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College of Informatics
Graduate School of Information Management
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A Study of Factors Affecting Consumer’s Online Purchasing Behavior in Vietnam

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Abstract

E-commerce has brought positive impacts to the business activities of enterprises. However, the applying e-commerce for enterprises remains some certain obstacles. Therefore, the purpose of this study is to analyze the factors that influence customer’s online purchasing behavior in Vietnam in order to offer solutions to help enterprises of Vietnam to develop their e-commerce activity.

In this study, I apply the e-Commerce Adoption Model (e-CAM) which analyses impact of the following factors on the consumer’s purchasing behavior: perceived ease of use, perceived usefulness, perceived risk with products/services, and perceived risk in the context of online transaction. Besides, this study proposes the perceived convenience of payment factor to the research model due to the consumer’s awareness of online payment method in Vietnam.

After discussing as well as interviewing experts on this field, this model was built. Then in order to examine the proposed model, a survey will be conducted by delivering and sending email questionnaires to consumers who have used or intend to participate in e-commerce transactions. Data will be analyzed by using SPSS software. The results reveal that there are three factors affecting purchasing behavior are playing different role on the different levels of purchasing behavior.

Keywords: Purchasing Behavior, Consumer Attitude, E-commerce, E-commerce, Adoption Model, Technology, B2C, Software and Management Solution
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Chapter 1 Introduction

1.1 Research Background

Even though the Internet has existed for several decades, electronic commerce (e-commerce) has become a reality only with the development of the World Wide Web (www) and its associated technologies (Napier et al., 2001). E-commerce has been defined as the process of buying, selling, transferring, or exchanging products, services, and/or information via computer networks, including the Internet (Turban et al., 2004). In increasing level of sophistication, the company can use the internet to manage information and integrating electronic commerce into reengineered business processes. Clearly, the arrival of electronic commerce to the world of business has facilitated a shift from the mass labor paradigm of past decades to a knowledge worker paradigm that is likely to dominate the economy for the future (Mirchandani et al., 2001). Among the benefits to organizations, it has been suggested that e-commerce can reduce the cost of doing business, improve product quality, reach new customers or suppliers, and create new ways of selling existing products (Napier et al., 2001).

Vietnam is one of the country has impressive ICT’s growth in recent years. Almost all indexes of Vietnam in the world ICT 2009 ranking increased by 15.0, became one of 10 fastest countries in the world in developing ICT, a considerable advance for Vietnam’s ICT industry (Vietnam ICT Report, 2009). According to the VNNIC report (2009) Vietnam has about 21 millions of Internet Users, 25% of the population. Thus this country is a very big and potential market for Information Technology (IT) industry in general and for e-commerce in particular.

The level of applying e-commerce in an enterprise is shown clearly through business process include of order, payment and delivery.

According to the statistic of the Ministry of Industry and Trade in 2008, 87.7% of businesses receiving orders by one of the electronic media consist of website, email, fax or phone. The most used vehicle is phone (74.3%) and fax (73.6%), then is email (65%).
Only 18.6% of businesses receive orders via website. This is a modest figure compared to the rate of 45.3% of businesses have websites in 2008 (Vietnam E-Commerce Report 2008).

Needs to find information of businesses and products of Internet users is very high, the traffic to the website of purchasing and introducing products also increased rapidly. However, we could see that the majority of consumers still only use the website as reference tool and comparing the prices, not eager to purchase online. This reflects that consumers have not really believed in online shopping in Vietnam. For B2C e-commerce development, one of the key tasks is to help e-commerce websites having the trust of consumers (Vietnam E-Commerce Report 2008).

E-commerce cannot develop totally and highest efficiency without electronic payment. According to statistics of the results of recent trade, 74.1% of businesses using the method of paying cash when delivered, 74.8% of businesses to accept payment method of bank transfer and only 25% of businesses paying by mail. From 2007 to now, a lot of payment service provider is established and developed. However, the proportion of cash payments is still high and the percentage of online payments is still low. The number 3.5% of online payment method is very low compared to the world and the payment demand of e-commerce (Vietnam E-Commerce Report 2008).

Delivery is the last but equally important in business processes, especially for B2C transactions. According to a recent survey result, 55.4% of businesses have delivery teams, 49.9% of businesses allow customers to pick up at establishment, 25.8% of businesses set up forwarding agents and 12.8% delivery by mail. It can see the delivery services businesses still focus on self-organization or allowing customers to pick up at establishment (Vietnam E-Commerce Report 2008).

According to the statistics in 2008, 89.9% websites for business introduction, 85.9% website for advertising products and services, 38% website having ordering function and 3.5% website supporting online payment.
For those enterprises with e-commerce website, although the result of online business is not high compared to direct sales but also has made certain development. According to the statistic if enterprises having e-commerce website selling electronic products, in 2008, the number of customers access to these sites tend to rise, lead to the number of online orders and revenue of this website is also growing steadily.

The above figures are very modest results but it has represented the reality of information technology and e-commerce of small and medium enterprises in Vietnam.

1.2 Research Motive

E-commerce has brought positive impacts to the business activities of enterprises. However, the applying e-commerce for enterprises remains some certain obstacles. Survey data related to obstacles in applying e-commerce shown that the biggest obstacle affect to effective applying e-commerce of enterprises in the past year is "Awareness of people and businesses of e-commerce is still low". However, along with the development of Internet and the explosion of e-commerce sites today, buying habits of consumers are also changing. Moreover, people's living conditions have also increased significantly. Therefore need research on consumer attitudes for e-commerce services to help enterprises satisfy better to the increasing needs of consumers.

The second obstacle when applying e-commerce of enterprises is online payment system. This is contrary to the fact that since 2007 many online payment solutions have been deployed. The integrated online payment system on site is not too difficult in terms of technology and technical problems, so what is the online payment obstacle. The system is ready, if consumer is not enough trust and habit to adopt this new payment method?

Therefore need to study the factors affecting the customer's behavioral intention to use e-commerce service in Vietnam to suggest solutions to help enterprises of Vietnam to develop their e-commerce activity.

In this study, we apply the e-Commerce Adoption Model (e-CAM), which is derived from the theoretical foundations of prior research in the theories of perceived
risk as well as the technology acceptance model (TAM). This model analyses impact of the following factors on the consumer’s purchasing behavior: perceived ease of use, perceived usefulness, perceived risk with products/services, and perceived risk in the context of online transaction. Besides, the actual use of online payment method in Vietnam as described above should have studied the view of consumers to this electronic payment method to help businesses have solutions in time for this payment method in their e-commerce activities. So, this study proposes the perceived convenience of payment factor to my research model.

In Vietnam, there had also previous researches on consumer attitudes to e-commerce but in the early development stages of e-commerce. These studies was not suitable to the unceasing development of the Internet today, the Internet popularization to every household, as well as consumer awareness has increased significantly compared to the earlier period. Therefore need of new research to help enterprises to capture consumer attitudes to e-commerce services to take the appropriate development steps to their enterprises.

1.3 Research Purpose

The purpose of this research is to analyze the factors affecting customer's behavioral intention to use e-commerce in Vietnam. Because time is limited research, this study only research user awareness (including who has used or intends to participate in e-commerce transactions) on B2C e-commerce activities (business to consumer) in order to suggest solutions to help Vietnam enterprises developing their e-commerce business operations.

1.4 Research Procedure

Like many other researches, first, the research was begun with the determination of the managerial dilemma. Then, the research purpose was identified. The next step is to determine research purpose. After that, the literature review will be done and focused on the definition of the factors affects on consumer’s online purchasing behavior in
Vietnam and apply E-commerce Adoption Model in the research in order to theoretical foundation for the research.

After discussing as well as interviewing experts on this field, the research model was built. Then in order to examine the proposed models, a survey will be conducted by delivering and sending email questionnaires to consumers. Data will be analyzed by using SPSS software.

The last section presents the results and provides the discussion.
Chapter 2 Literature Review

2.1 E-commerce Overview

2.1.1 E-commerce Concept

There are nearly as many definitions of e-commerce as there are contributions to the literature. Turban et al. (2002) define e-commerce as “an emerging concept that describes the process of buying, selling or exchanging services and information via computer networks”. Choi et al. (as cited in Turban et al.) draw a distinction between what they term pure e-commerce and partial e-commerce. According to Choi et al., pure e-commerce has a digital product, a digital process, and a digital agent. All other interactions (including those that might have one or two of the three nominated by Choi et al.) are termed partial e-commerce. Raymond (2001) defines e-commerce as “functions of information exchange and commercial transaction support that operate on telecommunications networks linking business partners (typically customers and suppliers).” Damanpour (2001), in comparison, defines e-commerce as “any ‘net’ business activity that transforms internal and external relationships to create value and exploit market opportunities driven by new rules of the connected economy.”

According to Bidgoli (2002), e-commerce builds on traditional commerce by adding the flexibility offered by computer networks and the availability of the Internet. By generating and delivering timely and relevant information through computer networks, e-commerce creates new opportunities for conducting commercial activities online, and thus it fosters easier cooperation between different groups: branches of a multinational company sharing information for a major marketing campaign; companies working together to design and build new products or offer new services; or businesses sharing information to improve customer relations.
2.1.2 E-commerce versus traditional commerce

Although the goals and objectives of both e-commerce and traditional commerce are the same - selling products and services to generate profits - they do it quite differently. In e-commerce, the Web and telecommunications technologies play a major role. In e-commerce there may be no physical store, and in most cases the buyer and seller do not see each other.

However, it is important to notice that currently many companies operate with a mix of traditional and e-commerce. Just about all medium and large organizations have some kind of e-commerce presence. The Gap, Toys-R-Us, Wal-Mart Stores, and Sears are a few examples. (Bidgoli, 2002)

2.1.3 Major categories of e-commerce

The several categories of e-commerce in use today are classified based on the nature of the transactions, including business-to-consumer (B2C), business-to-business (B2B), consumer-to-consumer (C2C), consumer-to-business (C2B), and non-business and government, and organizational (Intra-business). (Bidgoli, 2002)

- Business to Customer: In B2C e-commerce, businesses sell directly to consumers. Amazon.com, barnesandnoble.com, and Onsale.com are three good examples of this category. vatgia.com, thegioididong.com are examples in Vietnam.

- Business to Business: B2B involves electronic transactions among and between businesses. In recent years the Internet has significantly increased B2B transactions and has made B2B the fastest growing segment within the e-commerce environment. The reliance of all businesses upon other companies for supplies, utilities, and services has enhanced the popularity of B2B e-commerce. An example of B2B is an auto exchange formed by Ford, Daimler Chrysler, and General Motors.

- Consumer to Consumer: The C2C category involves business transactions among individuals using the Internet and web technologies. Using C2C,
consumers sell directly to other consumers. For example, through classified ads or by advertising, individuals sell services or products on the Web or through auction sites such as ubid.com. EBay.com is a good example of a C2C e-commerce company. Using this web site, consumers are able to sell a wide variety of products to each other.

- Consumer to Business: Consumer-to-business (C2B) e-commerce involves individuals selling to businesses. This may include a service or product that a consumer is willing to sell. In other cases an individual may seek sellers of a product and service. Companies such as priceline.com, travelbid.com, and mobshop.com for travel arrangements are examples of C2B. Individuals offer certain prices for specific products and services.

- Nonbusiness and Government: The e-commerce applications in government and many nonbusiness organizations are on the rise. Several government agencies in the United States have been using e-commerce applications for several years, including the Department of Defense, Internal Revenue Service, and the Department of Treasury. Universities are using e-commerce applications extensively for delivering their educational products and services on a global scale. Not-for-profit, political, and social organizations also use e-commerce applications for various activities, such as fundraising and political forums. These organizations also use e-commerce for purchasing (to reduce cost and improve speed) and for customer service.

- Organizational (Intrabusiness): Organizational or intrabusiness e-commerce involves all the e-commerce-related activities that take place within the organization. The organization intranets provide the right platform for these activities. These activities may include exchange of goods, services, or information among the employees of an organization. This may include selling organization products and services to the employees, conducting training programs, offering human resources services, and much more. Although they are not direct selling and buying, some of these activities provide support for a
successful e-commerce program in human resources management, finance, and marketing.

2.1.4 Advantages and Disadvantages of E-commerce

According to Bidgoli (2002), similar to traditional businesses, e-commerce presents many advantages and disadvantages. In the e-commerce world, doing business around the globe 7 days a week, 24 hours a day is a reality. Customers in any part of the world with an Internet connection can log onto the e-commerce site and order a product or service. Holidays, weekends, after hours, and differences in time zones do not pose any problem.

Using various tools such as cookies, e-mail, and the company web site, the e-commerce site is able to gain additional knowledge about potential customers. This knowledge could be effectively used to better market products and services. For example, the e-business would know the customer preferences, shopping habits, gender, age group, and so forth.

In the e-commerce environment, customer involvement could be significantly improved. For example, the customer can provide an online review of a book that he or she has recently purchased from the e-commerce site. Or the customer may participate in various open forums, chat groups, and discussions.

An e-commerce site, by using tools such as an online help desk, company web sites, and e-mail is able to improve customer service. Many of the customers’ questions and concerns are answered using these tools with minimum cost. Printing forms online, downloading software patches, and reviewing frequently asked questions (FAQs) are other examples of customer service.

A B2B e-commerce site can improve its relationships with suppliers. E-commerce technologies enable these businesses to exchange relevant information on a timely basis with minimum cost. Using B2B e-commerce assists businesses in managing a comprehensive inventory management system. An e-commerce site can improve its
relationships with the financial community through the timely transfer of business transactions and a better understanding of the business partner’s financial status.

Increased flexibility and ease of shopping is a significant advantage of e-commerce. The customer does not need to leave his or her home or office and commute to purchase an item. The customer does not need to look for parking in a shopping mall during holidays, nor risk losing the supervision of his or her small children (for even a short period) or elderly relatives. Shopping tasks can be done from the privacy of the home with a few clicks of mouse!

An e-business or a traditional business with an e-commerce presence could increase its potential customers. Customers from remote locations and those outside of the business’s geographical boundaries can purchase products and services from the e-commerce site.

In many cases an e-commerce site should be able to increase return on capital and investment since no inventory is needed. An effective e-commerce program is able to operate with no inventory or with minimum inventory. In some cases an e-commerce site serves as middleman, taking orders from customers, routing orders to suppliers, and making a profit. In other cases an e-commerce site is able to maintain minimal inventory and fill customers’ orders through a JIT inventory system. By having no or minimal inventory, the e-commerce site could avoid devaluation in inventory due to the release of a new product, change in fashion, season, and so forth.

In many cases an e-commerce site by using various web technologies is able to offer personalized service to its customers and at the same time customize a product or service to suit a particular customer. By collecting relevant information on different customers, a particular product or service could be tailor-made to customer taste and preference. In some cases, the customer may pick and choose, as in sites that allow the customer to create his or her own CD, travel plan, PC, automobile, and so forth.

Many of the disadvantages of e-commerce are related to technology and business practices. These disadvantages should be resolved in the near future. Possible capacity
and bandwidth problems could be a serious problem; however, several projects are underway to resolve this issue in the near future.

Security issues are major concern for many consumers. Security issues and measures are expected to improve in coming years, through the use of media other than credit cards on the Web, such as e-Wallet, e-cash, and other payment systems (discussed further in Chapter 6), acceptance of digital signatures, more widespread application and acceptance of encryption technology, and greater awareness and understanding of customers’ concerns.

The accessibility of customers issue will certainly become more manageable, as the number of Internet users increases daily. Also, the reduction in cost of PCs, handheld, and other Internet appliances should further increase Internet applications and result in further accessibility of e-commerce.

Similar to other technologies, acceptance of e-commerce by the majority of people will take time. However, the growth of the Internet and of online shopping points to further acceptance of e-commerce applications in the near future. When the technology is fully accepted, a company’s e-business strategies and goals will also become better understood.

2.2 A Business - to - Customer E-commerce Cycle

Bidgoli (2002) showed that, there are five major activities involved in conducting B2C e-commerce:

- Information sharing: A B2C e-commerce model may use some or all of the following applications and technologies to share information with customers:
  - Company web site
  - Online catalogs
  - E-mail
  - Online advertisements
- Ordering: A customer may use electronic forms (similar to paper forms, available on the company’s web site) or e-mail to order a product from a B2C site. A mouse click sends the necessary information relating to the requested item(s) to the B2C site. Figure 2-6 is a screen from the Amazon.com electronic order form.

Figure 1. Major activities for business-to-consumer e-commerce

Source: Bidgoli (2002)
- Payment: The customer has a variety of options for paying for the goods or services. Credit cards, electronic checks, and digital cash are among the popular options.

- Fulfillment: The fulfillment function could be very complex depending upon the delivery of physical products (books, videos, CDs) or digital products (software, music, electronic documents). It also depends on whether the e-business handles its own fulfillment operations or outsources this function to third parties. In any case, fulfillment is responsible for physically delivering the product or service from the merchant to the customer. In case of physical products, the filled order can be sent to the customer using regular mail, FedEx, or UPS. The customer usually has the option to choose from these various delivery systems. Naturally for faster delivery, the customer has to pay additional money. In case of digital products, the e-business uses digital certificates to assure security, integrity, and confidentiality of the product. It may also include delivery address verification and digital warehousing. Digital warehousing stores digital products on a computer until they are delivered. Several third-party companies handle the fulfillment functions for an e-business with moderate costs.

- Service and support: Service and support are even more important in e-commerce than traditional businesses because e-commerce companies lack a traditional physical presence and need other ways to maintain current customers. It is much cheaper to maintain current customers than to attract new customers. The following are some examples of technologies and applications used for providing service and support:
  
  - E-mail confirmation
  - Periodic news flash
  - Online surveys
  - Help desk
  - Guaranteed secure transactions
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- Guaranteed online auctions

E-mail confirmation, periodic news flash, and online surveys may also be used as marketing tools. E-mail confirmation assures the customer that a particular order has been processed and that the customer should receive the product or service by a certain date. In most cases, the e-mail confirmation provides the customer with a confirmation number that the customer can use to trace the product or service.

Periodic news flash is used to provide customers with the latest information on the company or on a particular product or offering. Although online surveys are mostly used as a marketing tool, their results can assist the e-commerce site to provide better services and support to its customers based on what has been collected in the survey.

Help desks in the e-commerce environment are used for the same purpose as in traditional businesses. They provide answers to common problems or provide advice for using products or services.

Guaranteed secure transactions and guaranteed online auctions assure customers that the e-commerce site covers all the security and privacy issues. These services are extremely important because, as mentioned earlier, many customers still do not feel comfortable conducting online business.

2.3 Technology Acceptance Model - TAM

Technology adoption research has flourished in recent years. Currently, the most effective tool to describe adoption is the technology acceptance model (Davis, 1989). TAM was developed to explain and predict computer-usage behavior. It has its theoretical grounding in Fishbein and Ajzen’s (1975) theory of reasoned action (TRA) which stated that beliefs influence attitudes, which lead to intentions, and finally to behaviors. The TRA introduced two independent determinants, attitude toward behavior and subjective norm, which are tied to behavioral and normative beliefs. Attitude toward behavior refers to the degree that an individual has a positive or negative
reaction toward a specific behavior. Normative beliefs consider the probability that important persons or groups approve or disapprove of performing a specific behavior. According to the TRA, individuals’ attitudes towards behaviors are determined by their most important beliefs and the consequences of performing specific behaviors. As Fishbein and Ajzen (1975) demonstrated through their theory, behavior is best predicted by intentions, and “intentions are jointly determined by the person’s attitude and subjective norm concerning the behavior”.

The theory of planned behavior (TPB) modifies the TRA by incorporating the construct “perceived behavioral control” to address situations in which individuals lack substantive control over a specific behavior (Ajzen, 1991). The TPB suggests that behavior can be explained by behavioral intention, which is influenced by attitude, subjective norms, and perceived behavioral control. As the TPB was based on the TRA, the determinants attitude and subjective norm are defined in similar ways. Perceived behavioral control is the determinant that is unique to the TPB and refers to an individual’s perception of whether or not the requisite resources or opportunities are present to perform a behavior (Ajzen & Madden, 1986). The TAM adapts these theories of belief, attitude, intention, and behavior into an information technology (IT) acceptance model (see Figure 2).

![Figure 2. Davis’s Technology Acceptance Model](source: Davis & Venkatesh 1996)
According to Davis, Bagozzi, and Warshaw (1989), “the goal of TAM is to provide an explanation of the determinants of computer acceptance that in general is capable of explaining user behavior across a broad range of end-user computing technologies and user populations, while at the same time being both parsimonious and theoretically justified”. The major determinants are defined by Davis (1989) as perceived usefulness and perceived ease of use. Perceived usefulness is “the degree to which a person believes that using a particular system would enhance his or her job performance,” and perceived ease of use is “the degree to which a person believes that using a particular system would be free of effort”. While perceived usefulness has been identified consistently in the literature as significant in attitude formation (Agarwal & Prasad, 1999; Davis, 1989), the evidence for perceived ease of use has been inconsistent. For perceived usefulness and for perceived ease of use antecedents have been suggested including information quality (Lin & Lu, 2000), enjoyment (Teo, Lim, & Lai, 1999), and risk (Lee et al., 2001).

To date there has been limited but promising use of the TAM to predict web technology adoption by consumers (Chen et al., 2002) found that both perceived usefulness and perceived ease of use predicted web use for work related tasks. In addition, their work suggested that information quality also predicted adoption of web technology at work. Teo et al. (1999) reported similar results: Both perceived usefulness and perceived ease of use predict Internet use at work. They also found that perceived enjoyment or playfulness was a significant antecedent of Internet use. In one of the first applications of the TAM to consumer web adoption, Lee et al. (2001) found that the TAM predicted individual purchasing behavior online. They also showed that perceived risk affects perceived usefulness. They admitted their model is incomplete, however, and suggested it misses important factors such as demographic and type of product measures. Magal and Mirchandani (2001) found that the TAM predicted time and frequency of web use. Chen et al. (2002) found the TAM is effective in evaluating online shopping at a particular “virtual” on-line store. Childers et al. (2001) also found the TAM predicted attitude toward online shopping.
Based on empirical evidence, the attitude construct (A) was left out from the original TAM model (Davis et al. 1989) because it did not fully mediate the effect of PU on behavioral intention (BI) (Venkatesh 1999). In addition, several studies (Fenech 1998; Gefen and Straub 1997; Igbaria et al. 1997; Lederer et al. 2000; Straub et al. 1995; Teo et al. 1999) have disregarded the effect of PEU/PU on the attitude (A) and/or BI. Instead, they focus on the impact of PEU and/or PU directly on the actual system usage. As our research focuses on consumers’ actual usage on e-Commerce, Park et al (2004) adapted the TAM model by dropping some constructs (i.e., A and BI), as illustrated in Figure 3.

Figure 3. Adapted TAM on the Adoption of E-commerce.


Consumers can access thousands of online sites and purchase anything from groceries to books and cars without traveling to a store site or adjusting their schedules around the store’s hours. Recognizing that customers may want products/services delivered as soon as possible, many e-Commerce sites offer next day or second-day delivery. Furthermore, e-Commerce consumers can view catalogs of different products/services and read extensive information detailing their features and performance while information acquisition was time-consuming and difficult prior to the outset of the Internet. Therefore, we recognize ease of information search, ease of ordering, ease of using customer service, and overall ease of use as consumers (PEU). In addition, we measure PU by the following factors: saving of money, saving of time, vast selection of products/services, and overall usefulness (Park, Lee, Ahn, 2004).
2.4  E-commerce Adoption Model - e-CAM

Since Bauer (1960) first proposed that consumer behavior be seen as risk taking, valuable empirical research studies have attempted to identify various types of perceived risk in the context of consumers’ purchase behavior.

- Perceived Risk with Product/Service

Cox and Rich (1964) refer to perceived risk as the overall amount of uncertainty perceived by a consumer in a particular purchase situation. Jacoby and Kaplan (1972) classified consumers’ perceived risk into the following five types of risk: physical, psychological, social, financial, and performance (functional). Chaudhuri (1998) stated that low levels of perceived risk in products are related to high levels of positive feelings during consumption. Sweeney et al. (1999) defined perceived risk as the subjective expectation of a loss and included financial and performance risk, which can be viewed as an expectation of a future cost.

As we cannot directly see or touch a product/service in the electronic market, the product/service delivered to consumers may not perform as expected. In addition, consumers may bear the expenses such as shipping and handling when returning or exchanging the product/service. Among the five risk types that Jacoby and Kaplan propose, we recognized functional loss and financial loss as risk types related to a product/service. Further, we may waste time, convenience, and effort getting it adjusted or replaced when purchased products/services fail. Although time is non-monetary effort and varies among individuals, we recognize time as a cost that consumers must pay for products/services (Sweeney et al. 1999). After purchasing a product/service over the Internet, consumers may find a product/service of equal or higher quality at a lower price. Thus, we recognized another perceived risk, opportunity loss, which is the risk that by taking one action a consumer will miss out on doing something else he/she would really prefer to do (Park et al. 2004).

Finally, Park et al (2004) define perceived risk with product/service (PRP) as the overall amount of uncertainty or anxiety perceived by a consumer in a particular
product/service when the consumer purchases online. Further, they identify five types of PRP: functional loss, financial loss, time loss, opportunity loss, and overall perceived risk with product/service.

- Perceived Risk in the Context of Online Transaction

Several research studies on the context of online transaction (Hoffman et al. 1999; Jarvenpaa and Tractinsky 1999; Swaminathan et al. 1999) suggest that the consumer’s confidence or trust will be improved by increasing the transparency of the transaction process, keeping to a minimum the personal data required from the consumer, and making clear the legal status of any information provided. Bhimani (1996) suggests the fundamental requirements for e-Commerce that satisfy the following security issues: authentication, authorization, availability, confidentiality, data integrity, non-repudiation, and selective application services. Swaminathan et al. assert that consumers evaluate online vendors before they do online transactions and therefore vendors’ characteristics play an important role in facilitating the transaction. Rose et al. (1999) state that if people do their transactions with dishonest merchants or if sensitive information is stored on unsecured databases, security threats exist even where data is perfectly secure in transmission (Park et al. 2004)

Therefore, Park et al (2004) define perceived risk in the context of online transaction (PRT) as a possible transaction risk that consumers can face when exposed to electronic means of doing commerce. Finally, four types of PRT are identified as follows: privacy, security (authentication), non-repudiation, and overall perceived risk on online transaction.
Park et al (2004) proposed e-Commerce Adoption Model (e-CAM), is derived from the TAM model and theories of Perceived Risk described in the preceding sections. E-CAM suggests that PEU, PU, PRP, and PRT will have impact on the consumer’s adoption of e-Commerce.
Chapter 3 Research Methodology

3.1 Research Model

The purpose of this study is to examine the influence of factors on customer purchasing behavior of e-commerce services, and give the recommendations to businesses after researching. This study explores the relationship between factors consist of Perceived Ease of Use (PEU), Perceived Usefulness (PU), Perceived Risk in the context of Transaction (PRT), Perceived Risk with Product/Service (PRP) and Perceived Convenience of Payment (PCP) to the Purchasing Behavior. Based on the Technology Acceptance Model (TAM) and the e-Commerce Adoption Model (e-CAM) as mentioned in the literature review and practical situation of payment habits in Vietnam, this study proposes a research model as shown in Figure 6:

![Research Model Diagram](image)

Figure 6. Research Model

In this research model, I propose dropping the perceived ease of use - perceived usefulness link. Many workplace technology adoption studies (Keil, Beranek, &
Konsynski, 1995; Lederer et al., 2000) have found this to be the least significant relationship, and in consumer e-commerce adoption this link is also dropped where it is argued that web tools are exceptionally easy to use (Childers et al., 2001; Magal & Mirchandani, 2001).

The payment of e-commerce is a big obstacle in Vietnam as presented above. Therefore, I also propose the Perceived Convenience of Payment factor in my research model.

3.2 Research Hypotheses

As the research model of this study has been established and based on study purposes as well as literature review, the hypotheses of this study were developed.

H1: Perceived Usefulness factor positively influences Purchasing Behavior
H2: Perceived Ease of Use factor positively influences Purchasing Behavior
H3: Perceived Risk in the context of Transaction factor negatively influences Purchasing Behavior
H4: Perceived Risk with Product/ Service factor negatively influences Purchasing Behavior
H5: Perceived Convenience of Payment factor positively influences Purchasing Behavior

3.3 Measurement of Variables

There are six variables concerned in this study: the Perceived Usefulness, the Perceived Ease of Use, the Perceived Risk in the context of Transaction, the Perceived Risk with Product/ Service, the Perceived Convenience of Payment and Purchasing Behavior. This sector will discuss the operational measurement approaches to those constructs.

I have used the group discussion technique with experts, business staffs and technicians who are working in the field of Information Technology and have
participated in e-commerce transactions. The issues discussed are the comments on the factors affecting the customer purchasing behavior to e-commerce, including Perceived Ease of Use (PEU), Perceived Usefulness (PU), Perceived Risk in the context of Transaction (PRT), Perceived Risk with Product/Service (PRP) and Perceived Convenience of Payment (PCP) to the Purchasing Behavior (PB). The result is shown in the appendix 1.

3.3.1 Perceived Usefulness Factor

By adopting measurement scales from the group discussion result and e-commerce expert’s suggestions as references which response well to the objectives of this study, this study summarizes the items of measurement in Perceived Usefulness factor as those shown in the Table 1. All of the item measure will be using 7-point scale: Strongly disagree, disagree, somewhat disagree, neutral, somewhat agree, agree and strongly agree.

<table>
<thead>
<tr>
<th>Variable</th>
<th>Content of Item</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Perceived Usefulness</strong></td>
<td>The e-commerce saves money more than traditional commerce</td>
</tr>
<tr>
<td></td>
<td>The e-commerce saves time more than traditional commerce</td>
</tr>
<tr>
<td></td>
<td>The commercial site provides product / service diversification</td>
</tr>
<tr>
<td></td>
<td>The pricing information on commercial websites are updated quickly and accurately</td>
</tr>
</tbody>
</table>
Overall, the commercial websites are useful for shopping

3.3.2 Perceived Ease of Use Factor

By adopting measurement scales from the group discussion result and e-commerce expert’s suggestions as references which response well to the objectives of this study, this study summarizes the items of measurement in Perceived Ease of Use factor as those shown in the Table 2. All of the item measure will be using 7-point scale: Strongly disagree, disagree, somewhat disagree, neutral, somewhat agree, agree and strongly agree.

Table 2. Items of Perceived Ease of Use

<table>
<thead>
<tr>
<th>Variable</th>
<th>Content of Item</th>
</tr>
</thead>
<tbody>
<tr>
<td>Perceived Ease of Use</td>
<td>The commercial website supported finding information easier</td>
</tr>
<tr>
<td></td>
<td>The information on the commercial website is very easy to understand</td>
</tr>
<tr>
<td></td>
<td>It is easy to order on commercial websites</td>
</tr>
<tr>
<td></td>
<td>It is easy to use services on commercial websites</td>
</tr>
<tr>
<td></td>
<td>The process of purchasing on commercial websites is simple</td>
</tr>
<tr>
<td></td>
<td>The information is specific, clear</td>
</tr>
<tr>
<td></td>
<td>The website speed is fast</td>
</tr>
<tr>
<td></td>
<td>Generally, the commercial websites are easy to use</td>
</tr>
</tbody>
</table>
3.3.3 Perceived Risk in the context of Transaction Factor

By adopting measurement scales from the group discussion result and e-commerce expert's suggestions as references which response well to the objectives of this study, this study summarizes the items of measurement in Perceived Risk in the context of Transaction factor as those shown in the Table 3. All of the item measure will be using 7-point scale: Strongly disagree, disagree, somewhat disagree, neutral, somewhat agree, agree and strongly agree.

Table 3. Items of Perceived Risk in the context of Transaction

<table>
<thead>
<tr>
<th>Variable</th>
<th>Content of Item</th>
</tr>
</thead>
<tbody>
<tr>
<td>Perceived Risk in the context of Transaction</td>
<td>The personal information of customers is not secure</td>
</tr>
<tr>
<td></td>
<td>The information of order is lost</td>
</tr>
<tr>
<td></td>
<td>The information of order is incorrect</td>
</tr>
<tr>
<td></td>
<td>The fail in electronic payment leads to an uncompleted transaction</td>
</tr>
<tr>
<td></td>
<td>The financial losses are caused by payment problem</td>
</tr>
<tr>
<td></td>
<td>The financial losses due to lost orders</td>
</tr>
</tbody>
</table>

3.3.4 Perceived risk with Product/ Service Factor

By adopting measurement scales from the group discussion result and e-commerce expert's suggestions as references which response well to the objectives of this study, this study summarizes the items of measurement in Perceived risk with Product/ Service factor as those shown in the Table 4. All of the item measure will be using 7-point scale: Strongly disagree, disagree, somewhat disagree, neutral, somewhat agree, agree and strongly agree.
Table 4. Items of Perceived risk with Product/ Service

<table>
<thead>
<tr>
<th>Variable</th>
<th>Content of Item</th>
</tr>
</thead>
<tbody>
<tr>
<td>Perceived risk with Product/ Service</td>
<td>The delivered product was not the correct type on demand</td>
</tr>
<tr>
<td></td>
<td>The product was not delivered on time</td>
</tr>
<tr>
<td></td>
<td>The customer must be responsible for arising transportation expense that caused by the product recalls</td>
</tr>
</tbody>
</table>

3.3.5 Perceived Convenience of Payment Factor

By adopting measurement scales from the group discussion result and e-commerce expert’s suggestions as references which response well to the objectives of this study, this study summarizes the items of measurement in Perceived Convenience of Payment factor as those shown in the Table 3.5. All of the item measure will be using 7-point scale: Strongly disagree, disagree, somewhat disagree, neutral, somewhat agree, agree and strongly agree.

Table 5. Items of Perceived Convenience of Payment

<table>
<thead>
<tr>
<th>Variable</th>
<th>Content of Item</th>
</tr>
</thead>
<tbody>
<tr>
<td>Perceived Convenience of Payment</td>
<td>The payment is very easy</td>
</tr>
<tr>
<td></td>
<td>The payment methods are very diversified</td>
</tr>
<tr>
<td></td>
<td>The payment methods are very suitable for my purchasing habit.</td>
</tr>
<tr>
<td></td>
<td>Generally, the payment is convenient</td>
</tr>
</tbody>
</table>
3.3.6 Purchasing Behavior Factor

By adopting measurement scales from the group discussion result and e-commerce expert’s suggestions as references which response well to the objectives of this study, this study summarizes the items of measurement in Purchasing Behavior factor as those shown in the Table 6. All of the item measure will be using 7-point scale: Strongly disagree, disagree, somewhat disagree, neutral, somewhat agree, agree and strongly agree.

Table 6. Items of Purchasing Behavior

<table>
<thead>
<tr>
<th>Variable</th>
<th>Content of Item</th>
</tr>
</thead>
<tbody>
<tr>
<td>I feel safe making online transactions</td>
<td></td>
</tr>
<tr>
<td>I feel pleased online transactions</td>
<td></td>
</tr>
<tr>
<td>I will invite my family, my friends use</td>
<td></td>
</tr>
</tbody>
</table>

3.4 Data Collection

To investigate this study, the research was done by sending questionnaires and interview to persons who have used or intend to participate in e-commerce transactions. Some information was gained from newspaper and e-news articles, some previous academic research on e-commerce but most of information was collected by taking direct research on e-commerce and e-commerce experts in Vietnam. All questionnaire form and sample are translated into Vietnamese and also are shown on webpage (https://spreadsheets.google.com/viewform?formkey=dHhCUG9pTXZkUVJaU0F0c1cwMmFmTVE6MA).

In part one of the web-survey, participants were required to fill-in personal information in order to understand their gender, age, education level, recent position, average monthly income as well as experience in Internet surfing.
After finishing part 1, participants were required to fill-out the remaining questions in part 2, indicating responses to questions on a seven-point scale from 1- strongly disagree to 7 - strongly agree. This part of the questionnaire contained items measuring antecedents of purchasing behavior of Perceived Ease of Use factor, Perceived Usefulness factor, Perceived Risk in the context of Transaction factor, Perceived Risk with Product/ Service factor and Perceived Convenience of Payment factor.

85 samples of questionnaire were delivered directly to consumers in Hanoi city; 110 samples were sent through email and 1 sub-website was developed to inform this research form to web-based. After two weeks, there were 189 feedbacks with 25 samples in poor quality responses; finally we were left 164 good samples.

3.5 Research Methodology

To test the hypotheses of this study, software SPSS 16.0 package is used for analyzing instrument. The statistical analysis methods adopted are as follows:

3.5.1 Descriptive Statistics

The detail description of the respondents’ personal data, such as their gender, age, education level, recent position, average monthly income as well as experience in Internet surfing and so on will be analyzed. Every construct of the data will be analyzed in percentage, frequency distribution in order to know the sample distribution.

3.5.2 Factor Analysis

Factor analysis is a technique used to identify factors that statistically explain the variation and co-variation among measures. Factor loading of an item must be greater than 0.5. Eigenvalue needs to be greater than 1; the difference between two Eigenvalue needs to be greater than 0.3.

3.5.3 Reliability Analysis

Reliability applies to a measure when similar results are obtained over time and across situation. Broadly defined, reliability is the degree to which measures are free
from error and therefore yield consistent results. Usually reliability is measured by Cronbach’s α; if it is greater than 0.7, then it means that there exists high degree of reliability, if less than 0.35, then it means that the reliability is relatively low, and this coefficient needs to be deleted.

3.5.4 Regression Analysis

The purpose of regression analysis is to create a linear equation, in order to analyze the relationship between dependent variables and independent variable. The hypotheses in this study can also be tested by this method.
Chapter 4 Research Results

4.1 Sample Description

For the first stage of analyzing the data from the survey, descriptive analysis has been employed to understand the respondents.

Table 7. Distribution of sample demographics

<table>
<thead>
<tr>
<th>Measure</th>
<th>Item</th>
<th>Frequency</th>
<th>Percentage (%)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Gender</td>
<td>Male</td>
<td>111</td>
<td>67.7</td>
</tr>
<tr>
<td></td>
<td>Female</td>
<td>53</td>
<td>32.3</td>
</tr>
<tr>
<td>Age</td>
<td>Below 25</td>
<td>54</td>
<td>32.9</td>
</tr>
<tr>
<td></td>
<td>25-35 years old</td>
<td>86</td>
<td>52.4</td>
</tr>
<tr>
<td></td>
<td>36-45 years old</td>
<td>12</td>
<td>7.3</td>
</tr>
<tr>
<td></td>
<td>Over 45 years old</td>
<td>12</td>
<td>7.3</td>
</tr>
<tr>
<td>Education</td>
<td>Higher national diploma</td>
<td>13</td>
<td>7.9</td>
</tr>
<tr>
<td></td>
<td>Colleague</td>
<td>26</td>
<td>15.9</td>
</tr>
<tr>
<td></td>
<td>Bachelor</td>
<td>101</td>
<td>61.6</td>
</tr>
<tr>
<td></td>
<td>Master or PhD</td>
<td>24</td>
<td>14.6</td>
</tr>
<tr>
<td>Current Position</td>
<td>Manager</td>
<td>22</td>
<td>13.4</td>
</tr>
<tr>
<td></td>
<td>Sale/marketing</td>
<td>19</td>
<td>11.6</td>
</tr>
<tr>
<td></td>
<td>Office staff</td>
<td>29</td>
<td>17.7</td>
</tr>
<tr>
<td></td>
<td>Technician</td>
<td>43</td>
<td>26.2</td>
</tr>
<tr>
<td></td>
<td>Student</td>
<td>30</td>
<td>18.3</td>
</tr>
<tr>
<td></td>
<td>Other</td>
<td>21</td>
<td>12.8</td>
</tr>
<tr>
<td>Average monthly income</td>
<td>Below 3,000,000</td>
<td>40</td>
<td>24.4</td>
</tr>
<tr>
<td></td>
<td>3,000,000-6,000,000</td>
<td>94</td>
<td>57.3</td>
</tr>
<tr>
<td></td>
<td>6,000,000-9,000,000</td>
<td>12</td>
<td>7.3</td>
</tr>
</tbody>
</table>
As shown in Table 7, the characteristics of 164 respondents include five major demographics: 1) Gender, 2) Age, 3) Education, 4) Current Position, 5) Average monthly income, and 6) Experience in Internet Surfing. As shown in Table 7, 67.7% of respondents are male, double that of female. The age with the most percentage is 25 to 35 years old (52.4%), the next is the age of below 25, 36-45 and over 45 (32.9%, 12.0% and 12.0% respectively). Based on their age, it is also explained that their major level of education is bachelor (61.6%).

Most of the respondents have the average monthly income less than 6 million (VND) with 57.3% (3-6 million) and 24.4% (below 3 million) whereas the percentage of those having 6-9 million, 9-12 million and over 12 million of average monthly income are 7.3%, 6.7%, and 4.3%, respectively.

In 164 respondents, their position is distributed equally: 13.4% (Manager), 11.6% (Sale/marketing), 17.7% (Office staff), 26.2% (Technician), 18.3% (Students) and 12.8 (Others).

Also from the descriptive statistics of these samples, we can see that most of our respondents have Internet surfing experiences for under one year (3.7%) whereas the percentage of those having 1-3 years, 3-5 years, and over 5 years of Internet surfing experiences are 17.7%, 34.1%, and 44.5%, respectively.

4.2 Reliability Analysis of the Major Variables

To test the reliability of the items measuring the factors, to ensure that the measurement scale we designed for our questionnaire are highly representative of each variable, the Cronbach’s α is used. I measure the reliability of the measurement for the
six factors, including Perceived Ease of Use factor, Perceived Usefulness factor, Perceived Risk in the context of Transaction factor, Perceived Risk with Product/Service factor and Perceived Convenience of Payment factor, as well as Purchasing Behavior factor. Factors with Cronbach’s α below 0.5 will be deleted.

Cronbach’s α is to test whether the measures are free from error. Throughout the test we find out that all of the Cronbach’s α are greater than 0.7, meaning that the factors have high reliability. The result is shown in the Table 8.

<table>
<thead>
<tr>
<th>Factors</th>
<th>Items</th>
<th>Cronbach’s α</th>
</tr>
</thead>
<tbody>
<tr>
<td>Perceived Usefulness</td>
<td>5</td>
<td>0.717</td>
</tr>
<tr>
<td>Perceived Ease of Use</td>
<td>8</td>
<td>0.816</td>
</tr>
<tr>
<td>Perceived Risk in the context of Transaction</td>
<td>6</td>
<td>0.887</td>
</tr>
<tr>
<td>Perceived Risk with Product/Service</td>
<td>3</td>
<td>0.768</td>
</tr>
<tr>
<td>Perceived Convenience of Payment</td>
<td>4</td>
<td>0.783</td>
</tr>
<tr>
<td>Purchasing Behavior</td>
<td>3</td>
<td>0.757</td>
</tr>
</tbody>
</table>

4.3 Factor Analysis

Factor analysis can be used to identify the structure of relationships among respondents (or items) by examining the correlations between the respondents (or items). With the factor analysis, we can identify the separate dimensions of the structure and then determine the extent to which each variable is explained by each dimension. Once these dimensions and the explanation of each variable are determined, we can do summarization and data reduction.

First, in order to assess factor validity and identify the unique dimensions of each factor, factor analysis with VARIMAX rotation was employed. Factor validity examines the extent to which a factor measures the variable of interest. In other words, it should demonstrate relatively high correlations between items of the same factor (convergent validity) and low correlations between items of factors that are expected to differ (discriminant validity).
Table 9 shows the results of the VARIMAX rotation on the original 26 items constrained to five factors.

Table 9. VARIMAX Rotated Component Analysis (Factor-Loading Matrix)

<table>
<thead>
<tr>
<th>Factor Loading</th>
<th>1</th>
<th>2</th>
<th>3</th>
<th>4</th>
<th>5</th>
</tr>
</thead>
<tbody>
<tr>
<td>C11</td>
<td>.520</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>C12</td>
<td>.626</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>C13</td>
<td>.611</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>C14</td>
<td>.724</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>C15</td>
<td>.626</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>C21</td>
<td>.472</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>C22</td>
<td>.559</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>C23</td>
<td>.611</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>C24</td>
<td>.501</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>C25</td>
<td>.795</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>C26</td>
<td>.717</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>C27</td>
<td>.662</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>C28</td>
<td>.594</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>C31</td>
<td>.834</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>C32</td>
<td>.847</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>C33</td>
<td>.622</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>C34</td>
<td>.824</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>C35</td>
<td>.867</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>C36</td>
<td>.620</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>C41</td>
<td></td>
<td>.690</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>C42</td>
<td></td>
<td>.781</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>C43</td>
<td></td>
<td>.644</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>C51</td>
<td></td>
<td></td>
<td>.779</td>
<td></td>
<td></td>
</tr>
<tr>
<td>C52</td>
<td></td>
<td></td>
<td>.626</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
Hair et al. suggested that an item is significant if its factor loading is greater than 0.50. As shown in Table 9, there are 25 items having high validity, as their factor loadings all far exceed 0.50. However, the factor loading of the item C21 is less than 0.50, so it is eliminated. The result after eliminating the item C21 is shown in the Table 10.

Table 10. VARIMAX Rotated Component Analysis (Factor-Loading Matrix) after eliminating the item C21

<table>
<thead>
<tr>
<th>Factor Loading</th>
<th>1</th>
<th>2</th>
<th>3</th>
<th>4</th>
<th>5</th>
</tr>
</thead>
<tbody>
<tr>
<td>C11</td>
<td>.535</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>C12</td>
<td>.628</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>C13</td>
<td>.612</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>C14</td>
<td>.732</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>C15</td>
<td>.619</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>C22</td>
<td></td>
<td>.553</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>C23</td>
<td></td>
<td>.604</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>C24</td>
<td></td>
<td>.501</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>C25</td>
<td></td>
<td>.802</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>C26</td>
<td></td>
<td>.723</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>C27</td>
<td></td>
<td>.658</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>C28</td>
<td></td>
<td>.591</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>C31</td>
<td></td>
<td></td>
<td>.834</td>
<td></td>
<td></td>
</tr>
<tr>
<td>C32</td>
<td></td>
<td></td>
<td>.850</td>
<td></td>
<td></td>
</tr>
<tr>
<td>C33</td>
<td></td>
<td></td>
<td>.624</td>
<td></td>
<td></td>
</tr>
<tr>
<td>C34</td>
<td></td>
<td></td>
<td>.821</td>
<td></td>
<td></td>
</tr>
<tr>
<td>C35</td>
<td></td>
<td></td>
<td>.870</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
After eliminating the item C21, Cronbach’s α is checked again to ensure the reliability of the factors. The result is shown in the Table 11.

Table 11. Reliability Test after eliminating the item C21

<table>
<thead>
<tr>
<th>Factors</th>
<th>Items</th>
<th>Cronbach’s α</th>
</tr>
</thead>
<tbody>
<tr>
<td>Perceived Usefulness</td>
<td>5</td>
<td>0.717</td>
</tr>
<tr>
<td>Perceived Ease of Use</td>
<td>7</td>
<td>0.799</td>
</tr>
<tr>
<td>Perceived Risk in the context of Transaction</td>
<td>6</td>
<td>0.887</td>
</tr>
<tr>
<td>Risk with Product/ Service</td>
<td>3</td>
<td>0.768</td>
</tr>
<tr>
<td>Perceived Convenience of Payment</td>
<td>4</td>
<td>0.783</td>
</tr>
<tr>
<td>Purchasing Behavior</td>
<td>3</td>
<td>0.757</td>
</tr>
</tbody>
</table>

Then, eigenvalue as well as cumulative percent of variance explanation are shown in the Table 12:

Table 12. Eigenvalue and Cumulative Percent of Variance Explanation

<table>
<thead>
<tr>
<th>Variable</th>
<th>Eigen value</th>
<th>Percent of Variance (%)</th>
<th>Cumulative Percent of Variance (%)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Perceived Usefulness</td>
<td>5.849</td>
<td>23.397</td>
<td>23.397</td>
</tr>
<tr>
<td>Perceived Ease of Use</td>
<td>4.090</td>
<td>16.362</td>
<td>39.759</td>
</tr>
</tbody>
</table>
From the Table 12, we can see that the percentages of variance explained by the factors were greater than 59% for five factors (25 items are analyzed). All the Eigen values are greater than 1.

4.4 Regression Analysis

In this study, linear regression was adopted to examine the relationships between independent variables and dependent variable to test my research hypotheses. I test and identify whether the higher level of five factors, including Perceived Ease of Use factor, Perceived Usefulness factor, Perceived Risk in the context of Transaction factor, Perceived Risk with Product/Service factor and Perceived Convenience of Payment factor will lead to higher purchasing behavior (H1, H2, H3, H4 and H5).

The results of linear regression analysis for five factors influencing purchasing behavior are shown in the Table 13, 14 and 15.

<table>
<thead>
<tr>
<th>Perceived Risk in the context of Transaction</th>
<th>2.069</th>
<th>8.276</th>
<th>48.035</th>
</tr>
</thead>
<tbody>
<tr>
<td>Perceived Risk with Product/ Service</td>
<td>1.638</td>
<td>6.553</td>
<td>54.588</td>
</tr>
<tr>
<td>Perceived Convenience of Payment</td>
<td>1.112</td>
<td>4.447</td>
<td>59.035</td>
</tr>
</tbody>
</table>

Table 13. Model Summary

<table>
<thead>
<tr>
<th>Model</th>
<th>R</th>
<th>R Square</th>
<th>Adjusted R Square</th>
<th>Std. Error of the Estimate</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>.663</td>
<td>.440</td>
<td>.422</td>
<td>.74270</td>
</tr>
</tbody>
</table>

Table 14. ANOVA

<table>
<thead>
<tr>
<th>Model</th>
<th>Sum of Squares</th>
<th>df</th>
<th>Mean Square</th>
<th>F</th>
<th>Sig.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Regression</td>
<td>68.387</td>
<td>5</td>
<td>13.677</td>
<td>24.796</td>
<td>.000a</td>
</tr>
<tr>
<td>Residual</td>
<td>87.154</td>
<td>158</td>
<td>.552</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Total</td>
<td>155.541</td>
<td>163</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
Table 15. Coefficients

<table>
<thead>
<tr>
<th>Model</th>
<th>Unstandardized Coefficients</th>
<th>Standardized Coefficients</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>B</td>
<td>Std. Error</td>
</tr>
<tr>
<td>1 (Constant)</td>
<td>.225</td>
<td>.511</td>
</tr>
<tr>
<td>Perceived Usefulness</td>
<td>.312</td>
<td>.089</td>
</tr>
<tr>
<td>Perceived Ease of Use</td>
<td>.339</td>
<td>.173</td>
</tr>
<tr>
<td>Perceived Risk in the context of Transaction</td>
<td>-.190</td>
<td>.076</td>
</tr>
<tr>
<td>Perceived Risk with Product/ Service</td>
<td>-.104</td>
<td>.145</td>
</tr>
<tr>
<td>Perceived Convenience of Payment</td>
<td>.482</td>
<td>.071</td>
</tr>
</tbody>
</table>

In the table 13, we can see the adjusted R² value for five factors influencing purchasing behavior is 0.422, meaning that the explanation ability of the independent factors is good for our dependent variable, purchasing behavior. And the model shown in the Table 14 had a very good overall fit (F = 24.796, Sig. = 0.000).

And at significant level 0.05, there are two factors have significant positive relationships with purchasing behavior, including Perceived Usefulness and Perceived Convenience of Payment and a negative relationship with purchasing behavior is Perceived Risk in the context of Transaction. And the variable Perceived Ease of Use and Perceived Risk with Product/ Service were eliminated by Sig> 0.05. Therefore, we
conclude that hypotheses H1, H3, H5 are supported hypothesis. The hypotheses H2, H4 does not support the hypothesis. The conclusion of hypotheses supporting are shown in the Table 16.

Table 16. Testing Hypotheses Results

<table>
<thead>
<tr>
<th>Research Hypotheses</th>
<th>Results</th>
</tr>
</thead>
<tbody>
<tr>
<td>H1: Perceived Usefulness factor positively influences purchasing behavior</td>
<td>Supported</td>
</tr>
<tr>
<td>H2: Perceived Ease of Use factor positively influences Purchasing Behavior</td>
<td>Not Supported</td>
</tr>
<tr>
<td>H3: Perceived Risk in the context of Transaction factor negatively influences Purchasing Behavior</td>
<td>Supported</td>
</tr>
<tr>
<td>H4: Perceived Risk with Product/ Service factor negatively influences Purchasing Behavior</td>
<td>Not Supported</td>
</tr>
<tr>
<td>H5: Perceived Convenience of Payment factor positively influences Purchasing Behavior</td>
<td>Supported</td>
</tr>
</tbody>
</table>

Among three factors (including Perceived Usefulness, Perceived Risk in the context of Transaction and Perceived Convenience of Payment), the most important one to explain the influence on customer’s online purchasing behavior is Perceived Convenience of Payment ($\beta = 0.454$); the second will be Perceived Risk in the context of Transaction ($\beta = 0.251$); and the last one is Perceived Usefulness ($\beta = -0.194$).

Thus, the multiple-regression model is illustrated as follows:

$$PB = 0.251PU - 0.194PRT + 0.454PCP + e$$

Where: $PB$ represents for Purchasing Behavior

$PU$ represents for Perceived Usefulness

$PRT$ represents for Perceived Risk in the context of Transaction

$PCP$ represents for Perceived Convenience of Payment
The results also can be seen in the Figure 7 below. It illustrates the estimated coefficients and their significance in the structural model between five independent factors and Purchasing Behavior.

Figure 7. Path Coefficients for Research Model
(Path Significance ***Sig<0.001, *Sig<0.05)
Chapter 5 Conclusions

5.1 Research Findings

The purpose of this study is to examine the influence of factors on online purchasing behavior of consumers in Vietnam. The result of this study indicates that there are three factors influence purchasing behavior, including Perceived Usefulness, Perceived Risk in the context of Transaction and Perceived Convenience of Payment. In there, the Perceived Convenience of Payment factor influences the most strongly to purchasing behavior. Therefore, companies need solutions to enhance customer’s trust for payment as well as convenience in payment. Besides, it should enhance the usefulness of the online purchasing method, as well as minimizes the risk in the transaction process.

Besides, the result also shows that two factors including Perceived Ease of Use and Perceived Risk with Product/ Service do not influence purchasing behavior. The above result can be explained as follows. Currently, the Internet was very popular in Vietnam and the level of using Internet has been enhanced, so the website using is not difficult to users. The e-commerce website is the same. That is why the perceived ease of use factor does not influence customer's online purchasing behavior.

And in Vietnam, the online purchasing method is not really popular, so when decided to make an online transaction, the buyer must find out products very carefully as well as select reputable websites to buy products. In addition, the electronic payment method is not popular. The popular transaction process in Vietnam are 1) the deliverer carries the goods to the customer, after that 2) the customer checks the category and quality of these products on demand, then 3) the customer pays in cash to the deliverer. Moreover, the information such as expenses of exchange or giving back products has had in the trade term for customers when they make transactions. For these reasons, when the customer decided to make a purchase online transaction; they do not pay attention to product risks.
5.2 Implication

Based on the influence level of each factor to the online purchasing behavior of consumers were analyzed in the regression equation, based on regression results, I would suggest the solutions for companies to consider and implement.

Firstly, the perceived convenient of payment has the most positive influence to purchasing behavior. Since 2007, many online payment solutions have been deployed. The integrated online payment system on site is not too difficult in terms of technology and technical problems, so the obstacle of online payment is from consumer side. The system is ready, but consumers still have not enough faith and habits to adopt this new payment method.

Therefore, companies need to improve the payment system to make convenience for consumers. Enterprises need to specify which types of payment card accepted in their electronic transaction system. In recent times, Vietnamese people have gradually become familiar with some electronic payment cards, such as automated teller (ATM), credit cards, debit card ... However, individuals have not also all of these cards, so enterprises need to study and select the popular payment card in order to all of card's owner can have opportunities using their e-commerce, it means that enterprises made convenience in electronic payment for customers. We can draw lessons from the online ticket sale of Jetstar Pacific Airlines: during its first deployment, this firm only apply for Visa card so it has had limited business opportunities in increasing revenue as well as losing potential customers. But so far, after applying for a variety of different cards, their sales has constantly increased, and their www.jetstar.com.vn website becomes the best e-commerce website in 2008 which voted by the Center for E-Commerce Development (EcomViet) - Ministry of Industry and Trade and the E-Commerce Association in Vietnam (vecom).

Secondly, enterprises should enhance the usefulness of products and services as well as the online purchasing transaction.
Companies need to diversify the products and services provided in conjunction with advertising product. The images of products should be nice, eye-catching, similar to the real product image and with good image quality. Products sold on the virtual store should be rich with plenty of categories. An eye-catching website with a lot of items will increase the number of user access.

Addition, the product information should be updated promptly and accurately. An e-commerce website which has nice present whereas the information about pricing, promotion, origins, vendors, utility of products ... is not updated, will cause the unsatisfied feeling and may be loss of faith for that site. The product information must be as detailed as possible; the site should accurately describe what the buyer will get. Customers will be very pleased if the site which sells ceramics, glass, mentions the crack problem ... or any other necessary information related to this product, even stories such as how this antique vase has been brought from England...

One of the biggest advantages of online business is the transportation cost reduction which leads to the discounting for customers. While the lowest price can be found on the Internet and the buyers are satisfied with what they have, they have no reason to buy them anywhere else. Thereby, I would like to mention the economic aspects such as saving money for online shopping. With the e-commerce website, the buyers have more opportunity to find out pricing and features of each product, so if companies want to sell more goods, they must pay attention to the calculation other related expenses such as transportation costs, administrative costs in order that products’ prices are highly competitive.

Enterprises need to organize simply transaction channels for any consumers who wish to purchase online can understand and manipulate easily. The convenience in the electronic transaction process will encourage customers to find information and conduct transactions.

In addition, each customer has different purchasing behavior depending on their own assessment. According to research results, the buyers have different education
levels or different levels of average monthly income will have different purchasing attitude. For this reason, enterprises should research carefully when they construct a strategy to approach each segment of customers which supply the market requirements to increase their online business efficiency.

Finally, reducing risks related to e-commerce including the risks of transactions as well as products and services. To solve this problem, enterprises need to ensure the transparency, reliability and security of e-commerce system. Specifically, the commercial website must publish all information about the terms of trade and warn buyers should read this information before deciding on purchasing. Enterprises need to improve the reliability of published information (enterprises must update this information exactly and regularly), the reliability of electronic transactions (enterprises ensure applying the secure communication technology), the reliability of system operation (enterprises ensure not to cause serious errors.) The information of customers, especially the important information like credit card, phone ... must be secured and respected, which means enterprises do not own storage and sale or unauthorized use this information.

In short, e-commerce is actually very useful and necessary tool in order to help enterprises improve their competitiveness, survival and development during this globalization time. To utilize the strengths of e-commerce, enterprises need to understand the factors affecting customer’s purchasing behavior in Vietnam to be able to deploy and operate effectively their e-commerce system.

5.3 Limitation

Due to limited time and funding, in this study, I have only assessed customer's online purchasing behavior in Hanoi area. Therefore, the first recommendation is a further study of more comprehensive assessment of customer's online purchasing behavior in Vietnam.

Second, the research should be implemented on other channels to receive more feedback from participants which are not only face-to-face, website but also on the
email, telephone…we also can have a short talk with participants to get more suggestion even discussion about this issue.

Third, with this study, I only focus on consumers who have used or intend to participate in e-commerce transactions, so the research scope was limited. Therefore, research has not mentioned the motive in order that consumers will study and make online purchasing transactions. The next recommendation is studying the scale with more influencing items and for more categories of consumers to assess more comprehensively customer's online purchasing behavior in Vietnam.

Finally, research done by the convenient sampling method and the sample size is relatively small, the generalization is limited. So, it will not fully and exactly reflect perceptions and assessment about the online shopping in particular and the e-commerce in general. The further researches should select the probability sampling method and classify objects for higher generalization.

The present study is only a small step in understanding customer’s online purchasing behavior and factors influencing it. I hope it will prompt new questions and further studies that will provide more guidelines for companies seeking to stimulate consumer interest, trust and then choose this online purchasing method as well as promoting e-commerce activities in Vietnam.
References


Appendix 1: Group Discussion

Topic: “Factors affecting consumer’s online purchasing behavior in Vietnam”.

1. Question:
What are benefits which e-commerce provides customers participating in online transactions?

Result:

a. Saving time in selecting products.
b. Saving moving costs.
c. Purchasing anywhere, anytime.
d. There are many information sources for reference.

2. Question:
What are customers participating online transactions interested in for a transaction decision?

Result:

a. The personal information is secured.
b. The customer’s order information is understood adequate and exactly by the provider.
c. The payment is not lost or misplaced.
d. Delivery on time.
e. The delivered product is the correct type on demand.
f. The transaction process is simple.
g. The goods are diversified for customers selecting.
h. The purchasing procedures are simple and reliable.
i. Remedies in case a party violates the covenant (Example: late delivery, not right type on demand ...).

j. Legality of electronic orders.

3. **Question:**

How is the *usefulness* of e-commerce websites?

**Result:**

a. The e-commerce saves money more than traditional commerce.

b. The e-commerce saves time more than traditional commerce.

c. The commercial site provides product/service diversification for customers.

d. The pricing information on commercial websites is updated quickly and accurately.

e. Overall, the commercial websites are useful for purchasing.

4. **Question:**

How is the *ease of use* of e-commerce websites?

**Result:**

a. It is easy to find information in e-commerce websites.

b. It is easy to understand the information in e-commerce websites.

c. It is easy to order.

d. It is easy to the customer services which the e-commerce websites provide.

e. The purchasing process is simple.

f. The consultant information is specific and clear.

g. The website speed is fast.

h. Generally, the commercial websites are easy to use.

5. **Question:**
What type of *risk in the context of transaction* in e-commerce?

**Result:**

a. The personal information of customers is not secure.

b. The information of order is lost.

c. The information of order is incorrect

d. The fail in electronic payment leads to an uncompleted transaction.

e. The financial losses are caused by payment problem. (The account balance has been deducted but the system provider's report is still not received the money).

f. The financial losses due to lost the order (The account balance has been deducted but the supplier have not received the order yet).

6. **Question:**

What type of *risk with product/service* in e-commerce?

**Result:**

a. The delivered product was not the correct type on demand.

b. The product was not delivered on time.

c. The customer must be responsible for arising transportation expense that caused by changing or giving back the product.

**Question:**

How do you perceive the *online payment method*?

**Result:**

a. Easy.

b. Diversified.

c. suitable for the purchasing habit.

d. convenient.
7. **Question:**

What is your *purchasing behavior* to the online transaction?

(Positive feeling for purchasing)

**Result:**

a. I feel safe when making online transactions.

b. I feel pleased with online transactions.

c. I will invite my family, my friends to purchase online.
Appendix 2: Research Questionnaire

PART 1: Demographic

Participants are asked to choose answers to examine factors influencing purchasing behavior of e-commerce in Vietnam. After reading and choosing question, you are required to answer following questions:

1. Sex
   □ Male          □ Female

2. Ages
   □ Below 25   □ 25 - 35    □ 36 - 45    □ Over 45

3. Education
   □ Diploma          □ Higher national diploma    □ Colleague
   □ Bachelor         □ Master or PhD

4. Current Position
   □ Manager        □ Sale/marketing    □ Office staff    □ Technician
   □ Student         □ Housewife       □ Worker         □ Other ___

5. Average monthly income (unit: VND)
   □ Below 3,000,000          □ 3,000,000-6,000,000
   □ 6,000,000-9,000,000       □ 9,000,000-12,000,000
   □ Over 12,000,000

6. How many years do you have with Internet experience
   □ Less than 1 □ 1 - 3 □ 3 - 5 □ Over 5
PART 2

Finish your table of questions:

Then, you are required to fill-out below questions. To answer those questions, circle with the most appropriate on the scale provided.

7-point Scale:


Example: 1 2 3 4 5 6 7

<table>
<thead>
<tr>
<th>Content of Item</th>
<th>Strongly disagree</th>
<th>Disagree</th>
<th>Somewhat disagree</th>
<th>Neutral</th>
<th>Somewhat agree</th>
<th>Agree</th>
<th>Strongly agree</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Perceived Usefulness Factor</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>(Perceived usefulness is “the degree to which a person believes that using a particular system would enhance his or her job performance”, including: money, time, information…)</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>• The e-commerce saves money more than traditional commerce</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
<td>5</td>
<td>6</td>
<td>7</td>
</tr>
</tbody>
</table>
- The e-commerce saves time more than traditional commerce

<table>
<thead>
<tr>
<th></th>
<th>1</th>
<th>2</th>
<th>3</th>
<th>4</th>
<th>5</th>
<th>6</th>
<th>7</th>
</tr>
</thead>
</table>

- The commercial site provides product/service diversification

<table>
<thead>
<tr>
<th></th>
<th>1</th>
<th>2</th>
<th>3</th>
<th>4</th>
<th>5</th>
<th>6</th>
<th>7</th>
</tr>
</thead>
</table>

- The pricing information on commercial websites is updated quickly and accurately

<table>
<thead>
<tr>
<th></th>
<th>1</th>
<th>2</th>
<th>3</th>
<th>4</th>
<th>5</th>
<th>6</th>
<th>7</th>
</tr>
</thead>
</table>

- Overall, the commercial websites are useful for purchasing.

<table>
<thead>
<tr>
<th></th>
<th>1</th>
<th>2</th>
<th>3</th>
<th>4</th>
<th>5</th>
<th>6</th>
<th>7</th>
</tr>
</thead>
</table>

**Perceived Ease of Use Factor**

(Perceived Ease of Use is “the degree to which a person believes that using a particular system would be free of effort”.)

- The commercial website supported finding information easier

<table>
<thead>
<tr>
<th></th>
<th>1</th>
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<th>7</th>
</tr>
</thead>
</table>

- The information on the commercial website is very easy to understand

<table>
<thead>
<tr>
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</table>

- It is easy to order on commercial websites

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</table>

- It is easy to use services on commercial websites

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</table>

- The process of purchasing on commercial websites is simple

<table>
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</table>

- The information is specific, clear

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</table>

- The website speed is fast

|   | 1 | 2 | 3 | 4 | 5 | 6 | 7 |
• Generally, the commercial websites are easy to use

<table>
<thead>
<tr>
<th>Perceived Risk in the context of Transaction Factor</th>
</tr>
</thead>
<tbody>
<tr>
<td>• The personal information of customers is not secure</td>
</tr>
<tr>
<td>• The information of order is lost</td>
</tr>
<tr>
<td>• The information of order is incorrect</td>
</tr>
<tr>
<td>• The fail in electronic payment leads to an uncompleted transaction</td>
</tr>
<tr>
<td>• The financial losses are caused by payment problem</td>
</tr>
<tr>
<td>• The financial losses due to lost the order</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Perceived risk with Product/ Service Factor</th>
</tr>
</thead>
<tbody>
<tr>
<td>• The delivered product was not the correct type on demand</td>
</tr>
<tr>
<td>• The product was not delivered on time</td>
</tr>
<tr>
<td>• The customer must be responsible for arising transportation expense that caused by changing or giving back the product.</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Perceived Convenience of Payment Factor</th>
</tr>
</thead>
</table>

55
- The payment is very easy
- The payment methods are very diversified
- The payment methods are very suitable for my purchasing habit.
- Generally, the payment is convenient

<table>
<thead>
<tr>
<th>Purchasing Behavior Factor</th>
</tr>
</thead>
</table>
- I feel safe when making online transactions
- I feel pleased with online transactions
- I will invite my family, my friends to purchase online.

| 1 | 2 | 3 | 4 | 5 | 6 | 7 |