by seeking knowledge and guidance to assure that their privacy are protected anytime and anywhere.

4.6 System Features and Design

The system is designed to have all the core functions of a typical e-commerce system such as user registration and login, administrator back office, product page, system navigation, shopping cart, search mechanisms, shipping module, payment module, and etc. Apart from that, trust mechanisms will also be incorporated into system. The e-commerce website that will be built is a website that sells computer related items. Among the main features and functions that the system will have are as follows:

A Professional Web Layout, Design and User Interface

A website layout and design will provide a first impression to the visitors about the web merchant's eagerness and passion to conduct business. A symmetric framework should be utilized to provide a professional website look to the website apart from creating an exciting shopping and trading environment. Incorporating custom designed images and graphics can show the uniqueness of the website. Selecting an image to represent a product is a crucial requirement. Product images should have a unique design and creative look. The use of background colors that are light and simple is more pleasant to look at rather than choosing dark colors. A friendly user interface that is easy to use, pleasant to look at, and convenient should be developed after constructing the layout and design.

Content – Choosing the right words

All the website content should contain necessary information that is related to the business. Applying good words and phrase in the website is vital because online stores do not have a sales person like the physical stores that can attract consumer to purchase from their stores by using pleasant conversation and consumer can also provide the feedback. An e-commerce website must apply pleasant and encouraging

words and phrases that are easily understood by consumer. Information and instructions should be address clearly and without any confusion. If a consumer fails to understand or follow the instructions, it will result in consumer leaving the website.

Product Presentation

Product is the main focused in any B2C e-commerce. Selling a product through online approach is a daunting task because people can't look and touch the product physically. Presenting products should be done in a creative way so choosing the right images, selecting attractive words and phrase, providing accurate and updated product information are among the approach that can be taken. If a product is on sale or under promotion, it should be put at the front page for attracting consumer's attention.

Website Navigation

Easy to use website navigation system is a critical element that needs prior focused. Consumer should not be confused when moving from a page or another and they should be aware at the page they are viewing. Developing a sitemap is an alternative approach to prevent this kind of situation occurs and web merchants should take this matter into consideration when designing the e-commerce website.

Contact Form and User Comment

Customer feedback can be a benchmark for web merchants to determine the success of their online business. By developing and utilizing this function, consumer can contact the web merchant if they have any questions and problems. Consumer

can also provide feedbacks on the product page to let others know about their opinions by writing on their comment in the product page. In order to help consumer used these functions, both of them must be easily identified.

Search Mechanism

Product's information that is easily found will reduce consumer's searching time and effort. In order to achieve this, an e-commerce website must have a search mechanism integrated into its system. This search functions can be use to search information, product and etc. Consumer can just type in a keyword of a product and the system will display the result of the search.

Shopping Cart

This is one of the core functions that every e-commerce website must have because it represent a real shopping experience where consumer can pick any product and put it in the cart. At the end of the shopping period, consumer can check out and direct to the shipping and payment process.

Shipping and Payment Module

A brick and mortar store doesn't rely on shipping modules because consumer just takes home the purchased items. In an e-commerce system, shipping modules is one of the necessities that gather customer's location information and store into the database. Usually this information is gathered during the registration process and when customers proceed to this process, the information is automatically displayed so they can change and update the address. The payment and shipping module stores information about the postal services provider and banking companies and its service for consumer to choose which option they like.

Administrator Back Office

Website administrator or the web merchant will have a total control over the business process involve in the e-commerce website. Managing the website is conducted in the back office so it must have a friendly user interface so that every element and information can be store, update and input easily.

4.6.1 Conceptual Design

The conceptual design shows the overall process and entities involve in the system. It is viewed in angle where all the core functions are shown and how they would work in the system. This type of design includes identifying inputs, process and also the output. This design is represent in a data flow diagram (DFD) and system flow chart. The DFD shows how the system data move along the entities and result in an output or a decision. This diagram usually illustrated beginning from level, which is the Context Diagram and until level 1 which shows each process in detail. Figure 4.3 shows the system design context diagram while figure 4.4 shows DFD in Level 1, which is the detail process expansion derived from the context diagram.

4.6.1.1 Context Diagram

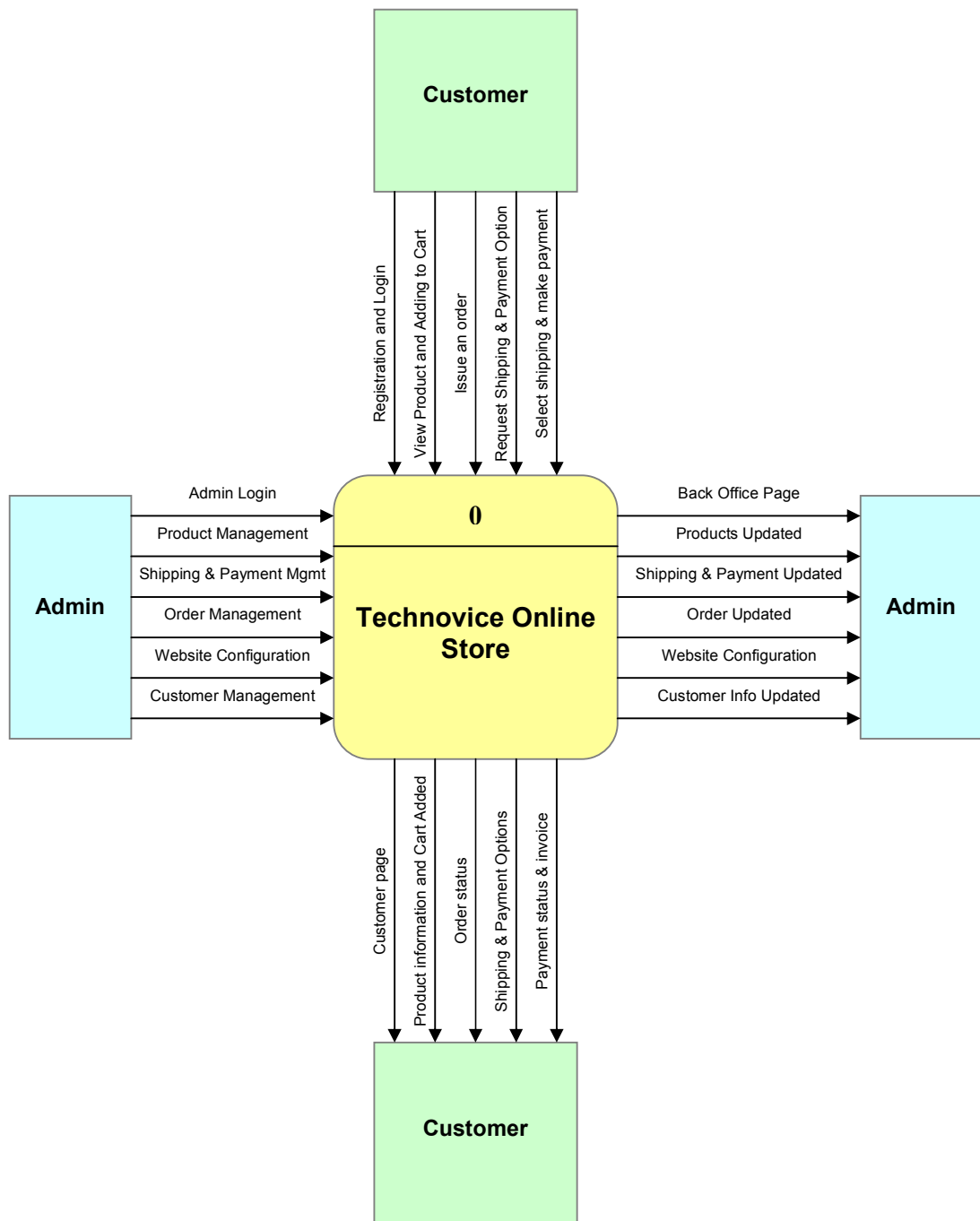


Figure 4.3: Context Diagram for Technovice Online Store

4.6.1.2 Data Flow Diagram Level 0

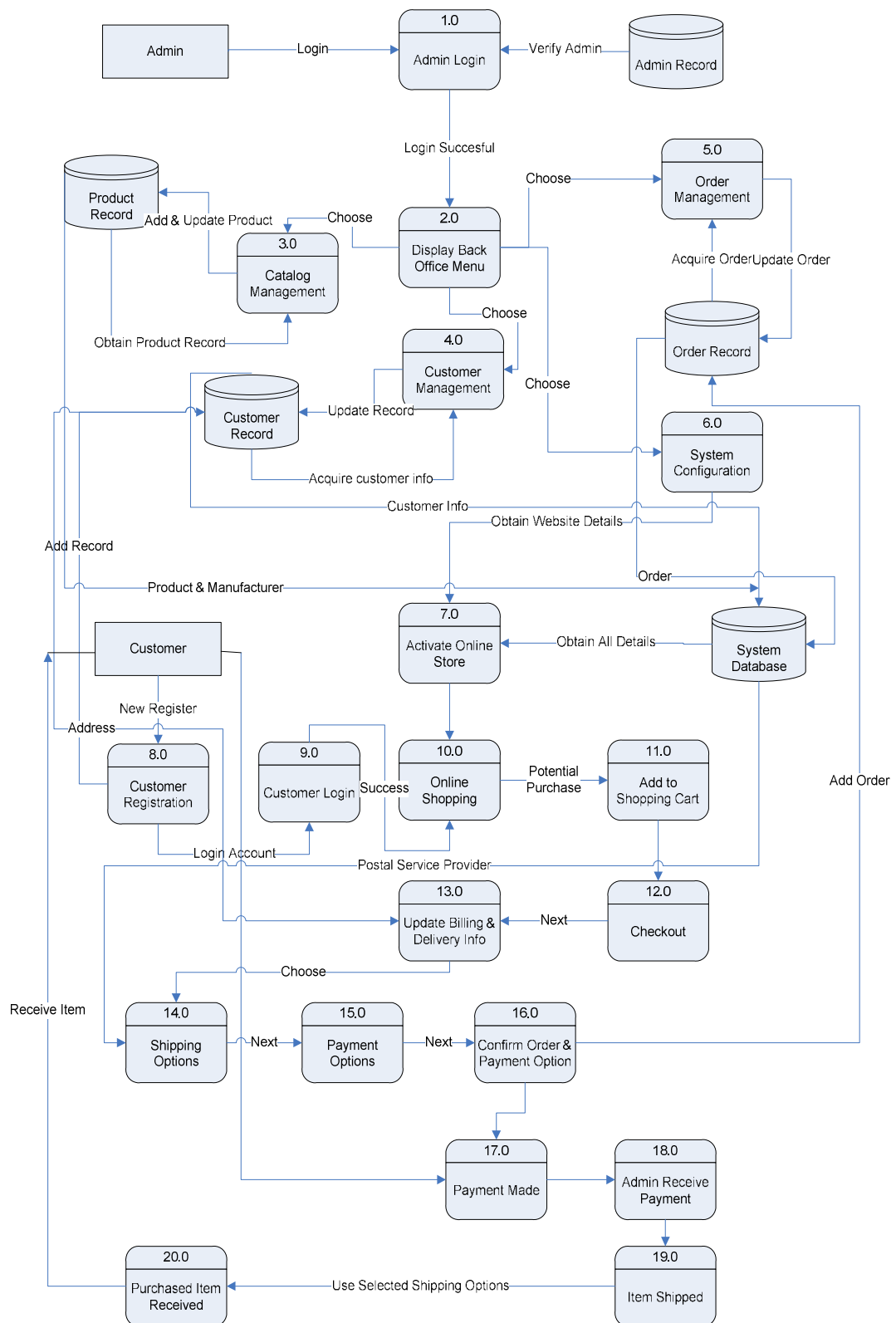


Figure 4.4: Data Flow Diagram (Level 0)

4.6.2 Physical Design

4.6.2.1 System Storage

The database details presented here is the default database when the e-commerce software is installed. There are a total of 91 tables created after the installation finishes and each of these tables have it own structured. Below are several main tables existed in the store1 database:

Table 4.5: Several tables in store1 database

Database Name	Description
store1	This database is the system database that stores all the main details including products, customers, shipments, payment and etc.
Table Name	Description
ps_adress	This table stores information related to customer's address.
ps_carrier	Stores details on postal service provider's information and their price list.
ps_cart	Stores information about the potential product purchase, customer's orders, address, shipping options and payment options.
ps_category	Stores data on product category.
ps_configuration	Stores information related to general system setting, language setting, currency setting and etc.
ps_contact	Stores information about vendor's contact details.
ps_country	Information about world countries is stored in this table.
ps_currency	Currency details are stored in this table
ps_customer	Customer's information is stored in this table
ps_module	List of module and their details are stored here.
ps_orders	General order details are stored in this table
ps_orders_detail	Specific products that are ordered are stored in this table.
ps_product	List of product and its details are stored here.

4.6.3 System Flow Chart (Administrator)

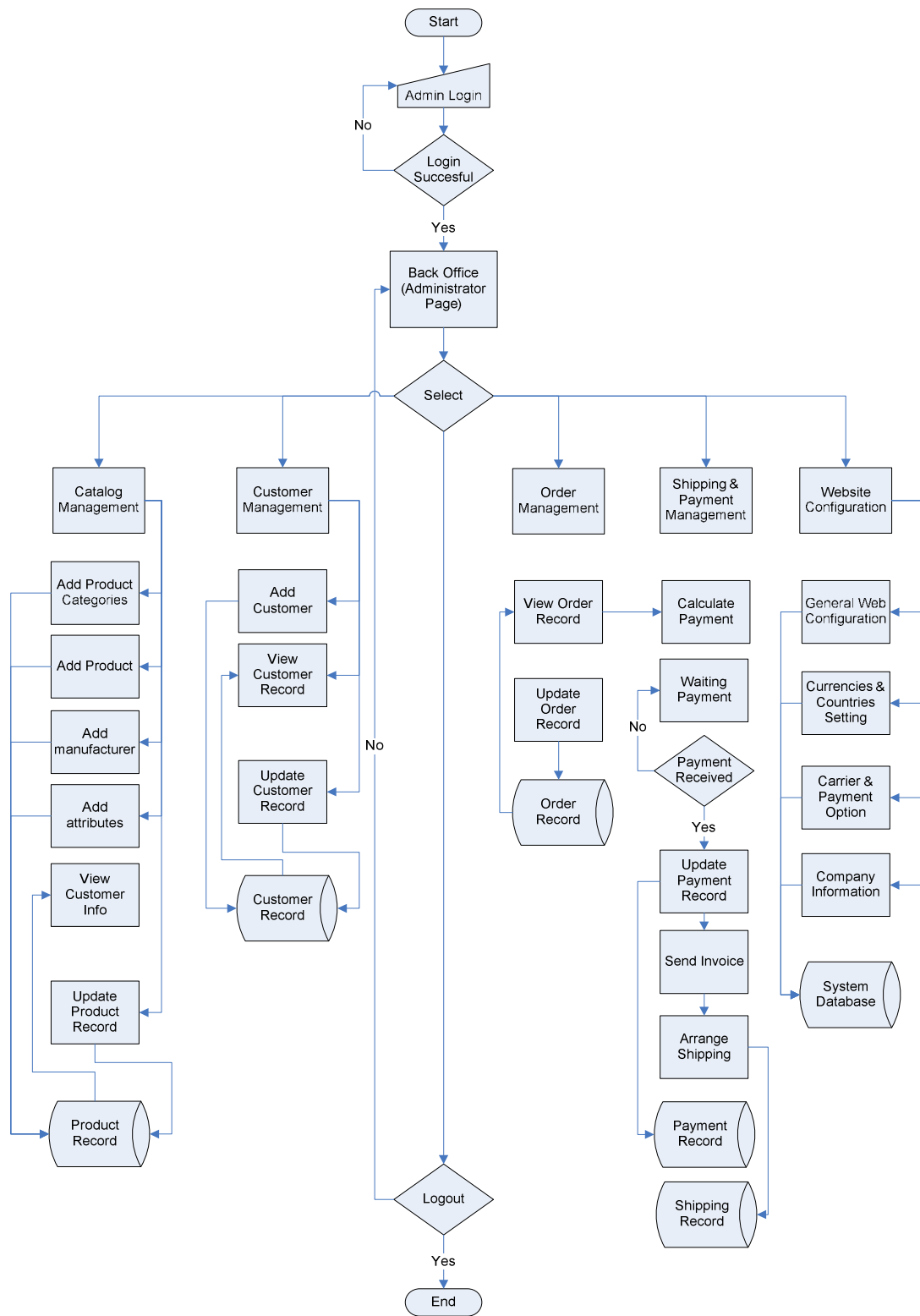


Figure 4.5: Administrator Flow Chart

4.6.4 System Flow Chart (Customer)

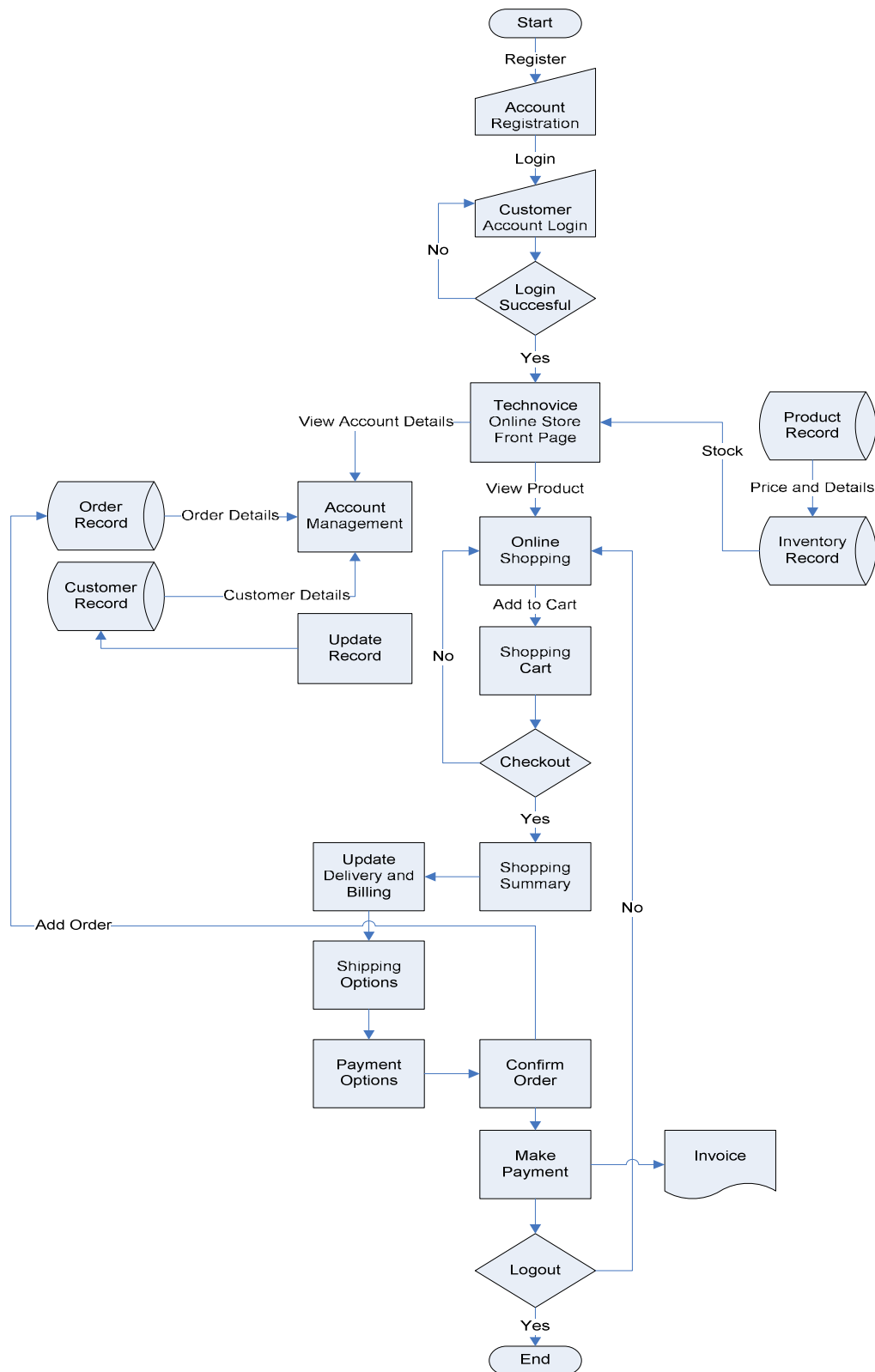


Figure 4.6: Customer Flow Chart

4.7 Chapter Summary

This chapter has outlined some of the findings found by the author that will be used for further phases in the project development. The findings shows the information found regarding the three chosen trust models that are related closely to the study, information on the mechanisms and technologies to integrate trust in website design and development process and also information about consumer behavior. A trust model is proposed to explain about consumer's behavior and interactions when engaging in an e-commerce website that result in building online trust.

Apart from the findings, this chapters also has discussed in detail about the system design that include laying out several design diagram such as the data flow diagram consist of context diagram until diagram level 0, admin flow chart that explain more about the process involve in the system and customer flow chart that shows how consumers interact with the system functions to purchase product. This design will be used as guidelines for building the prototype in the next phase.

CHAPTER 5

IMPLEMENTATION AND TESTING

5.1 Introduction

This chapter discussed in the detail about phase 4 and 5, which are the implementation and testing phase. After the system design has been layout according to plan, it is now time to build an e-commerce website based on the design but first, the conceptual model proposed in chapter 4 must be revise base on the consumer validation survey. Further more, in this study, the author has created a company so that this company or organization can be a foundation for the existence of an e-commerce website. Due to the limited numbers of company that sell computer related products online, the author decides to build an imaginary computer based company that sells computer products using online approach. This organization is known as *Technovice Computers (M) Sdn Bhd*.

5.2 Consumer Validation towards Proposed Model

Before proceeding to the system implementation phase, the conceptual model proposed must first be revised according to the results of the consumer validation survey discussed earlier in Chapter 4. Table 5.1 shows the result of the survey calculated using mean and standard deviation. Elements (customer feedback,

educational background and personality) with high value of standard deviation indicate that there was a lot of variation in the answers while a low standard deviation would mean that most observations cluster around the mean. High standard deviation value (above 1) shows that respondents are uncertain about the importance of these elements in building consumer trust. As a conclusion to this survey, respondents agreed that most of the elements and component in the proposed model are relevant to the author's perception about building consumer trust. Although the 3 elements that indicate a high standard deviation, their mean is still above average. It is a strong indication that respondents still agrees on all the elements in the model. Figure 5.1 shows the revised model based on respondents/online shoppers' point of view.

Table 5.1: Consumer Validation on the Proposed Model

Questions	Scale						Mean
	S. Agree			S. Disagree			
	5	4	3	2	1	SD	
1. Incorporating payment method that uses secure socket layer (SSL), secure electronic transfer (SEL) or any other securing technology such as PayPal, ePay and etc will make me trust the website.	7	13	7			0.73	4.00
2. Accurate and updated information about the web vendor (contact, physical location of company) and its product (pricing, quality, and brands) are crucial requirement to increase consumer trust.	6	15	5	1		0.76	3.96
3. The use of a reliable and advanced technology for securing communication channels can make the e-commerce website be trusted.	7	13	6	1		0.81	3.96
4. Stating a clear privacy and security policy can make me trust the e-commerce website.	5	11	10	1		0.81	3.74
5. A web merchant should have the following characteristics: A web merchant will act for the interests of	5	12	9		1	0.90	3.74

<i>both parties; a web merchant will act in an honest way, and the belief in the web merchant ability, skills and expertise within a certain domain.</i>							
6. <i>Acquiring third party services such as trust seal programs, digital certificate, and etc will make me more confident to purchase a product from an e-commerce website.</i>	4	12	9	2		0.83	3.67
7. <i>According to this study, initial trust (when a person visits an unfamiliar e-commerce website) is influenced by risks that are involved during a business transaction and improper control mechanisms used to protect the information that is being transferred.</i>		16	10	1		0.58	3.56
8. <i>An e-commerce website with a professional web design (good color, graphic representation and easy to use navigation) can be trusted more rather than a poor website design.</i>	2	13	6	6		0.93	3.41
9. <i>Interacting with previous buyers, reviewing user testimonials and looking into customer feedback can somehow increase my level of trust towards the e-commerce website.</i>	1	14	10			1.11	3.37
10. <i>When you visit an e-commerce website for the first time, it is easy for me to trust the website straight away.</i>	1	1	13	10	2	0.85	2.48
*VI = Very Important; I = Important; AV = Average; NI = Not Important; VNI = Very Not Important							
11. <i>Consumers are influenced by the following criteria when it comes to building online trust, please rate the criteria according to its importance.</i>	VI	I	AV	NI	VNI		
a. <i>Computer literacy</i>	17	8	2			0.64	4.56
b. <i>Buying experience</i>	12	10	4	1		0.85	4.22
c. <i>Educational background</i>	7	11	7	1	1	1.00	3.81
d. <i>Personality</i>	8	8	7	3	1	1.14	3.70

5.3 Choosing the Right E-Commerce Software

Building an e-commerce website nowadays requires small amount of cost, time and effort due to the wide range of licensed and also open source e-commerce software in the market. Web merchants just need to choose the right one according to their needs and financial budget. Open source e-commerce softwares are getting ahead of licensed software in terms of providing full e-commerce functionalities with zero cost what so ever. Among the famous and widely used open source e-commerce softwares in the market are Os-Commerce, Magento, Joomla and Mambo (with integrated VirtueMart shopping cart), PrestaShop™, and etc. For this research, the author requires a software that have all of e-commerce core functionalities, a professional design and importantly, easy to customize. After searching, trying and exploring various softwares, the author found that, PrestaShop™ open source e-commerce software meets the requirement above.

5.3.1 An Overview of PrestaShop™

PrestaShop is an open source e-commerce software developed by a team of developers based in France. It is a PHP based softwares that uses MySQL as the database platform for storing information. Currently, the team has managed to produce a stable version, which is PrestaShop™ Version 1.0. Among the main features that this software offers are:

A Back Office for Admin

This page manages all the core functionalities, settings and configuration of the PrestaShop softwares. Administrator can manage customer, products, orders, shipping, and payment module through this page.

Easy To Manage and Use

This software is easy to customize and use. Developers don't really need to have strong programming knowledge in html, php and css to customize the software. It offers a pleasant user interface for administrator to update and change all the information and setting. All the modules can be customize according to the developer's requirement and need to have a better e-commerce website.

Interactive Product Presentation

Products are represented in a creative and professional way. Consumer can view product information easily and clearly. There's no maximum numbers of images can be put and images are viewed using Lightbox interface.

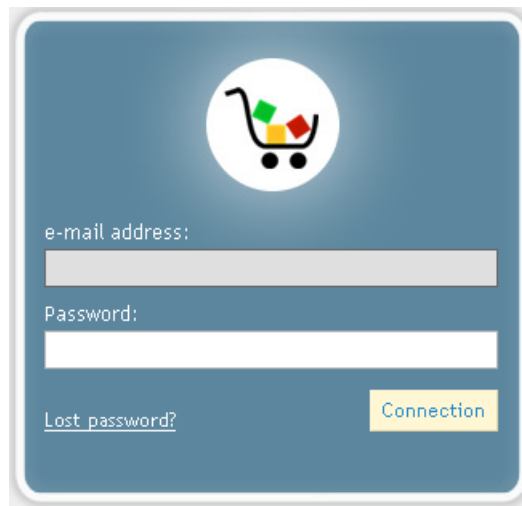
SSL encryption mechanism

PrestaShop™ is equipped with SSL encryption that can be enable when the website is ready and deploy to a web hosting server. Although this software is new compared to other open source software, it also put into concern the threat online consumer is facing regarding privacy and security.

5.4 Technovice Computers (M) Sdn. Bhd. – Technovice Online Store

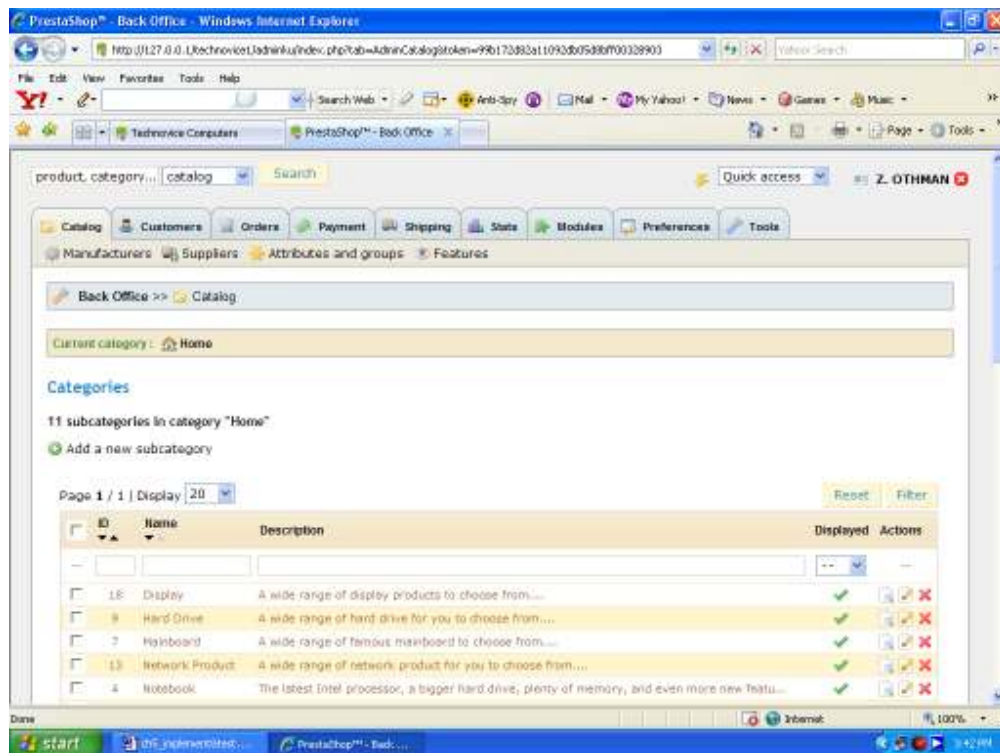
This online store is developed as a testing prototype for this study. All the trust mechanisms that were found and discussed in Chapter 4 are incorporated in this prototype to build online consumer trust and achieve the study's objective. This prototype will be deployed in a real case study where active online shoppers will act

as the respondent and assess this website trustworthiness. Figure 5.2 until figure 5.5 shows an overview of Technovice Online Store's user interface.



The login form is a blue rounded rectangle. At the top center is a white circle containing a shopping cart icon with three items (green, red, yellow). Below the icon, the text 'e-mail address:' is followed by a white input field. Below that, 'Password:' is followed by another white input field. At the bottom left, there is a blue link 'Lost password?'. At the bottom right, there is a yellow button with the text 'Connection'.

Figure 5.1: Technovice Online Store Back Office Login



The screenshot shows the PrestaShop Back Office interface in a Windows Internet Explorer browser. The address bar shows the URL: <http://1127.0.0.1/technovice1/jadrihku/index.php?ab=AdminCatalog&token=99b173883a11093db0588f00328903>. The browser title is 'PrestaShop™ - Back Office'. The interface includes a search bar, navigation tabs for 'Catalog', 'Customers', 'Orders', 'Payment', 'Shipping', 'Stats', 'Modules', 'Preferences', and 'Tools'. Below these are links for 'Manufacturers', 'Suppliers', 'Attributes and groups', and 'Features'. The main content area shows 'Back Office >> Catalog' and 'Current category: Home'. Under 'Categories', it states '11 subcategories in category "Home"' and provides an 'Add a new subcategory' link. A table displays a list of subcategories with columns for 'ID', 'Name', 'Description', 'Displayed', and 'Actions'. The table shows four rows of data:

ID	Name	Description	Displayed	Actions
18	Display	A wide range of display products to choose from...	✓	[Icons]
9	Hard Drive	A wide range of hard drive for you to choose from...	✓	[Icons]
7	Kejboard	A wide range of famous mainboard to choose from...	✓	[Icons]
13	Network Product	A wide range of network product for you to choose from...	✓	[Icons]
4	Notebook	The latest Intel processor, a bigger hard drive, plenty of memory, and even more new featu...	✓	[Icons]

The interface also shows 'Page 1 / 1 | Display 20' and 'Reset Filter' buttons. The Windows taskbar at the bottom shows the Start button, taskbar, and system tray with the time 9:42 PM.

Figure 5.2: Technovice Online Store Back Office



Figure 5.3: Technovice Online Store Front Page



Figure 5.4: Product Page

5.4.1 Trust Mechanisms Validation

The author has incorporated the trust mechanisms proposed in Chapter 4 into the e-commerce prototype. This section discussed about assuring that all the trust mechanisms are integrated into the website before this website is ready for consumer testing.

5.4.1.1 Technology for Securing Communication Channels

Although PrestaShop™ can be enabled with SSL encryption, this prototype is less in this function due to the package that the web hosting company provides. The author has subscribed to a web hosting account for the purpose of consumer testing but this package doesn't support SSL.

5.4.1.2 Interacting with Consumer

This prototype is equipped with a user comment function where user can write anything about a certain product and other user can view it. This is important to newly registered website user for gaining knowledge and positive perception towards the website and products.

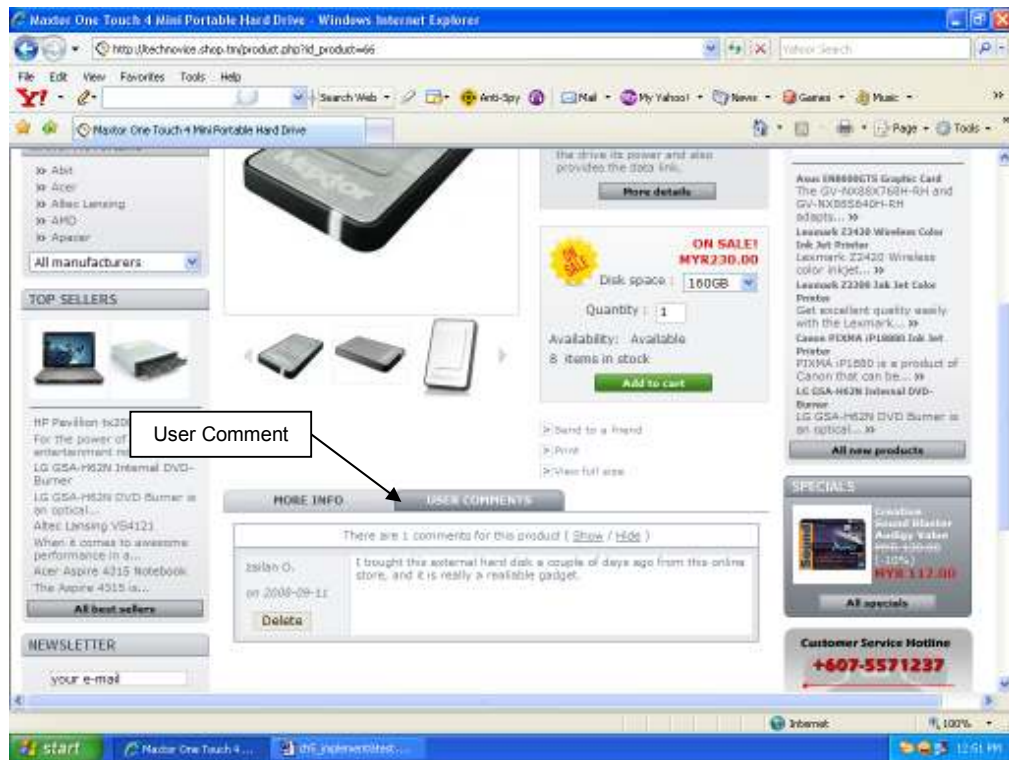


Figure 5.5: User Comment in Product Page

5.4.1.3 Stating a clear policy

Policy is guidelines or instructions that need to be followed. In the field of e-commerce, privacy policy is a critical requirement due to its value in protecting consumer privacy. Privacy policy needs to be defined clearly and in an understandable manner so consumer that uses the e-commerce website are aware of their rights to acquire a privacy protected services. Privacy notice links should be put in the main menu so that it is easily identified.

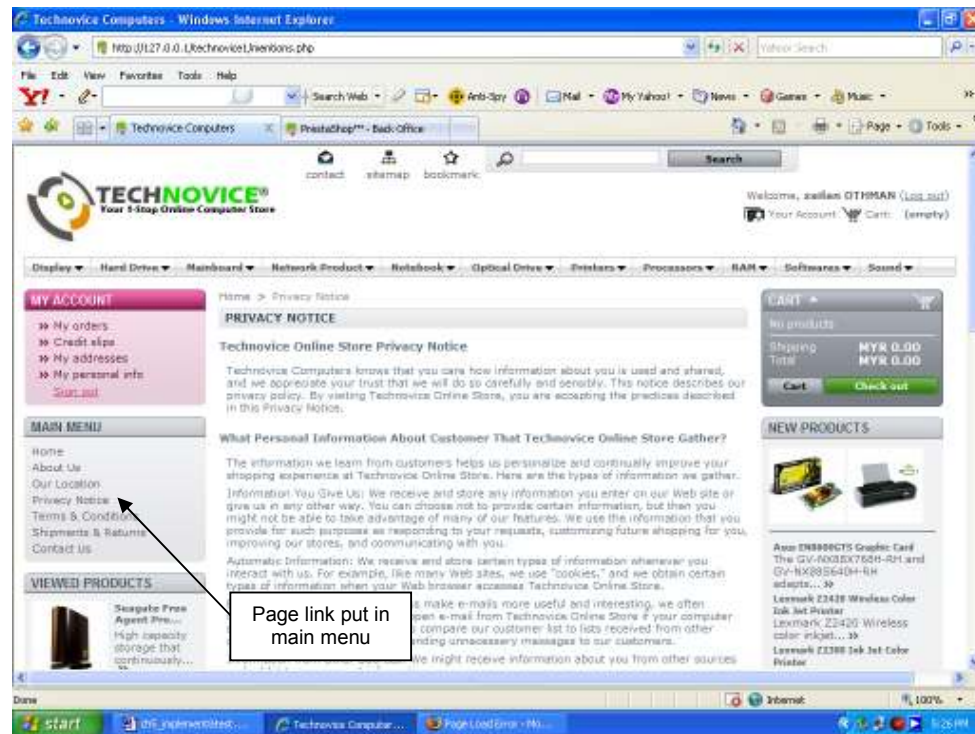


Figure 5.6: Privacy Notice Page

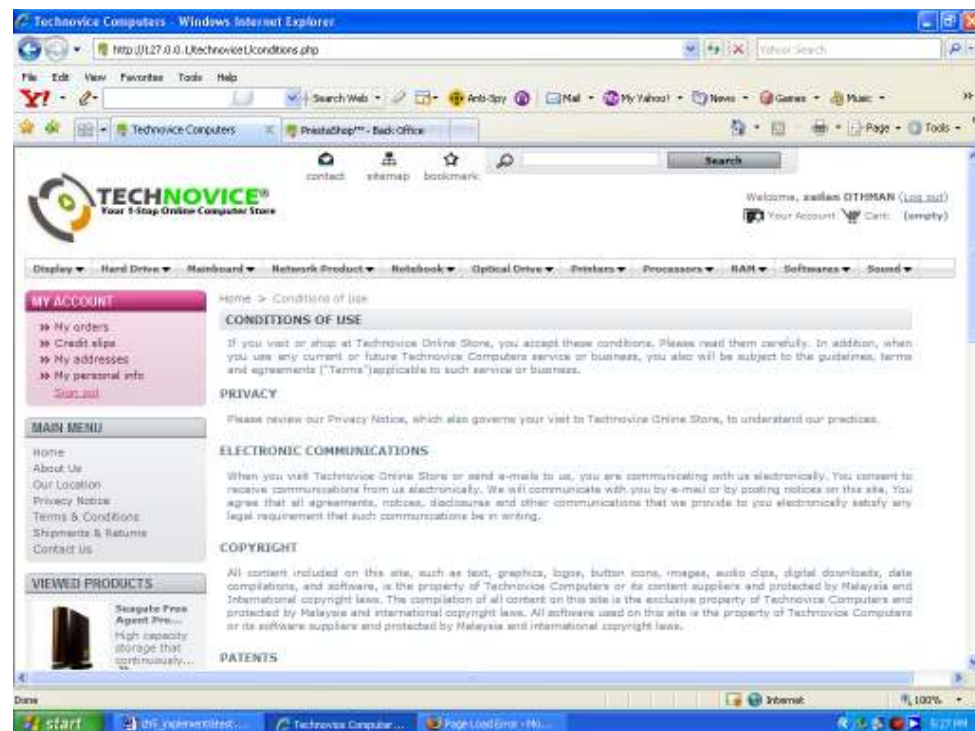


Figure 5.7: Terms and Conditions of Use Page

5.4.1.4 Professional Web Design

Professional web design in this case refers to well-construct web layout, the use of symmetric framework, well chosen and custom made images, good selection of colors to create a unique and professional look and well-chosen font, text and phrases.

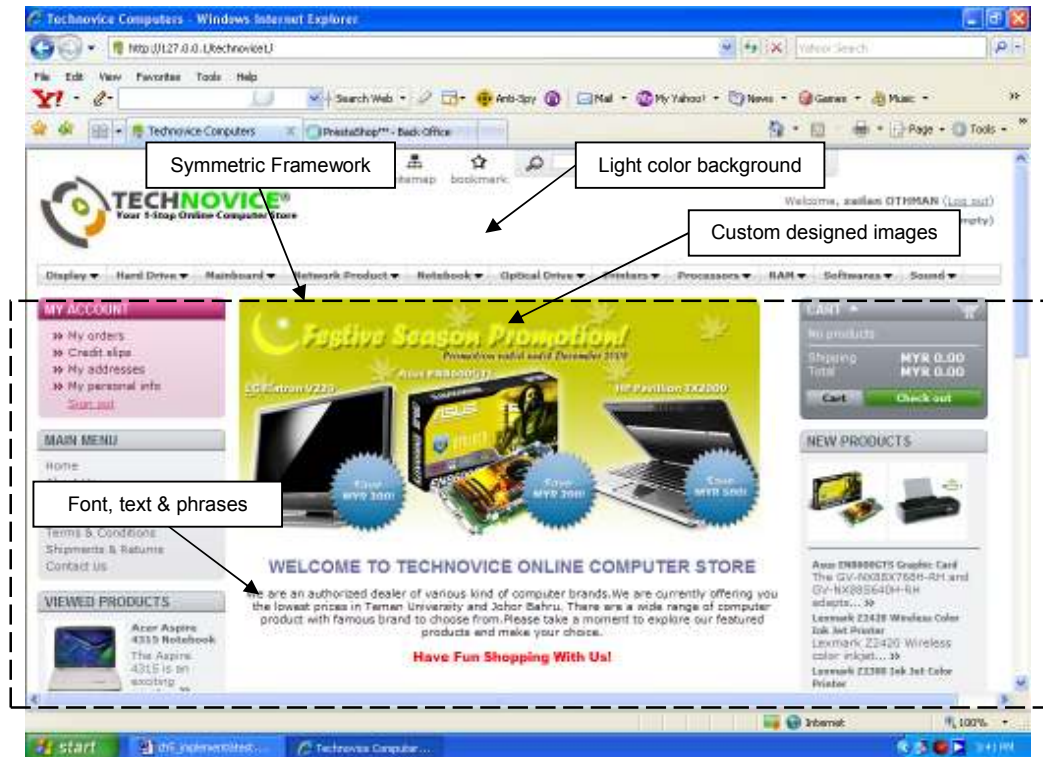


Figure 5.8: Professional Web Design

5.4.1.5 Acquiring Third Party Services

Every e-commerce website requires a digital certificate from a certificate authority (CA) to provide them with a secure socket layer (SSL) certificate for increasing consumer trust. There are various CA existed today in the market and the author chooses VeriSign because of its reputation among the online shoppers. This is just a prototype and not a real e-commerce website so the VeriSign logo display on the website is for the study purposes.

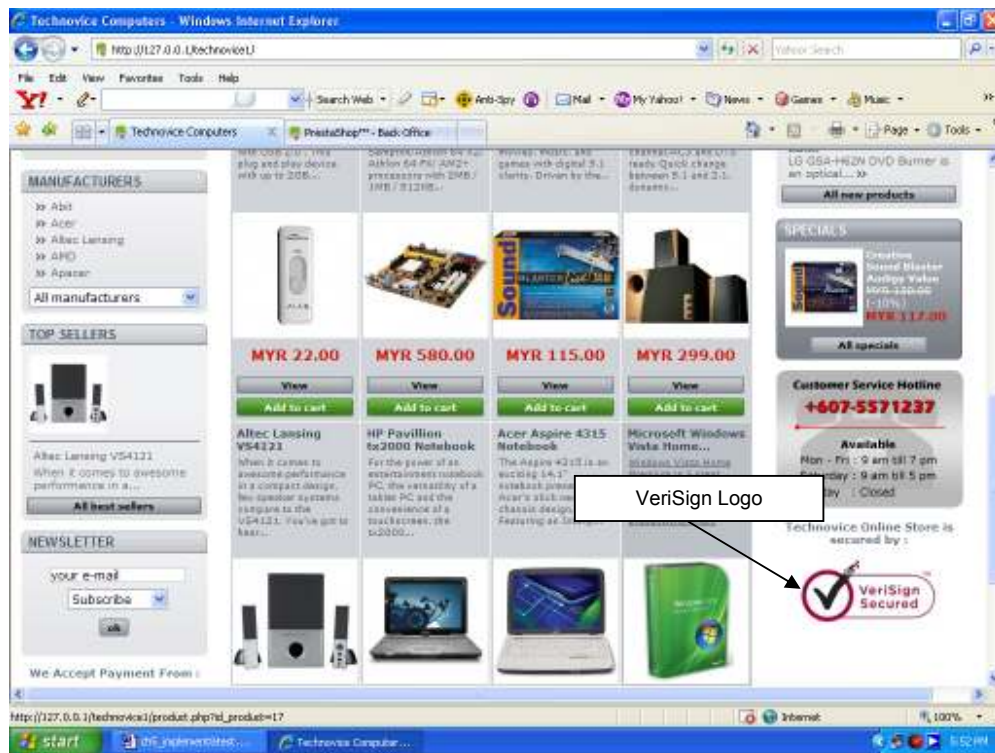


Figure 5.9: Acquiring Third Party Services

5.4.1.6 Accurate Vendor and Product Information

Information about the vendor can be viewed in ‘About Us’ page and ‘Our Location’ page. It is important to provide accurate and updated information about the company to convince consumer that the company is really serious about doing business. The same goes to product information.

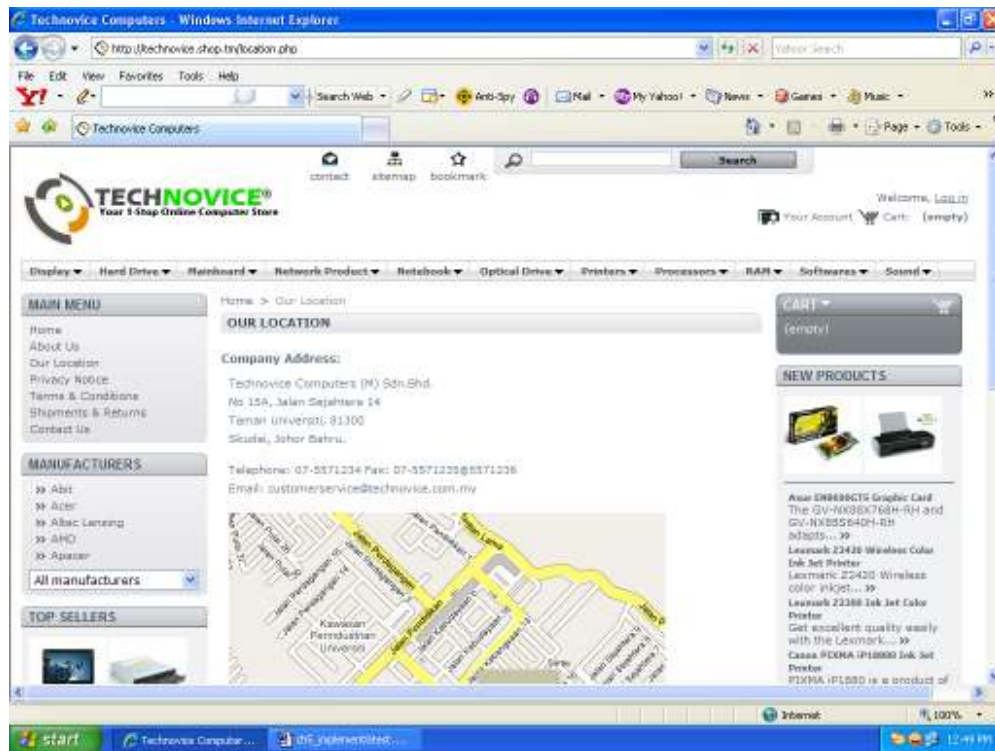


Figure 5.10: 'Our Location' Page



Figure 5.11: Product Information

5.5 Testing Phase

Testing is conducted to determine the objectives of this study are achieved. By conducting a user testing, the author can see whether the prototype built can build online consumer trust or fail to achieve the objective. This study is about building online trust so assessment are done by focusing on the element or trust mechanisms proposed that can increase consumer trust towards the website.

5.5.1 Prototype Testing

Prototype testing is conducted using the *cooperative evaluation* technique. For testing purpose, a survey was conducted where respondents were asked questions related to building trust towards the prototype. Respondents were instructed to visit the prototype web page on the Internet and answered questions while exploring it. Gathered data will be analyzed using statistics and results can be obtained. The following are some of the steps used in this technique:

- Providing instructions: Respondents were given short briefing about the study and basic instructions on how to complete the survey. These instructions were written on the survey form and this form was sent to the selected respondent. Respondent were chosen among those who has experience in online shopping.
- Answering questions: The survey is filled with questions that are divided into 7 main sections ranging from demographic based questions until questions related to each trust mechanisms.
- Analyze Result: Findings from the survey are analyzed to determine the final result.

5.5.2 Prototype Testing: Survey and Results

This part of the chapter shows the details on the survey and its result where as discussed earlier, the survey (questionnaires) is divided into 7 main sections and each of the section focused on a specific element based on the mechanisms proposed in Chapter 4. The following shows the 7 main sections:

i. Section A: *Demographic and Initial Trust*

This section contains questions that are related to gathering data regarding respondent demographic details such as gender, age group, years of buying experience, years of Internet experience and etc. At the end of this section, respondents are required to indicate their level of trust when they first lay eyes on the prototype.

ii. Section B: *Web Design and Features*

This part of the section contains questions that require respondents to assess the prototype web design and features while exploring it. Questions are based on the web layout construct, use of images and graphics element, use of word and phrases and etc.

iii. Section C: *Securing Communication Channels*

This section includes questions that are more technical oriented such as the technology used in the prototype, payment mechanisms and etc. The purpose is to examine and assess certain functions in the prototype that are important in protecting from consumer's invasion of privacy.

iv. Section D: *Stating a Clear Policy*

Consumers usually don't read any privacy policy that is stated on the website because of this document are not easily seen or identified easily. In this section, respondents are asked to assess the privacy notice and its location (link) in the prototype.

v. Section E: *Acquiring a Third Party Services*

This part of the questionnaires examines user's confidence, familiarity and knowledge about third party services when they identify one in an e-commerce website.

vi. Section F: *Providing Accurate Vendor & Product Details*

This section is all about vendor and product information displayed in the prototype.

5.5.2.1 Section A: Result and Analysis

In order to participate in this survey, chosen respondent must have at least a year experience of purchasing or buying online. As a result, this survey managed to acquire 10 online shoppers to be respondents in this survey. 60% of the respondents are female and the rest are male. 60% of the respondents are aged 18-24 years old and the rest aged 25-34 years old. 4 respondents buy online once a year, 3 buy online once in a month, and each one respondent buy online, once in 6 month, once in 3 month and once in a week. From here, the author knows that most of the respondents are not exposed to buying online although they are experienced Internet surfers.

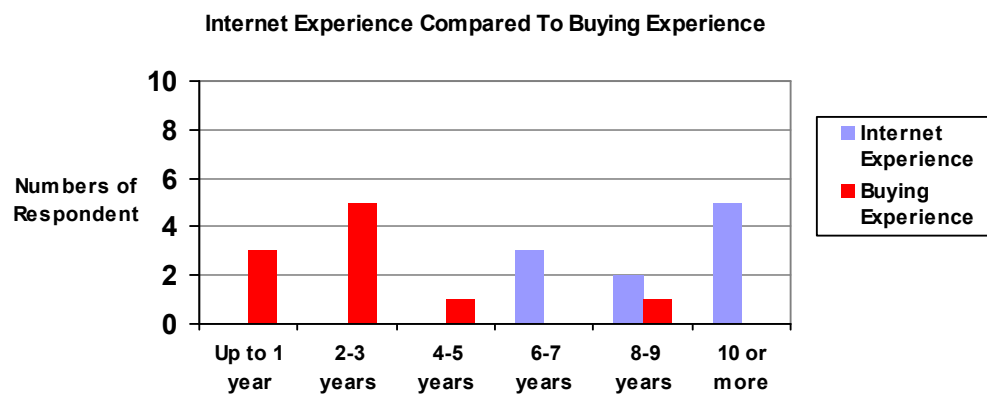


Figure 5.12: Comparison between Internet Experience and Buying Online Experience

Table 5.2 shows the result of one of the question in section A where this question requires respondents to rate the following trust building features according to its important. Most of the respondent agreed that all of the features are important especially the trust seal. This is a positive sign indicating that all respondents are aware of these features when it comes to building online trust.

Table 5.2: Important features in an e-commerce website

Features/Element	Scale				
	Important		Not Important		
	5	4	3	2	1
1. <i>Product and Vendor information</i>	8	2			
2. <i>Secure communication channel mechanisms used</i>	8	2			
3. <i>Past user testimonials/review</i>	3	4	2	1	
4. <i>Privacy policy</i>	8	1		1	
5. <i>Professional web design</i>	2	6	2		
6. <i>Trust seals</i>	10				

Initial trust is one of the prior components before building online trust through exploring the e-commerce website. It is vital to build online trust starting from development of initial trust. Initial trust can be express as consumers' first impression towards an e-commerce website when they first visit it. At the end of this section, respondents were asked to indicate their level of trust towards the prototype because all of them are first time visitors.

5.5.2.2 Section B: Result and Analysis

Based on the overall mean in this section, which is 4.32, respondents agreed that this prototype have a professional web layout and design. It means that, in order to convince and build online trust, professional web design is the important element that consumer would search for in an e-commerce website. Respondents aren't very

convinced with the selection of graphics and images used as it indicates the lowest mean among the rest.

Table 5.3: Result of Section B

Questions	Scale						Mean
	S. Agree			S. Disagree			
	5	4	3	2	1	I don't know	
8. <i>The web layout constructed is very professional.</i>	3	7					4.30
9. <i>Well-chosen colors to match the overall design.</i>	2	4	4				3.80
10. <i>Good selection of graphics and images to enhance the overall design and make the website looks professional.</i>	1	5	4				3.70
11. <i>Easy to use website navigation functionalities.</i>	5	5					4.50
12. <i>Products are represented using quality and nice images to let consumer feel like a real shopping experience.</i>	6	2	2				4.40
13. <i>The use of font, text and its size is suitable with the overall design.</i>	3	5	2				4.10
14. <i>Products are easily searched.</i>	7	1	2				4.50
15. <i>Clear and understandable information presented in the website.</i>	7	3					4.70
16. <i>It is important to have a well-constructed and professional web design to enhance consumer trust.</i>	9	1					4.90
OVERALL MEAN FOR SECTION B							4.32

5.5.2.3 Section C: Result and Analysis

Respondents show a positive feedback towards the mechanisms used for securing communication channels. This is due to the knowledge they acquire while exploring and purchasing from various e-commerce sites. They are aware of all the technical aspect of this prototype in protecting their sensitive details and privacy. Most of the respondents are not very familiar with some of the payment options offered in this prototype because this question shows the lowest mean among the rest.

Table 5.4: Result of Section C

Questions	Scale						Mean
	S. Agree			S. Disagree			
	5	4	3	2	1	I don't know	
<i>17. If I forgot my password, my password is sent securely through my email.</i>	4	3	1			2	3.50
<i>18. This website is protected with SSL certificate provided by VeriSign</i>	7	2		1			4.50
<i>19. It is very important to verify the VeriSign seal first to determine that this website is really secure.</i>	8	2					4.80
<i>20. There are several payment methods that use a secure approach that I can choose.</i>	6	2	2				4.40
<i>21. I'm familiar with all the payment method and have used them before to purchase a product.</i>	2	4		2	1	1	3.10

<i>22. The payment options are clearly identified throughout the website (images and logos are shown).</i>	6	2	1		1		4.20
<i>23. It is important to have an advance and latest technologies for securing communication channels to build consumer trust.</i>	6	3	1				4.50
OVERALL MEAN FOR SECTION C							4.14

5.5.2.4 Section D: Result and Analysis

This section is the second lowest overall mean in the survey conducted. This is because respondents do not think that privacy policy statements are important as long as they're protected by the technology used in the prototype. Most of the respondents do not always read all the content in the privacy policy and condition of use before proceeding to other section. Privacy policy is rather similar among e-commerce websites and it usually stated how consumer information is used, what information are being transferred and etc. This is the reason why consumers don't even take a minute to read this document.

Table 5.5: Result of Section D

Questions	Scale						Mean
	S. Agree			S. Disagree			
	5	4	3	2	1	I don't know	
<i>24. I always read all the content in the privacy notice and terms & conditions first before proceed to other section.</i>	3	3	1	3			3.60

<i>25. The statement about protecting my privacy is clearly defined in the privacy notice page.</i>	4	3	1	1		1	3.70
<i>26. All the terms and conditions regarding the usage of this website are stated clearly.</i>	4	4	2				4.20
<i>27. The privacy policy provides me with the details on what information is used and kept and how they are being used.</i>	5	2	3				4.20
<i>28. All the information in the terms & conditions are related to the usage of this website.</i>	3	6	1				4.20
<i>29. It is important to have an understandable and clearly privacy policy to increase consumer's trust.</i>	6	3		1			4.40
OVERALL MEAN FOR SECTION D							4.05

5.5.2.5 Section E: Result and Analysis

This section has the lowest overall mean due to respondents are not familiar with a certificate authority and what are their purposes. This is because in Malaysia, online shopping lifestyle is not widely accepted by Malaysian consumers. They are more likely to use traditional brick and mortar shop to satisfy their shopping needs. Compared to the United States, this type of lifestyle has been years ahead of Malaysia and according to a research conducted by Forrester Research, 79% of online shoppers in the US are familiar with VeriSign secured logo.

Table 5.6: Result of Section E

Questions	Scale						Mean
	S. Agree			S. Disagree			
	5	4	3	2	1	I don't know	
<i>30. I'm confident that when I see VeriSign logo, this website is secured.</i>	4	5	1				4.30
<i>31. This is not my first time seeing a VeriSign trust seal in an e-commerce website.</i>	4	3		1	1	1	3.50
<i>32. I am familiar with how VeriSign protect my information from eavesdropping.</i>	1	3	3	1	1	1	2.90
<i>33. It is important for an online store to acquire a third party services to build consumer trust.</i>	5	3	1			1	4.00
OVERALL MEAN FOR SECTION E							3.67

5.5.2.6 Section F: Result and Analysis

Respondents agreed that it is important to have a user comment for providing consumer with the space to express their opinions about anything related to the website. User comment provides benefit to newly registered customer and visitors for building confidence and trust to shop. Usually people would look for testimonials and feedback from others because it can somehow increase the level of confidence.

Table 5.7: Result of Section F

Questions	Scale						Mean
	S. Agree			S. Disagree			
	5	4	3	2	1	I don't know	
<i>34. The function for user to make a comment on a product will help convince new customer to buy from this website.</i>	3	4	3				4.00
<i>35. It is important to have a user comment in an e-commerce website.</i>	5	3	2				4.30
OVERALL MEAN FOR SECTION F							4.15

5.5.2.7 Section G: Result and Analysis

Most of the respondents were convinced that all of the information in relation to vendor and products are presented clearly and without any confusion. This is a positive sign that consumer can accept this online store as another company that are committed in providing consumer with accurate and updated information.

Table 5.8: Result of Section G

Questions	Scale						Mean
	S. Agree			S. Disagree			
	5	4	3	2	1	I don't know	
<i>1. Information related to the vendor (company) is shown clearly (address, contact info, location)</i>	3	5	2				4.10
<i>2. Customer service hotline</i>	4	6					4.40

<i>information is shown clearly.</i>							
3. <i>Product's information is presented in details and in an understandable manner.</i>	2	7	1				4.10
4. <i>Product information and details are convincing.</i>	3	6	1				4.20
5. <i>Product pricing is presented clearly and with no confusion what so ever.</i>	3	6	1				4.20
6. <i>I can clearly identify the product that are on-sale or under promotions.</i>	5	3	2				4.30
7. <i>Product images are related to the product information.</i>	6	4					4.60
8. <i>It is important to have accurate and updated vendor and product information to induce consumer trust level.</i>	5	5					4.50
OVERALL MEAN FOR SECTION G							4.30

5.5.3 Overall Survey Analysis

The results of the analysis indicate that the prototype can be accepted as one of B2C e-commerce website. Although there are several flaws in the prototype, indicated by lowest mean in section E, it managed to provide a positive impact on the respondents and also managed to achieve one of this study's main objective, which is to develop a prototype of e-commerce website that support consumer trust. Figure 5.14 shows the overall mean in graphical representation.

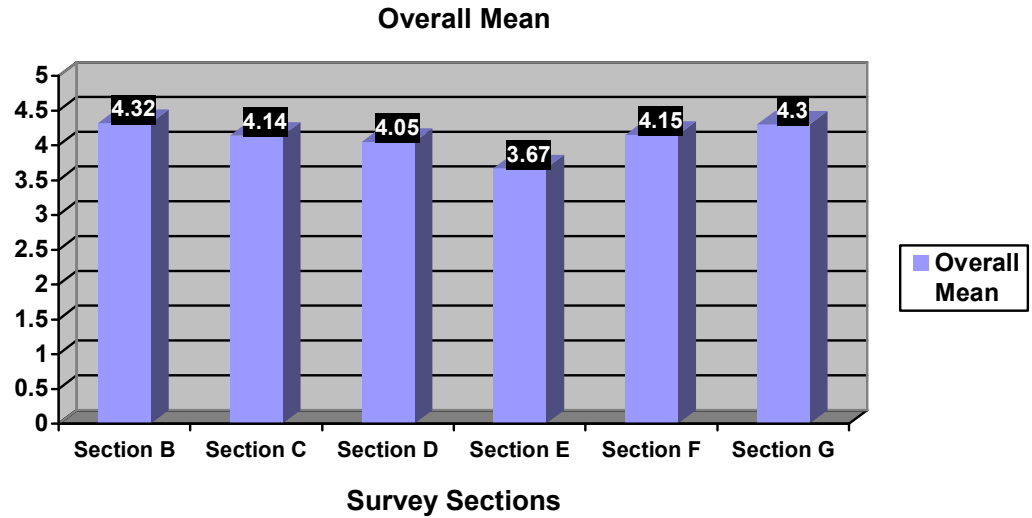


Figure 5.13: Overall Mean for Each Survey Section

At the beginning of the survey questionnaires, which is in section A, respondents were asked to indicate their level of trust towards the prototype when they first saw it and then, by the end of the survey, respondents were again asked to indicate their trust level after exploring the prototype. As a final result, the prototype manages to increase 6 respondents' trust level by 30 to 60%. Table 5.8 shows the respondents' trust level from the start of the survey until the end while Figure 5.15 represents this level in graphical presentation.

Table 5.9: Respondent's Trust Level

Respondent	Trust Level		Comment
	Start	End	
1	1-29%	60-89%	<i>Increase 2 level</i>
2	1-29%	60-89%	<i>Increase 2 level</i>
3	60-89%	60-89%	<i>none</i>
4	60-89%	60-89%	<i>none</i>
5	60-89%	90-100%	<i>Increase 1 level</i>

6	60-89%	90-100%	<i>Increase 1 level</i>
7	30-59%	90-100%	<i>Increase 2 level</i>
8	1-29%	30-59%	<i>Increase 1 level</i>
9	60-89%	60-89	<i>none</i>
10	90-100%	90-100%	<i>none</i>

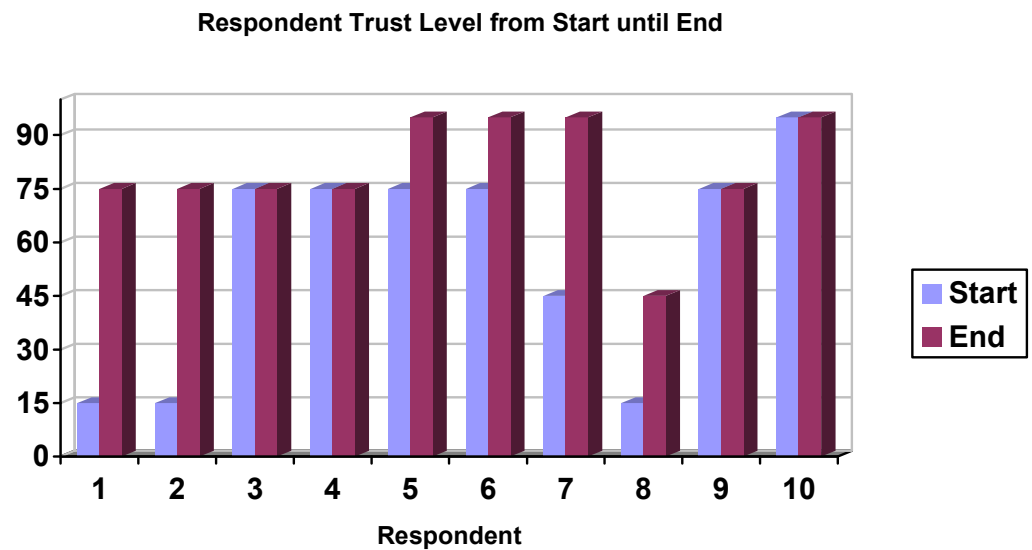


Figure 5.14: Respondents' Trust Level (Start till End)

5.4 Chapter Summary

Overall, this chapter discussed about the implementation and results from the study conducted. From implementation point view, a business-to-consumer e-commerce prototype was built for consumer testing purpose. All the trust mechanisms found were integrated into the prototype successfully. The testing phase was executed focusing on verifying the trust mechanisms proposed earlier. Respondents were gathered and asked few questions in relation to the prototype. From the experiment and testing conducted, there are two conclusions that can be made, which are:

1. The prototype managed to increase consumer trust level by 30-60%.
2. The prototype managed to identify respondents' awareness regarding the use of third party services such as VeriSign and the purpose of their existence.

CHAPTER 6

ORGANIZATIONAL STRATEGIES

6.1 Introduction

This chapter discussed about the implementation strategies that needs to be taken by the e-commerce website vendor, which is Technovice Computers (M) Sdn Bhd in order to deploy a successful e-commerce website that can increase consumer trust. Among the main topics that are covered including the organization's e-commerce implementation strategies, change management, and impact towards the organization and study field.

6.2 Implementation Strategies

Implementation strategies are strategic approaches that provide basic guidance in the deployment process of a new IT system. In order for these strategies to have a positive impact on the overall business process, it requires proper planning and ideas from the best and brightest. Until today, there are several implementation strategies that have found their ways into many IT corporate and business organizations' IT strategic plan. The main question that need's to be address here is "What are the various implementation methods and which will suit this organization best?" Table 6.1 shows these various existing implementation strategies with

their pros and cons.

Table 6.1: Implementation Strategies (Bocij et al, 1999)

Method	Advantages	Disadvantages
IMMEDIATE CUTOVER Straight from old system to new system in a single date	Rapid, low cost	High risk. Major disruption if serious errors with the system.
PARALLEL RUNNING Old system and new system run side-by side for a period	Low risk than immediate cutover	Slower and higher cost than immediate cutover.
PHASED IMPLEMENTATION Different module of the system is introduced sequentially.	Good compromise between method 1 and 2	Difficult to achieve due to interdependencies between modules
PILOT SYSTEM Trial implementation occurs before widespread deployment	Essential for multinational and national rollout	Has to be used in combination with other methods.

Technovice Computers (M) Sdn Bhd is a private organization that sells computer related products. The current business process involve selling products directly to consumer when they dropped by the physical store, which is located in Taman Universiti. The existing system is just a typical a database for storing information such as purchased products, product inventory, general customer information, company account, supplier details, and etc.

After putting effort and budget into conducting several market researches, Technovice Computers (M) Sdn Bhd had taken a strategic approach by searching for alternative ways to improve their sales and marketing. Due to the increasing Internet subscribers living in Taman University, building an e-commerce website is a step ahead to stay competitive in the market. However, due to the awareness of consumer trust issues, Technovice Computers (M) Sdn Bhd has taken the initiative to build an

e-commerce website that can increase consumer trust and further improve sales and marketing.

Choosing a suitable implementation method is crucial for a newly established company like Technovice Computers (M) Sdn Bhd. Choosing the wrong one could be a disaster that may result in catastrophe for the company. After reviewing several implementation strategies outlined earlier, the most suitable implementation strategies for deploying a new e-commerce system is the parallel running. Current system can be operated as usual while the e-commerce system can be activated for a period of time depending on consumer acceptance to this new kind of shopping lifestyle.

Immediate publicity and marketing strategies can be taken by sending out flyers and brochures to notify consumer about the new system. If there's a possible error in the system, the system will be shutdown for maintenance and the current process will proceed as usual. It is necessary to allow the new system to be active for about 3 years before the old process can be fully stopped or act as minor operational activities. It is enough periods for consumer to be able to accept this website and also the staff to learn on how to operate and maintain the system.

Table 6.2: Parallel Implementation

System / Process	Years			
	1	2	3	Continues Years
Old business process				<i>Stop Using Old System</i>
Technovice Online Store				

6.3 Change Management

In attempt to apply the chosen implementation strategies, several business changes needs to be undertaken focusing on corporate management aspect. Managing changes requires commitment from all the company's employees to facilitate the

process. There are few main aspects that require attention when changes occur and among them are financial, technology and people.

6.3.1 Financial Aspect

This is the most critical aspect in change management where sufficient financial support can provide long term assurance of business continuity. The use of an IT based system such as e-commerce to increase consumer trust requires an add on amount of IT operational cost to pay for the broadband connection, web hosting service provider, additional SSL digital certificate for privacy purposes, staff training, antivirus software and legal services. Corporate management needs to construct proper company budget and making necessary decisions so that all of these add on cost can be managed effectively.

6.3.2 Technological Aspect

In relation to technological aspect, there are many changes that can be made. The Internet is one of the advanced technologies existed until today that is always evolve from time to time. Businesses and corporate management must equip themselves with appropriate knowledge and best practices about conducting business through online approach. They need to stay ahead in the competition by adapting technological changes according to the current trends suitable for their organizations vision and mission. Security and privacy threat that may influence the perception on consumer trust are the problems result from the vulnerabilities of the Internet upon which the e-commerce system is based. As for that, much effort and budget must be put as preventive measures.

6.3.3 People Aspect

People include the organization's employees and customers, are the group that directly affected when changes occur. Employees need to be trained using the new system or processes while customer needs to be notified about the changes that are being made regarding the company's use of other sales and marketing approach. Finding an effective solution to manage changes in an organization is not a one person's job. Cooperation among the corporate management with their staff and customer are crucial in determining the success of their implementation strategies because the nature of people is that they don't like changes. This new e-commerce system must also increase consumer trust and to achieve this, Technovice Computers (M) Sdn Bhd must take appropriate measures to assess consumer acceptance towards the system and evaluate their opinions to further improve the system according to the customer needs.

6.4 Impact towards the Organization and Study Field

Consumer trust is an important component in the field of e-commerce. As stated earlier, the lack of trust is the main reason consumers are afraid to engage in any e-commerce activities. Online trust is reflected from the uncertainty of risk and threats that involved in the digital world. Building an e-commerce website that integrates consumer trust in its development process, might change consumer perceptions about online trust. As a positive result, this study has successfully achieved these changes where respondent, which act as online shoppers agreed that this prototype can be trusted.

Achieving these changes is the first step on implementing or deploying the e-commerce system in a real world business operation. When the e-commerce system is trust assured, consumer will not hesitate to use it. One of the positive impacts toward the organization is that the e-commerce is capable of increasing sales and marketing. Consumer will have the convenient way to purchased computer products by just staying at home and the purchased item will arrived at their door step

depending on consumer's location. This way of conducting business has proven to increase sales in the United States and UK.

With the deployment of a new e-commerce system, business processes can be improved and simplified. All of the information related to the sales can be kept and updated easily in a single system. From purchasing until delivery, all of these can be done automatically. The company just needs to supervise these ongoing activities with out any interference. Inventory records can be managed effectively as the system stores and display the current stock left in the inventory. Consumer can view their payment and shipping progress that are update daily by just login to their user account. Consumer can also contact the company for any product advice or information by filling out the contact form located in the system. Supplier details are also stored in the system database so that if there is insufficient of supplies occur, supplier can be notified quickly and easily.

The author hope is that this prototype can be a proof of successful implemented guidelines to other researches in the field of e-commerce and human computer studies. The model proposed can provide information on understanding consumer behavior in relation to trust when they engaged in e-commerce. It also explains the measures can be taken by web vendors to improve website trustworthiness and further increase consumer trust toward their website.

6.5 Suggestions on using the guidelines

As indicate throughout the research, the proposed trust mechanisms are intended for web developer generally and e-commerce developer specifically. The proposed mechanisms can be use as a tool and guidelines for building online consumer trust. Below are several suggestions to guide developers and web merchant on using these mechanisms:

1. Search for the latest updates on SSL, SET and S-HTTP technology. Find a reliable and good web host service provider that supports these technology to be adapt to the e-commerce website.
2. When building a B2C e-commerce website, make sure that what ever method or software developers are using, there are room for integrating functions or tools that support consumer to consumer interaction such as user testimonials, customer feedbacks, and forums.
3. Acquire a legal service provider to consult and help in constructing a privacy policy that suits the organizational needs and business objectives. Privacy notices are very important and needs to be understandable and clear.
4. If possible, hire a professional web developer to do the entire web designing job because a professional web design would certainly acknowledge online shoppers regarding web vendor's passion and enthusiasm to conduct business. Creativity and uniqueness is what that makes one's website different from the others.
5. Acquiring a certificate authority (CA) is another advantage that can make online shoppers trusts the website because these company act as a middle person to verify whether a certain website is protected in terms of privacy and security.
6. Always update all the product, vendor and price information in the website on a weekly basis. This is important to notify customer about a promotion or a drop on product price.

6.6 Chapter Summary

This chapter has discussed about the implementation strategies that can be adopted by Technovice Computers (M) Sdn Bhd to accommodate a new e-commerce system into their organization. It is a good step to implement a parallel running strategy for a certain period to allow the organization and its customer in adapting to the changes. When changes are made, it is crucial to manage these changes accordingly and covers necessary aspect such as financial, technological and people.

At the end, few impacts were discussed to point out the benefits of this new system towards the organization and study field.

CHAPTER 7

DISCUSSION AND CONCLUSION

7.1 Achievements

This study has examine and look into several related issues and research field to provide a more understandable and meaningful approach to integrate consumer's trust in building an e-commerce website. The findings in this study have contributed a lot for further phases. The proposed model presented has been used in the study to guide the author in building an e-commerce prototype.

The main questions that needs to be answer later in the study is "How to build an e-commerce website that take into account issues that is associated with consumer trust and the latest technologies to build trust existed today?". The author has managed to answer the question by designing, developing and testing the e-commerce website based on the information found through literature review. The prototype has managed to increase consumer trust and achieve all of the proposed objectives of study.

This study is also recognized by other scholars and academician due to the acceptance of this research paper entitle "Trust Mechanisms: An Integrated Approach for E-Commerce Website Development Process." at the 3rd International Symposium on Information Technology 2008 held in Kuala Lumpur co-sponsored by IEEE.

7.2 Obstacles and Challenges

During the execution of the first half of the project, several obstacles and challenges faced by the author. Although these challenges directly affect the performance of the project progress but it did not affect the author enthusiasm to complete the project according to the time given.

- i) Understanding the concept of human behavior requires a huge amount of time because the author has limited knowledge about research related to human computer interaction studies.
- ii) Insufficient time given to complete the report and prepare for the presentation as the author is committed to other prior commitment such as attending classes.
- iii) There are a lot of literatures that focus on different aspect of trust issue that somehow confused the author on selecting the most relevant to the project.

7.3 Hopes and Expectations

Below are the author's hopes and expectations for this project:

- i) The research conducted hopes to provide small contribution in the area of e-commerce generally and trust in e-commerce specifically.
- ii) This research will hope to guide other researchers to conduct more studies related to consumer trust in e-commerce and finally uncover a more practical solution for this issue.

7.4 Suggestions

- i) The use of flash design to make the prototype look more creative and professional.
- ii) Acquire more respondents to participate in the user testing so that more accurate results can be achieved.

7.5 Conclusion

Overall, all of the chapters in this project are successfully documented and coordinated. Chapter 1 discuss about the planning phase that include problem background, problem statement, research objectives, scope of the project and also the importance of the project. Chapter 2 focuses more on conducting literature review and documented them accordingly. Chapter 3 discussed about the research methodology that is used in this project and activities that are associated with the development phases presented. Chapter 4 presents the research findings and system design while Chapter 5 focused on the implementation and testing. Chapter 6 discussed about few organizational strategies that can be adopted. The author hopes all the information gathered can be implemented properly in finding a practical result and solution for the problem stated at the beginning of the project.

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APPENDIX A





Consumer Validation Online Survey and Result

1. Gender		% of Respondents	Number of Respondents
Male		48.15%	13
Female		51.85%	14
		Number of respondents	27
		Number or respondents who skipped this question	0
2. Educational background		% of Respondents	Number of Respondents
Ph.D		7.41%	2
Master		40.74%	11
Bachelor		44.44%	12
Diploma		7.41%	2
Lower Certificate		0.00%	0
High School Certificate (SPM)		0.00%	0
		Number of respondents	27
		Number or respondents who skipped this question	0
3. Age group (Years Old)		% of Respondents	Number of Respondents
18-24		22.22%	6
25-34		77.78%	21
35-44		0.00%	0
45-54		0.00%	0
55-64		0.00%	0
65 and above		0.00%	0
		Number of respondents	27
		Number or respondents who skipped this question	0
4. Years of Internet experience		% of Respondents	Number of Respondents
Up to 1 year		0.00%	0
2-3 years		0.00%	0

4-5 years		11.11%	3
6-7 years		14.81%	4
8-9 years		25.93%	7
10 or more		48.15%	13


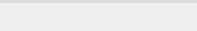

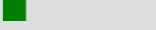

Number of respondents 27

Number or respondents who skipped this question 0

5. Years of buying online		% of Respondents	Number of Respondents
Up to 1 year		40.74%	11
2-3 years		48.15%	13
4-5 years		7.41%	2
6-7 years		3.70%	1
8-9 years		0.00%	0
10 or more		0.00%	0
Never		0.00%	0

Number of respondents 27

Number or respondents who skipped this question 0

6. Frequency of buying online		% of Respondents	Number of Respondents
About once a year		33.33%	9
About once in six month		33.33%	9
About once in three month		3.70%	1
About once a month		25.93%	7
About once a week or more		3.70%	1
Never		0.00%	0

Number of respondents 27

Number or respondents who skipped this question 0

7. Consumers are influenced by the following criteria when it comes to building online trust, please rate the criteria according to its importance.

	Very Important	Important	Average	Not Important	Very Not Important	Number of Respondents
Computer literacy	62% (17)	29% (8)	7% (2)	0% (0)	0% (0)	27
Educational background	25% (7)	40% (11)	25% (7)	3% (1)	3% (1)	27

Buying experience	44% (12)	37% (10)	14% (4)	3% (1)	0% (0)	27
Personality	29% (8)	29% (8)	25% (7)	11% (3)	3% (1)	27
Number of Respondents						27
Number or respondents who skipped this question						0

8. If you visit an e-commerce website that you do not trust, what is your next action?	% of Respondents	Number of Respondents
Leave the website immediately	66.67%	18
Explore more to build my trust	33.33%	9
Take a risk and purchase	0.00%	0
Number of respondents		27
Number or respondents who skipped this question		0

9. A web merchant should have the following characteristics: A web merchant will act for the interests of both parties, a web merchant will act in an honest way, and the belief in the web merchant ability, skills and expertise within a certain domain	% of Respondents	Number of Respondents
Strongly Disagree	3.70%	1
Disagree	0.00%	0
Average	33.33%	9
Agree	44.44%	12
Strongly Agree	18.52%	5
Number of respondents		27
Number or respondents who skipped this question		0

10. When you visit an e-commerce website for the first time, it is easy for me to trust the website straight away.	% of Respondents	Number of Respondents
Strongly Disagree	7.41%	2
Disagree	37.04%	10
Average	48.15%	13
Agree	3.70%	1
Strongly Agree	3.70%	1
Number of respondents		27
Number or respondents who skipped this question		0


11. Stating a clear privacy and security policy can make me trust the e-commerce website.	% of Respondents	Number of Respondents
Strongly Disagree	0.00%	0

Disagree 	3.70%	1
Average 	37.04%	10
Agree 	40.74%	11
Strongly Agree 	18.52%	5

Number of respondents 27

Number or respondents who skipped this question 0




12. The use of a reliable and advanced technology for securing communication channels can make the e-commerce website be trusted.

	% of Respondents	Number of Respondents
Strongly Disagree	0.00%	0
Disagree 	3.70%	1
Average 	22.22%	6
Agree 	48.15%	13
Strongly Agree 	25.93%	7

Number of respondents 27

Number or respondents who skipped this question 0





13. Interacting with previous buyers, reviewing user testimonials and looking into customer feedback can somehow increase my level of trust towards the e-commerce website.

	% of Respondents	Number of Respondents
Strongly Disagree	0.00%	0
Disagree	0.00%	0
Average 	40.00%	10
Agree 	56.00%	14
Strongly Agree 	4.00%	1

Number of respondents 25




Number or respondents who skipped this question 2

14. An e-commerce website with a professional web design (good color, graphic representation and easy to use navigation) can be trusted more rather than a poor website design.

	% of Respondents	Number of Respondents
Strongly Disagree	0.00%	0
Disagree 	22.22%	6
Average 	22.22%	6
Agree 	48.15%	13
Strongly Agree 	7.41%	2





Number of respondents 27

Number of respondents who skipped this question 0

15. According to this study, initial trust (when a person visits an unfamiliar e-commerce website) is influenced by risks that are involved during a business transaction and improper control mechanisms used to protect the information that is being transferred.	% of Respondents	Number of Respondents
Strongly Disagree	0.00%	0
Disagree 	3.70%	1
Average 	37.04%	10
Agree 	59.26%	16
Strongly Agree	0.00%	0




Number of respondents 27

Number of respondents who skipped this question 0

16. Acquiring third party services such as trust seal programs, digital certificate, and etc will make me more confident to purchase a product from an e-commerce website	% of Respondents	Number of Respondents
Strongly Disagree	0.00%	0
Disagree 	7.41%	2
Average 	33.33%	9
Agree 	44.44%	12
Strongly Agree 	14.81%	4

Number of respondents 27





Number of respondents who skipped this question 0

17. Incorporating payment method that uses secure socket layer (SSL), secure electronic transfer (SEL) or any other securing technology such as PayPal, ePay and etc will make me trust the website.	% of Respondents	Number of Respondents
Strongly Disagree	0.00%	0
Disagree	0.00%	0
Average 	25.93%	7
Agree 	48.15%	13
Strongly Agree 	25.93%	7

Number of respondents 27




Number of respondents who skipped this question 0

18. Accurate and updated information about the web vendor (contact, physical location of company) and it's product (pricing, quality, brands) are crucial requirement to increase consumer trust.	% of Respondents	Number of Respondents
Strongly Disagree	0.00%	0

Disagree		3.70%	1
Average		18.52%	5
Agree		55.56%	15
Strongly Agree		22.22%	6

Number of respondents 27

Number or respondents who skipped this question 0

19. In your opinion, is this research still applicable (consumer trust issue has not be resolved)?	% of Respondents	Number of Respondents	
Yes, it does		51.85%	14
No, it doesn't		14.81%	4
Not sure		33.33%	9
Really don't know		0.00%	0

Number of respondents 27

Number or respondents who skipped this question 0

APPENDIX B
User Testing Questionnaires



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PROTOTYPE TESTING

This survey is meant for testing the prototype of my master research title INTEGRATING CONSUMER TRUST WHEN BUILDING AN E-COMMERCE WEBSITE. All of the questions in this survey are related to the research conducted.

Abstract

The lack of consumer trust is one of the focused issues today as the world is moving towards advanced information and technology era. This research aims to find a practical solution on how to integrate trust during the design and development process of an e-commerce website. This research found that there are six categories of mechanisms and technologies that web merchants can utilize in order to integrate trust in their website. It will provide guidelines for web merchants to understand about consumer trust in order for them to build a secured and trusted e-commerce website.

Instructions:

1. Visit this URL: <http://technovice.shop.tn> (recommend to use IE browser)
2. Register an account and login using your registered account.
3. Feel free to explore the website's functionalities while answering the questions.
4. Make a dummy purchase using any of the payment options (except PayPal).
5. If your actions could not be executed, please refresh the page (click F5)

This website is just a prototype (*with limited functionalities and products*) to help support the findings in the research conducted. Please do not expect that all the functions work properly. The main focused that needs to be underline here is consumer trust towards this website. Feel free to explore this website and try to inspect all the features that can lead to building your online trust.

Please read all the instruction in each section before you answer the questions. It is important to provide you with sufficient information before proceeding to the questions.

SECTION A: DEMOGRAPHIC AND FIRST TRUST IMPRESSION

Please answer all the questions in this section. Tick (√) in the boxes given

1. Gender

Male	Female

2. Age group (years old)

18-24	25-34	35-44	45-54	55-64	65 & above

3. Years of Internet experience

Up to 1 year	2-3 years	4-5 years	6-7 years	8-9 years	10 or more

4. Years of buying/purchasing online

Up to 1 year	2-3 years	4-5 years	6-7 years	8-9 years	10 or more

5. Frequency of buying/purchasing online.

Once a year	Once in 6 month	Once in 3 month	Once in a month	Once in a week	Never

6. The following features are usually look for in an e-commerce website to make people trust the website. Please rate according to its important. (1 is very important and 5 is not important).

Features/Element	Scale				
	Important			Not Important	
	5	4	3	2	1
1. <i>Product and Vendor information</i>					
2. <i>Secure communication channel mechanisms used</i>					
3. <i>Past user testimonials/review</i>					
4. <i>Privacy policy</i>					
5. <i>Professional web design</i>					
6. <i>Trust seals</i>					

7. Please indicate your level of trust when you first lay eyes on this website (haven't explored yet).



SECTION B: WEB DESIGN AND FUNCTIONS

Please answer all the questions in this section according to the given scale (1 is strongly agree and 5 is strongly disagree) while exploring the prototype.

Questions	Scale					
	S. Agree			S. Disagree		
	5	4	3	2	1	I don't know
8. <i>The web layout constructed is very professional.</i>						
9. <i>Well-chosen colors to match the overall design.</i>						

<i>10. Good selection of graphics and images to enhance the overall design and make the website looks professional.</i>						
<i>11. Easy to use website navigation functionalities.</i>						
<i>12. Products are represented using quality and nice images to let consumer feel like a real shopping experience.</i>						
<i>13. The use of font, text and its size is suitable with the overall design.</i>						
<i>14. Products are easily searched.</i>						
<i>15. Clear and understandable information presented in the website.</i>						
<i>16. It is important to have a well-constructed and professional web design to enhance consumer trust.</i>						

SECTION C: SECURING COMMUNICATION CHANNELS

Please answer all the questions in this section according to the given scale (1 is strongly agree and 5 is strongly disagree) while exploring the prototype.

Questions	Scale					
	S. Agree			S. Disagree		
	5	4	3	2	1	I don't know
<i>17. If I forgot my password, my password is sent securely through my email.</i>						
<i>18. This website is protected with SSL certificate provided by VeriSign</i>						
<i>19. It is very important to verify the VeriSign seal first to determine that this website is really secure.</i>						
<i>20. There are several payment methods that use a secure approach that I can choose.</i>						

<i>21. I'm familiar with all the payment method and have used them before to purchase a product.</i>						
<i>22. The payment options are clearly identified throughout the website (images and logos are shown).</i>						
<i>23. It is important to have an advance and latest technologies for securing communication channels to build consumer trust.</i>						

SECTION D: STATING A CLEAR POLICY

Please answer all the questions in this section according to the given scale (1 is strongly agree and 5 is strongly disagree) while exploring the prototype.

Questions	Scale					
	S. Agree			S. Disagree		
	5	4	3	2	1	I don't know
<i>24. I always read all the content in the privacy notice and terms & conditions first before proceed to other section.</i>						
<i>25. The statement about protecting my privacy is clearly defined in the privacy notice page.</i>						
<i>26. All the terms and conditions regarding the usage of this website are stated clearly.</i>						
<i>27. The privacy policy provides me with the details on what information is used and kept and how they are being used.</i>						
<i>28. All the information in the terms & conditions are related to the usage of this website.</i>						

29. <i>It is important to have an understandable and clearly privacy policy to increase consumer's trust.</i>						
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SECTION E: ACQUIRING A THIRD PARTY SERVICES

Please answer all the questions in this section according to the given scale (1 is strongly agree and 5 is strongly disagree) while exploring the prototype.

Note: VeriSign is a certificate authority (CA) that has the authorization to issue a secure socket layer (SSL) certificate. There are several other CA in the market today such as Truste, GoDaddy, Comodo, and etc. For more info, please visit VeriSign website to learn more.

Questions	Scale					
	S. Agree			S. Disagree		
	5	4	3	2	1	I don't know
30. <i>I'm confident that when I see VeriSign logo, this website is secured.</i>						
31. <i>This is not my first time seeing a VeriSign trust seal in an e-commerce website.</i>						
32. <i>I am familiar with how VeriSign protect my information from eavesdropping.</i>						
33. <i>It is important for an online store to acquire a third party services to build consumer trust.</i>						

SECTION F: CONSUMER REVIEWS/COMMENTS

Please answer all the questions in this section according to the given scale (1 is strongly agree and 5 is strongly disagree) while exploring the prototype.

Questions	Scale					
	S. Agree			S. Disagree		
	5	4	3	2	1	I don't know
34. <i>The function for user to make a comment on a product will help convince new customer to buy from this website.</i>						
35. <i>It is important to have a user comment in an e-commerce website.</i>						

SECTION G: PROVIDING ACCURATE VENDOR & PRODUCT DETAILS

Please answer all the questions in this section according to the given scale (1 is strongly agree and 5 is strongly disagree) while exploring the prototype.

Questions	Scale					
	S. Agree			S. Disagree		
	5	4	3	2	1	I don't know
36. <i>Information related to the vendor (company) is shown clearly (address, contact info, location)</i>						
37. <i>Customer service hotline information is shown clearly.</i>						
38. <i>Product's information is presented in details and in an understandable manner.</i>						
39. <i>Product information and details are convincing.</i>						
40. <i>Product pricing is presented clearly and with no confusion what so ever.</i>						
41. <i>I can clearly identify the product that are on-sale or under promotions.</i>						
42. <i>Product images are related to the product information.</i>						

43. *It is important to have accurate and updated vendor and product information to induce consumer trust level.*

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44. After you have explored the website and its content, please indicate your level of trust. Tick (✓) the boxes given.

LESS TRUST MORE TRUST

0%
 1-29%
 30-59%
 60-89%
 90-100%

END OF SURVEY. THANK YOU.