

**THE STUDY ON ICT APPLICATIONS TO
VIETNAMESE TRADING VILLAGES
Case study: Van Phuc Silk Village**

By

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Dissertation submitted in partial fulfillment of
the requirements for the
Bachelor of Technology (Hons)
(Business Information Systems)

NOVEMBER 2007

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CERTIFICATION OF APPROVAL

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A project dissertation submitted to the
Chemical Engineering Programme
Universiti Teknologi PETRONAS
in partial fulfilment of the requirement for the
BACHELOR OF TECHNOLOGY(Hons)
(BUSINESS INFORMATION SYSTEMS)

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November 2007

CERTIFICATION OF ORIGINALITY

This is to certify that I am responsible for the work submitted in this project, that the original work is my own except as specified in the references and acknowledgements, and that the original work contained herein have not been undertaken or done by unspecified sources or persons.

TRINH PHUONG THAO

ABSTRACT

Information and communication technologies (ICT) have contributed greatly to the economic success of Vietnam, the second fastest developing country in the world. Due to be the feasibility of being widely applied to many fields, ICT speeds up the economy, changes the social structure, life style, etc. It helps narrow down the gap between developed and developing countries.

Despite the fact of having a high growth rate, which places Vietnam among the fastest countries in developing ICT, only small number of the population, are utilizing the benefit of information technology. ICT in general and Internet technology in particular seems to be known by the students, scientists or people who works at the high level of social structure such as the government, ministry, city or province, but has not touched to the normal citizens who live in small communes, or less advance region which account for nearly 60% of the population. This situation must be changed as Vietnam has entered the WTO (world trade organization) recently and it will soon be affected by the working and living style in the developed countries where Internet plays the crucial role in their societies. Integrating people in the community, maintaining the tradition, but at the same time, educating them the importance of information technology, become the priority.

Van Phuc is a typical Vietnamese trade village, which located at about 10km from Hanoi, the capital city of Vietnam. Van Phuc is very famous for its silk products, which have very long tradition of more than 1000 years. Currently, because of its adjacent location to Hanoi, Van Phuc has been impacted by the urbanization and advance technologies. How to enforce the solidarity among the commune members and to maintain the tradition becomes an emergent need. Integrating people in an information system whereby people are closely interrelated to each other could be a solution. The information system will help them not only share information inside the village, but also bring economic benefits from e-commerce activities.

ACKNOWLEDGEMENT

First, I thank to my supervisor Dr Amad Kamil Bin Madmood for his continuous support in the Final Year Project. He was always there to listen and give precious advices not only about the project work but also about the generally social knowledge and experiences. He showed me different ways to approach a research problem and the need to be persistent to accomplish any goal. I also thank to Dr Suziah Sulaiman for her kindness of guiding me through project related work for the first part of the Final Year Project. Without her, I would be confused and not be able to understand how an academic project should be done. Thanks also to Ms Aliza Binti Sarlan for her help in coordinating the administrative tasks and kindly support to all the requests from the FYP students like me. I also would like to show my great gratitude to Mr Asful, the department secretary for his patience and kindness as well as his thoughtful advices. Special thanks go to all the lecturers from ICT/BIS department who directly or indirectly assessed and give valuable recommendations for completing this dissertation.

TABLE OF CONTENTS

CERTIFICATION OF APPROVAL-----	i
CERTIFICATION OF ORIGINALITY-----	ii
ABSTRACT-----	iii
ACKNOWLEDGEMENT-----	iv
CHAPTER 1: INTRODUCTION-----	1
1.1 Background of study-----	1
1.2 Problem statement-----	3
1.3 Objectives and scope of the study-----	6
CHAPTER 2: LITURATURE REVIEW AND THEORY-----	10
2.1 The failure of e-government project in Vietnam-----	10
2.2 Current situation of ICT development in Vietnam and a focus in rural area-----	11
2.3 Virtual Community and E-Business-----	14
2.4 Open source software and application-----	15
CHAPTER 3: RESEARCH METHODOLOGY-----	16
3.1 Research methodology-----	16
3.2 Demographics of the responses -----	18
CHAPTER 4: RESULTS AND DISCUSSION-----	19
4.1 The Internet Use-----	19
4.2 E-Commerce readiness-----	20
CHAPTER 5: SYSTEM DESIGN-----	26
5.1 Diagrams-----	26
5.2 User interface and navigation scheme-----	27

CHAPTER 6:	CONCLUSION AND RECOMMENDATION	34
	6.1 IMPLICATIONS	34
	6.2 CONCLUSION	34
	6.3 RECOMMENDATIONS	35
REFERENCE		37
APPENDICES		40
	1. Appendix 1: Some community websites in Vietnam	
	2. Appendix 2: Van Phuc Cooperative of Weave Silk website (www.vanphucsilk.com).	
	3. Appendix 3: Streamyx package in Malaysia	
	4. Appendix 4: Survey results	
	5. Appendix 5: Diagrams of system design	

LIST OF FIGURES

Figure 1: Reasons that prevent setting up websites	-----22
Figure 2: Expected features of the community portal	-----24
Figure 3: Expected fee per membership	-----25
Figure 4: Home page	-----28
Figure 5: The News page	----- 28
Figure 6: The event page	----- 29
Figure 7: The forum page	-----29
Figure 8: Contact us page	-----30
Figure 9: Sub-menu about Vanphuc	-----30
Figure 10: Blog page	-----31
Figure 11: Search page	-----31
Figure 12: User log in page	-----31
Figure 13: Product category menu	-----32
Figure 14: Manufacturer category menu	-----32
Figure 15: The user menu	-----33

LIST OF TABLES

Table 1: Internet use in Vietnam in 2005	-----11
Table 2: The national plan on Internet issues for 2010	-----12
Table 3: General demographic information of Van Phuc village	-----18
Table 4: Advertise products to new customers	-----19
Table 5: The main method to process an order	-----20
Table 6: Payment methods for E-commerce	-----22
Table 7: Frequency of using digital payment method	-----23

ABBREVIATION AND NOMENCLATURES

CMS:	Content Management System
ICT:	Information and Communication Technology
B2B:	Business-To-Business e-commerce
B2C:	Business-To-Customer e-commerce

CHAPTER 1

INTRODUCTION

1.1 BACKGROUND OF THE STUDY

Information and communication technologies (ICT) have been acknowledged as the driving force for the socio-economic development by the Vietnamese government. In the National Socio-Economic Master Plans for every 5 years, the development rate of ICT is always evaluated as the indicator of the country development (Nguyen Thanh Phuc, 2006). However, the ICT and Internet technology in particular in Vietnam is still considered at low level in compared with other developed countries. Currently, the Internet users account only about 18% of the population. With the target set for year 2010 that 40% population will be able to use the Internet, 70% of communes will have public Internet access (Tran Duc Lai, 2006; Nguyen Thanh Phuc, 2006), even having been experienced very high ICT development rate for the recent years, it is still extremely difficult task. This means that Vietnam must massively encourage the penetration of ICT applications to the daily life of common citizens especially to those who live in the rural areas.

How to educate a normal person, who has limited knowledge of information technology, to become an e-citizen who has an increased understanding and skills in ICT is an emerging question?

The answer to this question might come from the social structure of the Vietnamese demography whereby 60% of the Vietnamese live in small communes in rural area. On the other hand, trade village is the most popular form of Vietnamese communes. It is called trade village since each village has a representative product that almost every household involves in the process of making, or trading that

product. This village format is even still maintained and reserved in such big and modern city like Hanoi until now. In Hanoi old quarters, each street that was used to be a small commune, is named according to the product, which every shop along the street sells. In Ha Tay province alone, there are still nearly 150 trade villages providing diversified products to the market locally and internationally. The activities of members in trade villages can be supported by information technologies.

This research studies on developing computer-mediated communities in rural areas of Vietnam based on their own uniqueness. The research focuses on identifying the factors that integrate people in an actual community. Base on the findings, the information technology framework is built up surrounding the integrating elements to support the community. In this research, the model of trade villages in Vietnam is particularly analyzed due to its social uniqueness. People in such communities are strongly bound to each other not only because of the same economical interest but also due to the traditionally joining elements.

The research focuses on the case study of Van Phuc village which is a representative for trade villages in Vietnam. Van Phuc is well known nationwide for its nearly 1000-year tradition of producing silk products, which were used to be sent as tributes to the Kings. Nowadays, it is even more famous because of the prosperity in Vietnam economy which has given the chance to Van Phuc silk products to be known by many foreigners through tourism activities. In Van Phuc, 60% of 1283 households with more than 3500 people take part in the process of producing silk such as raising cocoon worms, making silk thread from cocoons, weaving cloth, dying, making, or selling silk products. Thus, the relationship among people in Van Phuc village is built up based on not only cultural and social integration but also on economic factors.

1.2 PROBLEM STATEMENT

1.2.1. Model to develop ICT in developing countries

Currently, most of the ICT projects in Vietnam and many other developing countries are implemented following to the top-down model. In this model, the projects will be built firstly at the upper level of the social structure, for instance, at the government, and gradually come to the lower level. Those e-governmental projects are also normally implemented across many functional departments or geographical regions, which require many resources. Heeks (2003) noted that most implementations of e-government in developing countries fail, with 35 percent being classified as total failures (e-government was not implemented or was implemented but immediately abandoned), and 50 percent as partial failures (major goals were not achieved or there were undesirable outcomes). The failure ratio is particularly high in developing countries because government of developing countries have to depend on the international aids and donations and the risk of failure is proportional to the size of the project while such countries normally lack of critical resources (UNDESA, 2003; Schware, R. and Deane, A. 2003).

In addition, the effectiveness of such massive projects in successful implementation cases to the common citizens is not clearly perceived because those projects have not directly influenced their daily activities or immediately improved their living standard. Therefore, ICT implementations are moving towards small-scale projects at the community level especially in developing countries.

1.2.2. A suitable model for information systems at Vietnamese communities

Though Vietnamese government and the respective departments, which are responsible to the development of ICT in Vietnam, are fully aware of the benefit that ICT applications bring to the improvement of the citizen's living standards, not many governmental ICT projects have been implemented in this field. On the other hand, Vietnamese government is under the criticism from citizens due to the recent failure of the national massive e-government project named "project 112", which cost more than \$230 million USD and was implemented in 5 years since 2001. It is an

unacceptable and enormous waste in such developing countries like Vietnam. The question of whether the current level of ICT in Vietnam can afford the success of such big ICT project is still open to organizations and individuals in charged. Common citizens are looking for such projects that are suitable to the current ICT development. Hence, the smaller but scalable projects, which are directly effective to the community should be more suitable to the current situation or at least receive the support from the citizens.

1.2.3. Low ICT awareness among common citizens

Despite all the effort of the government to increase information technology penetration to the society, common citizens, who live in rural communes like Van Phuc village, which account for the majority of the population, are still unaware mainly because of not receiving any benefit from such ICT projects. In fact, ICT technologies are good tools to narrow down the gaps between the rural and urban areas (Gerolf Weigel, 2005). If the people in the less development regions benefit from the ICT, it helps increase the productivity and incomes in these areas. Therefore, the ICT projects should be implemented towards the community level where a huger number of citizens can take the advantages of them.

1.2.4. Increase competitiveness in the global economy

As Vietnam entered WTO recently, the citizens who run mall business such as those in Van Phuc village will face severe competitiveness as well as the opportunities from overseas countries. They have to compete with producers from Thailand, China globally. Only if those small businesses are quicker in grasping crucial information about the customers, prices, etc as well as integrate in a larger association, they can stay in such highly competitive international market. In addition, as the foreign customers have long got used to the Internet technology, thus, the Vietnamese businesses must follow the trend of the world in order to expand their markets globally.

1.2.5. Loss of tradition and loose integration among members in community

The relationship among member in a community, which was used to be very close and highly appreciated in the Vietnamese tradition, is now getting looser as consequence of the urbanization impacts. People nowadays neglect performing the traditional practices. Reserving and promoting cultural tradition becomes an essential task in each community. An information system can help foster the communication among members. Thus, it can become a measure for people in the community reserve the tradition and unify members through the process of knowledge sharing.

1.2.6. Maintain fairness among the community members

Currently, only big companies can afford to advertise their products through different media channels such as Internet, television, radio, etc. Among those, Internet seems to have the lowest cost but the widest accessibility to the market, which can be affordable to the small-scaled business. Setting up a community information system online not only creates the chance for the small merchants to reach a wider market but also give them equally competitive advantages with big companies.

1.2.7. The Internet technology implementation in small businesses is limited

Currently, only more than 10% of Vietnamese enterprises have their websites to support the business (Tran Duc Lai, 2006). This percentage in the small business sector is even less due to the lack of knowledge and skills to run the website as well as the high development cost. Some small businesses cannot see the need of spending money to bring their business online. In order to change this fact, an integrated information system among small businesses in a community like Van Phuc could be a solution to strengthen the image and identity of the business by increasing the scale, and to reduce the cost of each individual business in running its own website.

1.2.8. Current community websites are not attractive to it own members.

All the cities and provinces in Vietnam have their own websites, which were supported by the government fund. Such websites only play the role of a notice board

to inform members about the government regulations, or general information about the community. Some websites do update the community activities but some websites seem to be left unsupervised and to contain very outdated information (**Appendix 1**). What those websites lack is the attractiveness to its members. Members do not get any new information, as well as financial benefits from those websites. Besides, the website content is not collected by the community members themselves but from the governmental officers who definitely cannot fully understand the fundamental needs of the community. Consequently, the websites are not highly appreciated and even abandoned by the members.

1.3. OBJECTIVES AND SCOPE OF THE STUDY

1.3.1 Objectives

1.3.1.1 To identify an effective implementation model for information systems in developing countries

In developing countries, instead of building up large-scaled e-government system, ICT applications can penetrate to the general citizen through bottom-up implementation model whereas the particular characteristics of a community will be gathered and analyzed in order to set up information systems that truly support the benefit of people in that community. This research focuses on assessing the feasibility of implementing information systems in the small scale at the community level in Vietnam. The research result will also evaluate whether the model of information system implementation can be generalized and applied to other communities.

1.3.1.2 To analyze the criteria of effective information system model at the Vietnamese trade village communities.

According to Preece, J. (2000) and Whittaker, S., E. Isaacs, et al. (1997), virtual communities are characterized by rules of interaction, value system, mutual trust, common goals and interests. In order to implement information systems at the community successfully, the particular characteristics of that community must be

thoroughly identified and understood. The research studies on the factors that integrate people at the community of trade villages in Vietnam. Based on the common interests, the functional requirements can be specified to build up information systems that directly support people in that community.

1.3.1.3 To evaluate the awareness of the community members towards ICT benefits

It is very clear that “ICT products are not what the rural masses need” (Taonga Sabola, 2006). People only use ICT if they truly get the benefits from it. Besides, in order to implement ICT applications, the user must possess certain awareness of the ICT technologies. The research approaches the ICT implementation from the point of view of community members who are the main users of the information system. From their understanding of ICT technologies, the project will analyze on what they expect to have from the systems.

In vice versa, once the community information system is successfully operated, it helps people access information faster and easier, increases their productivity by shortening the transaction time of dealing with customers, and suppliers, as well as reduces the costs of communicating and making purchase, etc. When community members involve in such information system and receive the certain benefits, they will voluntarily promote and apply the ICT to their daily activities, which gradually increase the knowledge of themselves on ICT in general.

1.3.1.4. To suggest recommendations to the government, local authorities, and ICT strategic planners on policies and measures to promote ICT applications in rural areas.

Currently, there are not so many projects focusing on the development of ICT in disadvantaged region of Vietnam, and the government does not have any specific policies to promote ICT development in such areas. From the research results, suggestions to government and other involved departments and parties for developing a platform that support the development of ICT in undeveloped regions of Vietnam

will have certain grounding points to enforce the change in governmental policies and measures.

1.3.2 Scope of study

The research studies on the community at trade villages in Vietnam. In such trade village, the members are strongly integrated to each other not only because of sharing the same living environment or tradition but also of having the same economic interests. The benefit of one member is linked to the benefit of the others and generally of the whole community since they are in the same value chain of the production line.

Besides, the model of trading villages is unique but representative for Vietnamese communities at the rural area. Going to wherever part of Vietnamese countryside, we can find out this community model.

Van Phuc village is chosen as the place to implement the project due so some of the reasons following:

Van Phuc is located at the gate of Hanoi, which is only 10 km away, thus, it is experiencing heavily the impact of urbanization. People here have the opportunity to approach and absorb the newest information and communication technologies such as Internet, mobile phone, Wimax, etc. In addition, the traditional culture is changing towards a bad situation. Having a stressful life does not allow the people here to have time practicing the traditions, which are being gradually demised as the consequence. Reserving the tradition, enforcing close relationship among members are becoming the essential tasks for the people here.

Van Phuc is famous with its silk products, which have been well known nationwide and even outside of the country borders. The business activities here are very prosperous which require the people have a keen on acquiring and assessing a great amount of information. Besides, as it is adjacent to Hanoi, Van Phuc is also one of the favorite places of the foreign tourists, thus, the village needs a media channel to

promote its image as a nice tourist site. All these activities can be supported easily with the use of information technologies.

With the population of around 5600 people and 60% of the households in the village involved in silk producing and trading, the income of the people is rather high and stable which allows them to afford the implementation of information technology applications. Besides, Van Phuc is representative to the Vietnamese communes with a typical demographic size and its special business. Hence, the success of the project will promote the implementation at other communes.

Currently, Van Phuc is maintaining only one website for the whole villagers, which focus more on promoting its silk products (www.vanphucsilk.com). However, this website is not considered as an e-commerce website because of its poorly content and limited information about the products. It supports neither the online ordering process nor online payment method. It also does not function as a community website as the information about the commune is not stated except the introduction about Van Phuc village history. More than that, as everyone can access the website with the same authorization no matter that they are the villagers or not, thus, the features of a community website are not highly emphasized.

Within this scope of the research, the project will focus on the information system implementation in Van Phuc village with the emphasis on improving the function of current community website by adding more features, which are specific to the unique circumstance of the village.

CHAPTER 2

LITERATURE REVIEW AND THEORY

2.1. THE FAILURE OF E-GOVERNMENT PROJECT IN VIETNAM

The failure of the nation-wide e-government project in Vietnam named “Project 112” has many indications and lessons learned. Nguyen Thanh Tuyen and Nguyen Thi Hai Thanh (2006) stated “The efforts to build e-government in Vietnam are, however, often top-down from the policy makers, and thus, lack practicability and sustainability” has pointed out system design and implementation methodology as the major critical factors that lead to the failure of such massive e-government project. The project 112 shows that Vietnam suffers from all three design gaps of e-government design identified by Richard Heeks (2003). “The hard-soft gaps see E-government initiatives led by technology (the hard gap) and fail to take into account the current social, political or cultural environment (the soft gaps). The private-public gaps, where private sector solutions are often pushed on to the public sector with little recognition made of the significant differences and needs of the private and public sectors. Finally, country context gaps may also occur where solutions derived from developed countries are not applicable to the developing world.” (Pham Thi Bich Hoa, 2005). In addition, other factors influence the result of the project such as lack of an effective and experienced project management team, and a thorough feasible study on standardized information systems.

The failure of project 112 also requires researchers in information technology and public policy to think about the alternative solutions to develop ICT of the country. The question of whether the investment should instead be put to smaller scale project to the community level might make better solution for ICT development in Vietnam. This system implementation methodology will narrow the hard-soft gaps whereby the drive for setting up the systems comes from social, political and cultural

environment instead of from the technology. It also abridges the private-public gaps because in this situation, both public and private has the same interest in implementing the system. The information system satisfies the demand of the public sector for building a system that supports the well-being of all members. It also supports the need of the private sectors as it allows every member in the system to strive for their own interests. Finally, the idea of implementing information at the community level also shortens the distance of the context gaps as those information systems must be customized according to the specific characteristics of the community where they are implemented.

2.2. CURRENT SITUATION OF ICT DEVELOPMENT IN VIETNAM AND A FOCUS IN RURAL AREA

Tran Duc Lai (2006) in his paper entitled ‘**development of ICT in Vietnam**’ has summarized the development of ICT in Vietnam for the last 20 years and the National Master Plan for ICT from 2006 to 2010. The data retrieved from this research gave a full picture of the current development level of ICT in Vietnam and especially in the rural areas.

Internet use in Vietnam in 2005

Issue	Percentage
Number of Internet users among the population	15%
Internet connection support at communes (dial-up, broadband, Wimax)	100%

Table 1

The number of Internet users is increasing with the growth rate of more than 20%, which has far surpassed the target of 15% in the National Master Plan. Besides, 100% of the communes will be able to access the Internet, which assures that with the government support on the Internet infrastructure, the project can be implemented.

The national plan on Internet issues for 2010

Issue	Percentage/ Frequency	Conclusion
Internet subscribers over 100 citizens	8-10	The target was even surpassed in year 2005 (15%). This proves that the number of people who understand the benefit of Internet technology is even more than expected.
Broadband subscriber over Internet subscribers	30%	This target emphasizes on the quality of accessing the Internet. Broadband creates a speedy, consistent connection.
Population using Internet	40%	With a population of 60% people living in rural area, there should be a change on the awareness of ICT in this group.

Table 2

The target that 10% of the population is Internet subscribers in year 2010 was accomplished very much earlier since by the year 2005, 15% of the population subscribed for the Internet. Therefore, the target of 40% of the population are able to use Internet is a challenging but attainable number by year 2010. There is a big different between the target number of Internet subscribers and the number of people who are able to use Internet. This can be explained because Internet Café is common in Vietnam and it is offered with extremely low access fee (RM 0.5 per hour). In addition, Internet is provided free in the communal post offices as the result of governmental-scaled project to support Internet technology at the rural areas.

Developing ICT at the rural is not a new idea. Many countries in the world have tried to do the research on this matter to support people at the disadvantage regions. However, different countries have different conditions on the development status, history, uniqueness of the culture, socio-economic structure and such, which make ICT development at the rural area, is different from one country to another.

The thorough research of Vietnam entitled **‘Policy and Measures to Promote ICT Application and Deployment for Business Development in Rural Areas in**

Vietnam' (Vu Thi Thanh Huong, 2006) aimed at investigating policy environment, major measures and their influences on the acceptance and application of ICT in business in rural areas. However, this project more focused on the governmental level policy, the readiness of the citizens in the regions to the ICT applications rather than giving out any solution to implement ICT projects at the rural area. The project also did pinpoint the importance of economic factors to the utilization of ICT at the rural area and stated that, in order to implement ICT successfully at the disadvantage regions, the economic benefits must be clearly specified. However, it did not give out any methodology of how to put the business element in an ICT project for rural areas. Nevertheless, this project has given precious information and research experiences as guidelines for '**The study on ICT applications to the Vietnamese trading villages**' project. The following is the summary of project findings:

- ***The information system reduces inequality in opportunities to access to ICT.*** As all members, no matters how their different conditions are, when access to the same network they are able to receive the same benefits.
- ***The construction of ICT infrastructure should be based upon local needs and actual circumstances and on workable technology at affordable price.*** Communities though have similar business or administrative structures do not have identical system requirements. Thus, the model of the information system implementation can be applied from one community to other community but the elements to build up the system, for example, in term of hardware, software should be different.
- ***Software localization should be encouraged.*** Localized software helps reduce the cost and yet the software is customized to what customers need.
- ***Relevant information should be available in both local and other universal language such as English.*** To support ICT development to people who possess little foreign language and well as computer technological skills requires a clear and simple explanation and easily understandable guidelines.
- ***The main areas of concern are setting up and operating cost of ICTs, and lack of ICT skills among the staff.*** Among those businesses that do not use computers. The main reason is that they do not see it beneficial to their business and believe that they do not have the technology in place to do so.

2.3. VIRTUAL COMMUNITY AND E-BUSINESS

Watson's (1997) work demonstrates, a computer-mediated community users must work together to maintain the group patterns "according to the norms and values established within the community" (p. 110). Arthur Andersen (1999) also has the same idea that an "On-Line Communities in Business" focuses on the human aspects of community building and how success or failure is influenced by the people responsible for making it all work. The attractiveness of the information system is gauged by how that system can support the interest of its main source of the users. However, in fact not all the community information systems successfully perform this feature. Van Phuc is a trading village, thus the business activity become essential to each member there. In the future, it will be the most crucial factor that integrates people in the information system. Therefore, the portal of the information system in Van Phuc village must also perform as the financial portal where the members are able to transact rather than a merely general playground to gather all them.

As the enterprises in Van Phuc village sell products to both other companies and the individual customers who come and make transaction directly, this business model will be best supported by a virtual market place where companies can both look for their business partners and advertise their products, attract individual customers at the same time. Therefore, the information system should be able to support both B2C and B2B e-commerce model.

There are some of the famous commerce websites that have been analyzed for features which could be implemented in the new portal such as www.alibaba.com (the biggest B2B website in China), <http://1001shoppings.com/index.aspx> (famous Vietnamese B2C website).

- **1001 shoppings** allows both company and individual customers to participate. Therefore, it plays the role of both a B2B and B2C website. The companies, which advertise product catalog, can both find their business partners as well as sell products directly. Similar to Alibaba web portal, the products listed in the websites comes from many companies. Particular products in the product

list offered by a company are re-categorized to different product categories that again helps other customers easily navigate. Therefore, a particular product can be retrieved through the corporation that offers the products or through the general product catalog.

2.4. OPEN SOURCE SOFTWARE AND APPLICATIONS

2.4.1 Content management system (CMS)

According to the definition from Wikipedia, a Web content management system is a computer system used to manage and control a large, dynamic collection of web material (HTML documents and their associated images). A CMS facilitates document control, auditing, editing, and timeline management. A Web CMS provides key features such as: *automated templates, easily editable content, scalable feature sets, web standards upgrades, workflow management, document management.*

With this information system, using open source web content management such as Mambo or Joomla (www.joomla.com) is a solution as it is provided free of charge, and due to its easily editable content function, members with little knowledge about Internet technology can also utilize the system. Moreover, open source CMS such as Joomla provide flexibility to developers because they are able to add on different features according to the user requirements.

CHAPTER 3

RESEARCH METHODOLOGY

3.1. RESEARCH METHODOLOGY

3.1.1. Research types

The research has employed qualitative methodology by implementing the empirical studies through observation and case studies on the community members. This methodology helps researcher has certain understandings on the daily activities and business process that are performed by the people there.

In addition, in order to profile how the readiness of the Van Phuc villagers towards the development of information system, quantitative research methodology was also conducted through a survey which was designed under the questionnaire format. The questionnaires were filled up during the randomly personal interviews with the villagers and were also sent to some villagers' email address as well as posted online at:

<http://FreeOnlineSurveys.com/rendersurvey.asp?sid=ug7zo336y2135qf280910>

31 individuals (30 community members, 1 community officer) responded to the survey through the method of direct interview. None responded through email or online survey

3.1.2. System development methodology

A simulator of the information system that may be implemented in Van Phuc trade village is set up which contains a portal representing the central accessing point of the members to the virtual community information system.

This portal will be developed using the RAD model of the system development life cycle. The RAD model is a high-speed adaptation of the linear sequential model in which rapid development is achieved by using a component-based construction approach whereby various structured techniques are merged, prototyping is used and application are developed independently and joined in the end.

3.1.3 The research activities

The project will have the following activities and the methodology for conducting research in duration of 8 months from February 2006 to October 2007:

- Study the strategies, measures for ICT application and development in rural areas in Vietnam
- Gather the information of all goals, expectations, plans, strategies related to ICT application and development in rural areas.
- Interview local officials to study and identify the acceptance level of the ICT application in the Van Phuc village
- Collect information about the readiness of the commune members to the application of ICT such as: the Internet accessibility, the language proficiency and computer skills, the level of applying ICT in the business transaction of the local commune members, etc.
- Create questionnaires for two different types of community members: the officials who administer the village's activities and common the villagers who live in Van Phuc.
- Work on the current community websites supported by the government to analyze on their pitfalls in attracting members.
- Research on the necessary features that Van Phuc villagers expect from the community website.
- Develop the system portal and implement the system testing

3.1.4 Tools required

- **CMS system development tools:** To manage the system as a whole, which cover different modules such as user management module, e-commerce

management module (product catalog, shopping cart, manufacturers, etc), articles and files management module, etc.

- **Open source software and software package:** Moodle e-learning system (manage on-online classroom feature), forum, chat room, etc.
- **System infrastructure:** Server computer, Internet connection, client computer, etc.
- **Internet service:** Domain name, and hosting service.
- **System design tools:** CASE tools (system architect, Microsoft Visio)

3.2. DEMOGRAPHICS OF THE RESPONSES

Sixty-six percent of the responding people were female and 33% were male. They were largely at 20 to 40 years of age (76.7%). 100% of the answers responded that their families are running household business with the size of 3-5 people accounting for 89.7%, and the size of 6-9 people was 10.3% respectively. In addition, their business involved both the production (100%) and trading their own products (96.7%). On average, the responding people answered that their customers were from other provinces (60.7%), in the same province (21.4%), and overseas (17.9%). The general demographic information of Van Phuc village is in the following table.

General demographic information of Van Phuc village

Issue	Value
The village population	5600
Percentage of households involve in silk business	60%
The total income from silk	USD 2.8 million
Total income from silk/total income	75%
Total income per capita	667USD/year
Total income per capita (on silk industry)	835USD/year

Table 3

CHAPTER 4

RESULTS AND DISCUSSION

4.1 THE INTERNET USE

The analysis of 30 people in Van Phuc village indicates that 69% of them are able to use Internet, however, among those, 100% access Internet for communicating through email. They also never use Internet for other purposes such as doing research on competitor, search for suppliers or customers and so on.

Advertise products to new customers

Question	Content	Frequency	Percentage
How do you advertise your products or business to new customers?			
	Newspaper/TV	6	20%
	Words of mouth	29	100%
	Exhibition	19	63.3%
	Send brochures through postal service	11	36.7%
	Website	0	0%
	Email	4	13.3%
	Others/ Define	1	3.3%

Table 4

Table 4 shows the type of advertising methods that are being used. Despite the fact that, the main method are telling customers directly when they come to their shop (employed by 100%), advertising through exhibition (63.3%), or sending brochures through postal service (36.7%), there is 13.3% of the responding individuals (mostly the young at the age of 20-30 years old) have used email to communicate with customers.

The main method to process an order

Question	Content	Frequency	Percentage
What is the ordering process for customers?	Face to face discussion	25	83.3%
	Telephone(fixed or mobile)	25	83.3%
	Email	8	26.7%
	Postal service	7	23.3%
	Interest order	0	0%
	Other. Specify	0	0%
Total		30	

Table 5

In response to the question of what the ordering process for customers is, 83.3% of them answered either face-to-face transaction or telephone is mainly method (Table 5). This also indicates the fact that the main customers are people from other provinces (61%) who communicate through telephone while foreign customers are mainly tourists who go directly to the village and make face-to-face transaction.

However, there is an accountable number of the responses (26.7%) said they have used email to receive or make orders which shows the potential of developing and implementing ICT in this commune.

4.2. E-COMMERCE READINESS

4.2.1 Awareness

The analysis of 30 people in Van Phuc village indicates that they majority of them have heard about e-commerce (90%) but they think it is merely the method of advertising products online to overseas customers. Overall, 100% of their business is not supported by their own websites. According to the information from the village officer, there are less than 10 businesses with medium size in Van Phuc have already developed websites. However, due to many reasons, those websites are not maintained. The whole village has one website www.VanPhucSilk.com (Appendix 2) developed in 2003 with few features such as the village introduction, online catalog (with limited in information about the products), and contact detail (email address of the village office).

4.2.2 System architecture

Sixty percent of the households in the villages have Internet access. There are more than 15 ISPs and ADSL providers, which support both dial-up and ADSL connections. The fee for setting up Internet connection is getting low due to high competition among ISPs. The installation price is ranging from 31USD to 125USD depending on the difference of bandwidth capacity from 1.5Mbps to 4Mbps and the monthly flat charge accession fee is ranging from 15 to 30USD depending on the types of usage. In comparison with the price of Streamyx packages, the main ADSL line in Malaysia, this price range is competitively lower. (Appendix 3: Streamyx package price).

4.2.3 Potential of ICT applications

According to the head of the village, acknowledging the importance of ICT to the social-economic development, Van Phuc has a strategic plan to promote ICT and its applications. Besides, the tourism activities are strongly emphasized as it brings a great portion of income and helps promote the village image overseas. The village council understands that this advertising activity can be further reinforced by using information technologies. Thus, they welcome all the research or studies on the matter of ICT applications. Even though the encouragement is only at the policy level, it provides a bright future for the development of ICT in this village.

The common villagers are aware of the importance of technologies in general and Internet in particular. When they were asked the question: 'In the near future, are you going to implement your own website?' Ninety percent of the answers said 'Yes'. This indicates that they acknowledge the benefit from ICTs and intend to apply them to foster their business activities. Moreover, 69% of the people asked are able to use the Internet, which shows that they can be trained to utilize the new information system once it is implemented.

Furthermore, 72.4% of the people interviewed said that they were obtaining either credit card or bank account and had used them for 1-3 years (Table 6). Though bank accounts do not support immediate online payment like credit card, still it can

support business transaction with remote customers within Vietnam through money transfer service.

Payment methods for E-commerce

Issues	Content	Frequency	Percentage
Do you have credit card or bank account?	Yes	21	72.4%
	No	8	27.6%
Total		29	100%

Table 6

4.2.4 Hindrances preventing information system implementation

Fig 1 below summarized the answer of the villagers when they were asked on the factors that prevent them from setting up websites to support their business. 86.7% of them said that their current business size makes websites unnecessary. 73.3% of them were afraid that they are not able to manage the website due to the matters such as foreign language incapability or lack of technical ability. In addition, the security is also a concern as 33.3% of them thought that their account number can be stolen and 36.7% of they thought they could be deceived through the ordering process by the customers.

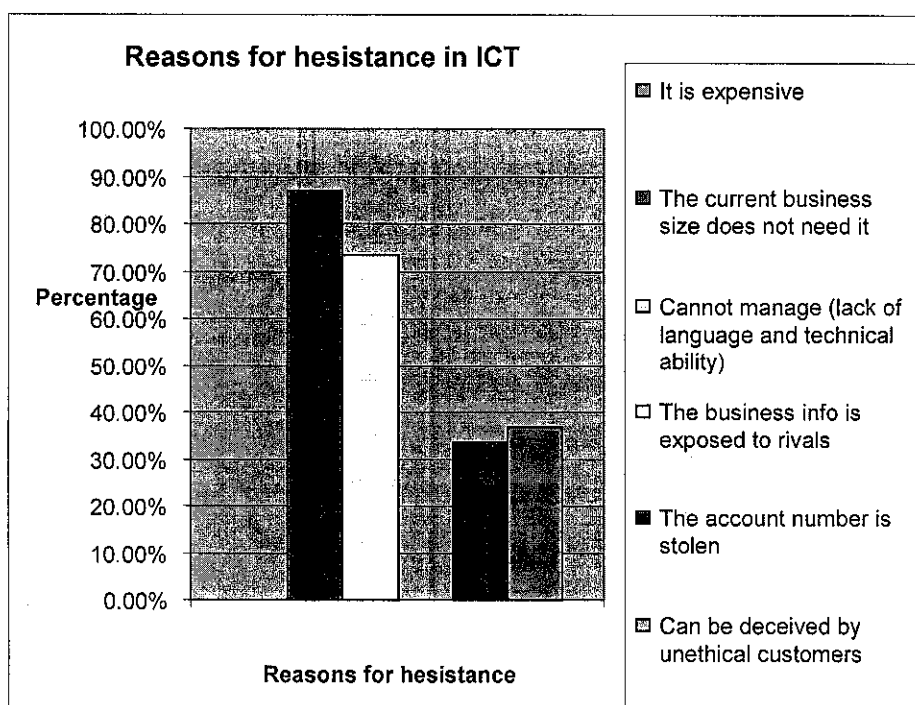


Fig 1: Reasons that prevent setting up websites

Furthermore, 100% of the people who have bank account or credit card answered that they had used it for 1-3 years and only used this type of payment method if there is no other ways to commit the transaction. Thus, transaction security is one of the biggest concerns that can hinder people from using the portal in the future (Table 7).

Frequency of using digital payment method

Issue	Content	Frequency	Percentage
How long have you used it?	<1 year	0	0%
	1-2 years	10	52.6%
	>3 years	9	47.4%
	>5 years	0	0%
Total		19	100%
How often do you use the card/account	Always for every transaction	0	0%
	Sometimes	0	0%
	Only few times if there are no other ways	15	100%
	No, never	0	0%
Total		15	100%

Table 7

4.2.5 Expectation of the community members

Among the listed features of the community portal, the villagers concern on the matter of how they are going to use the portal (Fig2). 86.7% of them choose the feature that the portal will briefly teach the users of how to use its functions. An easy navigation scheme is another feature that the villagers hope to have with the supporting rate of 70% of them. They are also interested in the multi-language function as 80% of the responding individuals chose this feature.

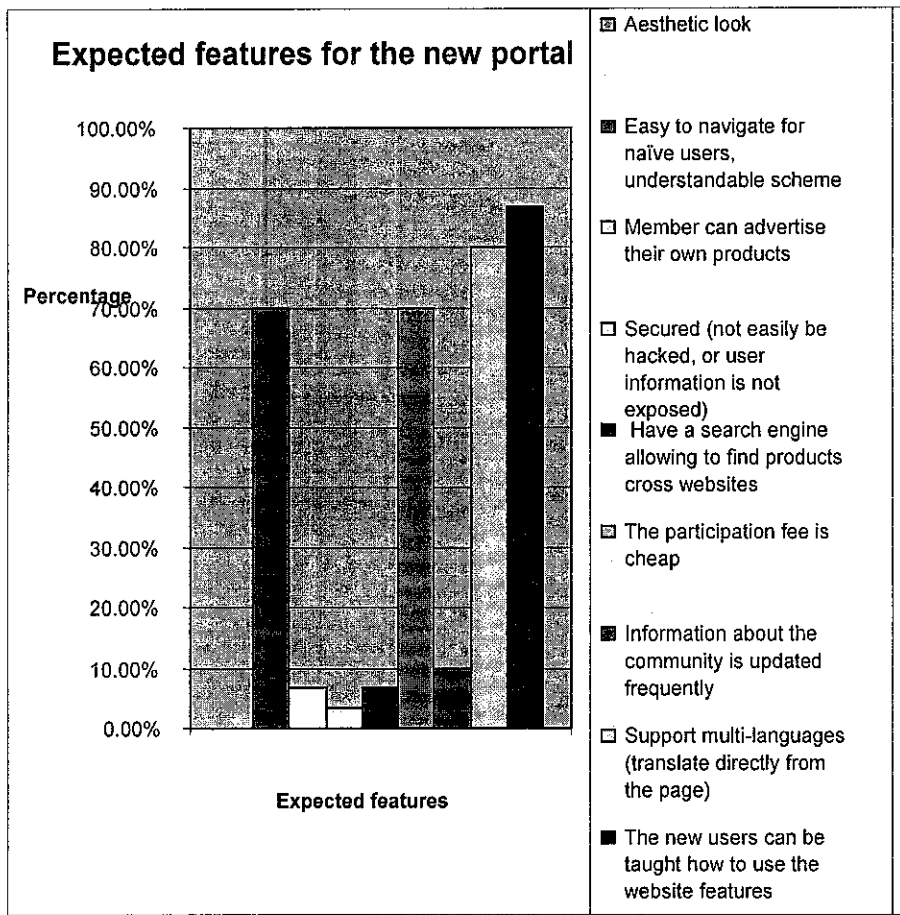


Fig 2: Expected features of the community portal

Cheap membership fee is another feature that 70% of the responses expected the new portal should have. When they were asked with question ‘How much each user should pay monthly?’ 36.7% of them thought that the membership fee should be from 1USD to 3USD per month and 53.8% of them agreed with the monthly fee from 3 to 5USD. None of them accepted the fee of more than 5USD a person per month (around 240USD per 4-membered households per year) (Fig 3). The annual income of the households from the responding individuals was ranging from 2500USD to 13000USD with the range of 2500-5000USD accounted for 64.3% and from 5000-13000USD accounted for 32.1%, indicated that such investment (240USD/year) has already accounted for nearly 10% of the lowest household income.

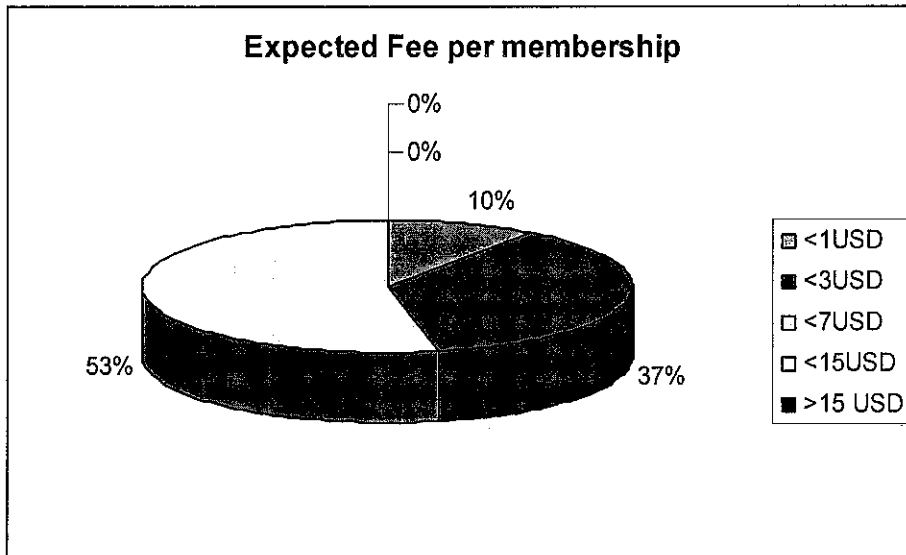


Fig3: Expected fee per membership

CHAPTER 5

SYSTEM DESIGN

5.1 DIAGRAMS

Refer to Appendix 5: diagrams of system design for all the **E-R diagram, use case diagram and activity diagram.**

5.2 BASIC FUNCTIONALITIES

The portal fulfills some crucial user requirements specified from the preliminary research as following:

5.2.1 Simple and understandable navigation scheme

With basic training, even the people with minimum ICT knowledge are able to browse through the system.

5.2.2 Multi-lingual

The information system is able to support three main languages-Vietnamese, English, and Japanese.

5.2.3 E-commerce capable

The portal supports e-commerce activity and categorizes product providers by product classification so that they can easily find the business partner through contact address provided and conduct business transaction directly on the portal.

5.2.4 Information sharing capable

Member can upload or download document through the system, which sequentially encourages knowledge sharing among them. They are also available to share ideas through forum, direct comment on the blog, file uploading.

5.2.5 Fully functional system at low cost

The system was built up based on open source software, which helps to reduce the cost of operation, and always be up-to-date.

5.2.6 Extensional features

New requirements can be supported easily with new extensions provided free from the open source developer community. However, adding new extension should be considered carefully as it could become a path for attacking the site from hackers.

5.2.7 System security

The access authority is granted differently to the admin, registered users, registered members and visitors. As the information systems support e-commerce activities, therefore, the HTTPs scheme must be applied to the site.

5.3 USER INTERFACE AND NAVIGATION SCHEME

5.3.1 Top menu

The **topmenu** is on the top of the page and contains navigation to:

Home – Home page (Fig 4)

The main page represents new articles, new products posted, new announcement, etc.



Fig 4: Home page

News – Information page (Fig 5)

Information page represents all new articles and is accessible to all users. The news page is presented like online newspaper column whereby a visitor can choose articles through the list of their titles.

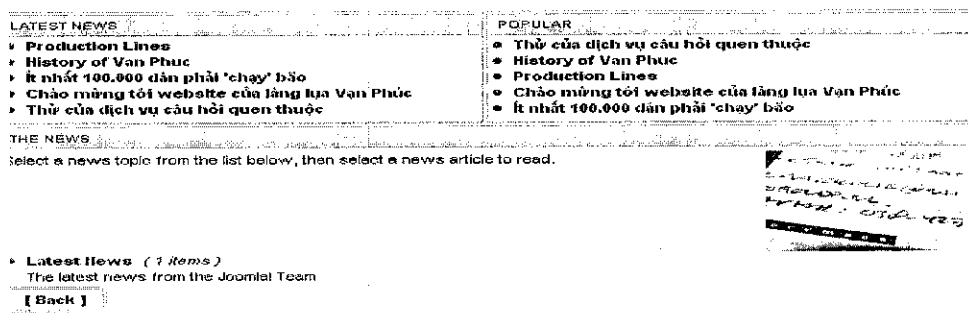


Fig 5: The News page

News includes sub-menu **Events** (Fig 6). Events will list all the events that are going to happen in the village in the form of time, venue, title, etc.

Insert your Introduction Text Here

[Show Archive](#)

15.05.2007 [Giải bóng đá giữa các xóm](#) Ủy ban xã Hà Đông
17.05.2007 [Ban hành điều luật mới](#) Ủy ban xã Hà Đông

EventList 0.8.8 Alpha by [schlu.net](#)

Fig 6: The event page

Forum: where members can speak out their opinions through discussion on different topics (Fig 7). The more communication is made, the higher the level of information sharing among the members.

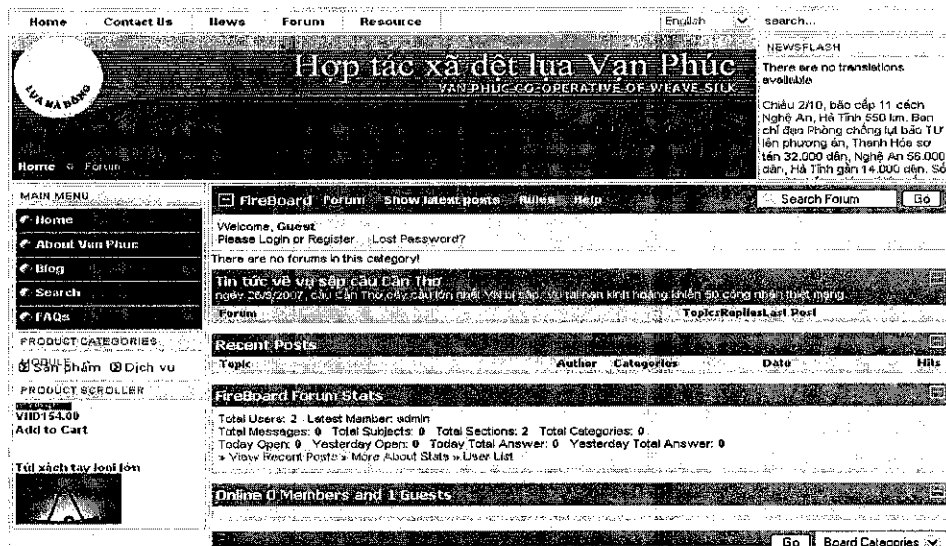


Fig 7: Forum page

Contact us – Contact people in charge

In case visitors have any comment, they are able to send the message to the people in charge

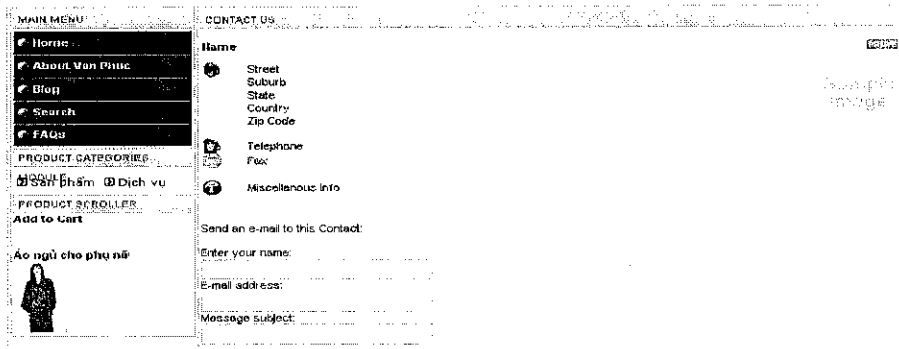


Fig 8: Contact us

5.3.2 Main menu

The **main menu**: is located on the left hand side of the page. It contains link to the other pages of the portal:

About Van Phuc – General information about Van Phuc Village

It provides general information about Vanphuc to the systems visitors such as tourists.

It includes sub-menu such as **History of Van Phuc**, **Silk Business** (describes briefly about silk making process), **Tourism Activities** (introduces tour to Van Phuc, how to reach there)

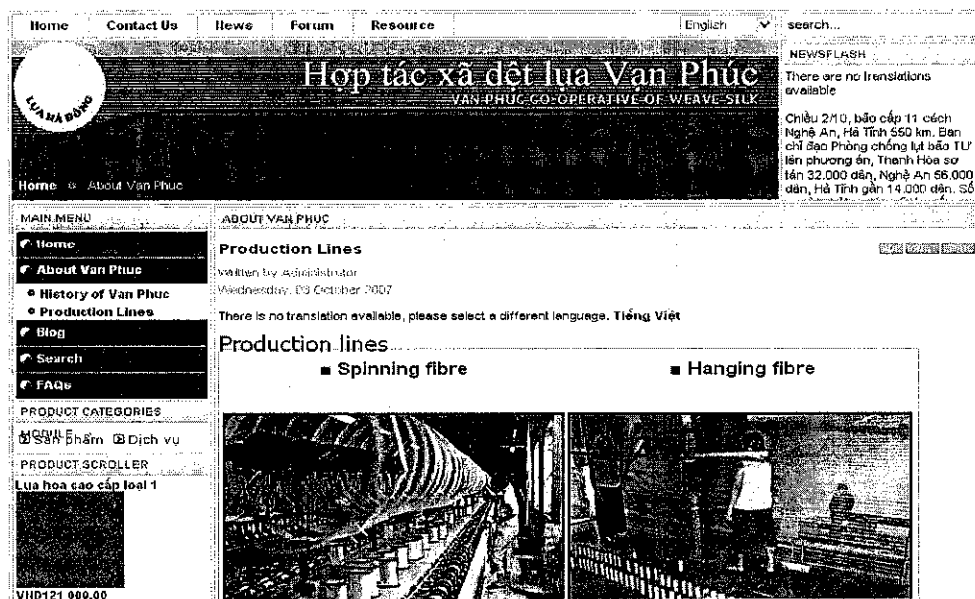


Fig 9: Sub-menu in About Van Phuc menu

Blog: Members read information and can comments for an article (Fig 11).



Fig 10: Blog page

Search - Search helps visitors can quickly find any information through keyword.

The user is able to search the content that contains any words of the search key, all the words or exact phase like the keyword.

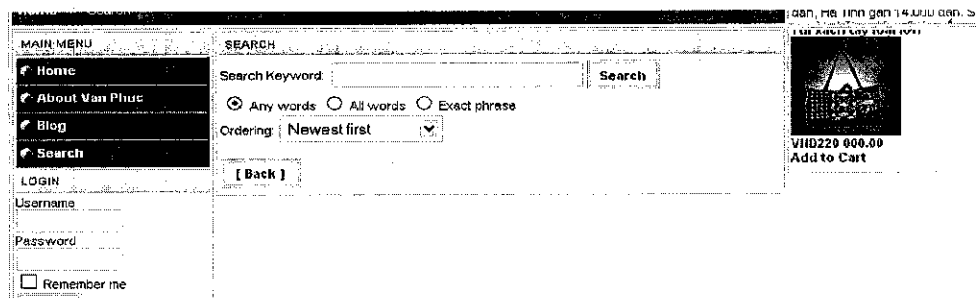


Fig 11: Search page

Member log in- Membership verification (Fig 12)

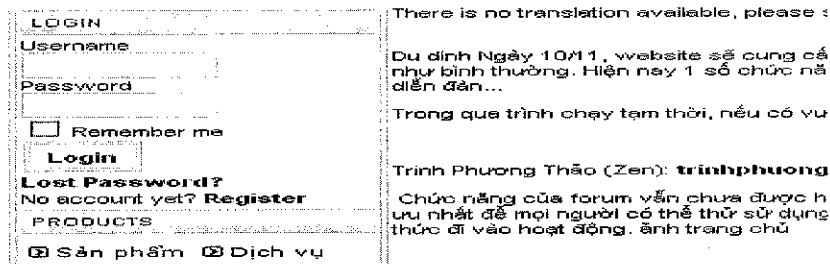


Fig 12: User login page

Depend on the userID, membership is categorized in 4 types

- Registered visitors
- Registered village members and village official
- Administrators
- Web surfers

After the registration, the user ID will be activated through the link that has been sent to the user ID. The administrator is able to grant different authorization towards the portal to the user.

Product categories- List of product categories (Fig 13)

The products are classified. When register users submits their product advertisement, the products will once again categorized to different groups. Thus, products list of a member can access either through the membership ID or through the product category.

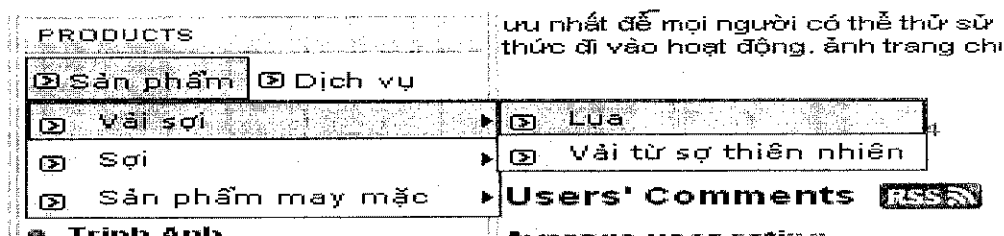


Fig 13: Product category menu

Manufacturer categories- List of manufacturer categories (Fig 14)

The manufacturers are listed and their products can be track down through the link associated with.

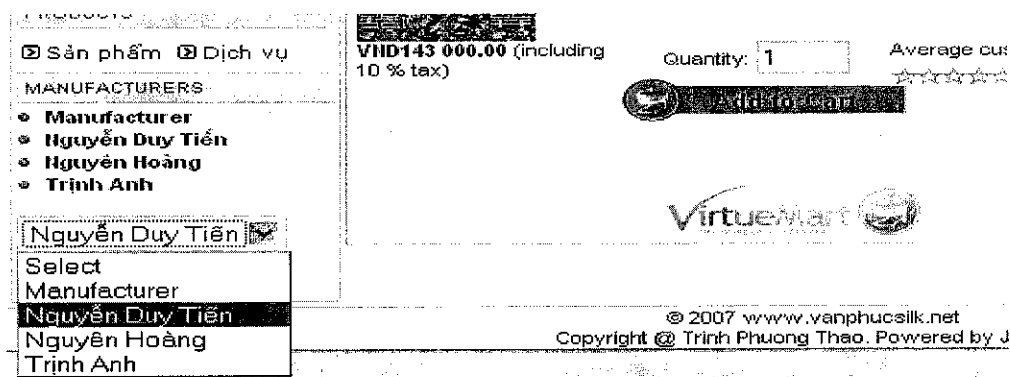


Fig 14: Manufacturer category menu

5.3.3. User menu

The user menu is accessible to only registered users. It includes **Your Detail**, which allows user to view or change their personal information and **Submit News**, which allows users to submit the information that they would like to have it, appear on the portal. The administrator would then edit the content of the user submission and post it online.

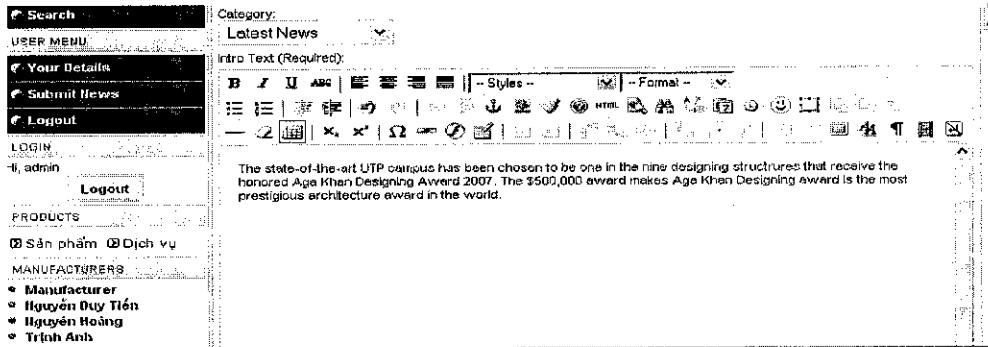


Fig 15: The user menu

CHAPTER 6

CONCLUSION AND RECOMMENDATION

6.1 IMPLICATIONS

6.1.1 Research implications

As many samples, the findings may be validated among other populations-other trading communities. In-depth qualitative research methodology may help gaining deeper insights into actual decision processes in the system development.

6.1.2 Practical implications

The research focused on the empirical methodology thus its results directly help to guide community members in the implementation process of integrated information systems that suitable to their actual needs.

6.2 CONCLUSION

Thirty villagers in Van Phuc Village were surveyed in order to profile their readiness towards e-society. The majority of the responding members in Van Phuc village support the implementation of community information system for the whole village though the current level of ICT adoption among these people is low. For example, they only use Internet for sending email and 100% of them have not utilized Internet technologies in their business. Nevertheless, there are some fundamental elements from which the e-community can be developed such as the members are aware of the need to be integrated in to a unified community, they understand the

benefit of applying advance information technology in their business, and 60% of the households there have already set up Internet connection.

The study also shows that people are reluctant towards adopting e-commerce applications in their business because they are afraid that all technologies are complex and their technical knowledge is not enough to be online and utilize all the features offered. In addition, security is also one of their concerns as 33.3% of them think that their credit card numbers will be exposed and stolen. Nevertheless, the study shows that this project has the absolute support from community members who are going the users of the system.

The socio-economic development goals of Vietnam have targeted a high aim for the development of the Information Communication Technologies (ICT) in Vietnam whereas ICT applications will be implemented both widely and deeply in the society. The propagation of IT to the common citizens, therefore, becomes inevitable process.

With the special characteristic of Vietnamese social structure whereby small communes and villages play a crucial role as the nuclear factor of the society, building an information system at this level can make a great change to the socio-economic development.

This research studies on implementing the information systems at the community level in rural area in Vietnam. The research focuses on the case study of Van Phuc silk trade village. The information system once to be proved feasible and successfully implemented can help the local community to intensify the relationship among its members, to reserve the traditional values, as well as to enhance the core business activity of the community.

6.3 RECOMMENDATIONS

The research has acknowledged the important role of ICT in building the bridge to connect the rural community to outside world. From the research, some of recommendations can be pointed out to all the stakeholders who involve the

development of ICT: government, specialized departments that generate strategic planning, and the people who directly benefit from ICT implementation, etc.

6.3.1 The government

The government should issue strategies, policy and measures to:

- Reduce inequality in opportunities to access to ICT (technology divide) by formulating and implementing programs to support ICT use and ICT development in rural and difficult areas
- Raise awareness on IT use and development of people at community level, especially in business activities.
- Create favorable solid legal environment for IT use and development in rural areas, especially in business development such as tax, cyber laws, etc.
- Mobilize funding resources equally to the projects that help develop ICT in the rural areas.

6.3.2 The ICT developers

The developer must thoroughly do the business and system analysis to build up system that supports the specific need of the community itself. Besides the administration structure that is similar to all the communities, every community has its own uniqueness and requires the development team to carefully recognize and understand to fulfill the system customizing needs.

6.3.3 The community

Through education, advertisement campaign, the community members should be equipped with all the basic knowledge and skills of utilizing ICT applications, for example, browsing the Internet, typing on computer keyboard. Such knowledge transfer can be done on the peer-to-peer methodology whereby those members whole have already known would then teach for other fellow.

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APPENDICES

1. Appendix 1: Some community websites in Vietnam

1.1. Hatay province: (www.hatay.gov.vn). Van Phuc village is located in this province

- i. Do not support English language
- ii. No information about the economic activities
- iii. Only contain social information
- iv. Information is up-to-date
- v. Funded by the government to be developed and maintained

Trang thông tin điện tử tỉnh Hà Tây
www.hatay.gov.vn

Hôm nay, ngày 28, tháng 2, năm 2007. Bây giờ là: 11:15:44 PM

Trang chủ | Tin tức | Điện dân doanh nghiệp | Sơ đồ website | Công cụ tìm kiếm | Thư viện ảnh | Hướng dẫn | Hộp thư

Trang chủ - Tin tiêu điểm

Chủ tịch UBND tỉnh Nguyễn Xuân Cường tham gia trồng cây đầu xuân tại huyện Mỹ Đức (28/2/2007)

Sáng 20/2 (Mùng 4 Tết Đinh Hợi), tất cả các thành phố, thị xã, huyện trên địa bàn tỉnh Hà Tây đều tổ chức phát động Tết trồng cây hưởng ứng Lời kêu gọi của Bác Hồ: "Mùa Xuân là Tết trồng cây, Làm cho đất nước càng ngày càng Xuân".

Tin hàng ngày mới nhất từ các đơn vị

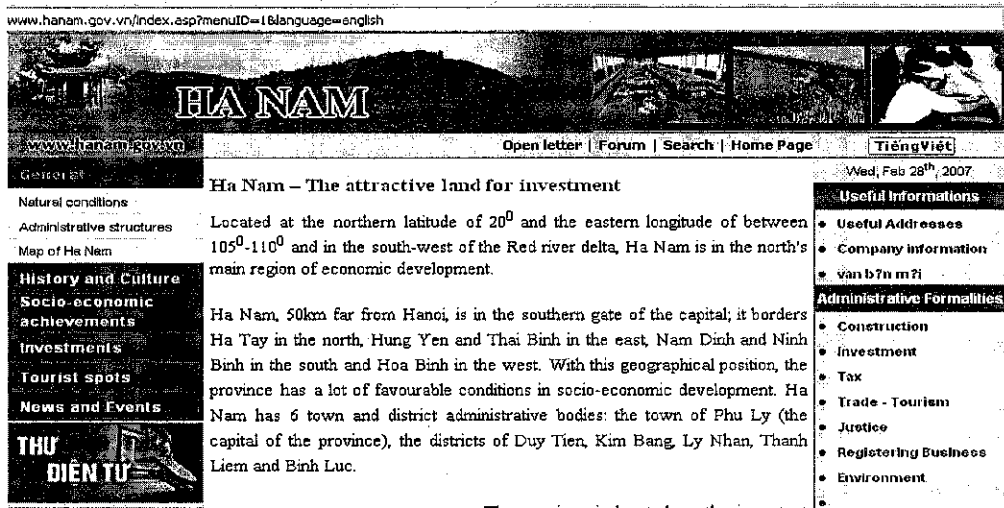
- Ủy ban nhân dân: Chủ tịch nước Nguyễn Minh Triết thăm và chúc Tết tại Công ty Vàng bạc Đá quý Sài Gòn (24/2/2007)
- Thị xã Hà Đông: Lễ công bố Nghị định của Chính phủ về thành lập Thành phố Hà Đông và đón nhận Huân chương Độc lập hạng Ba (12/2/2007)
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Tin mới nhất

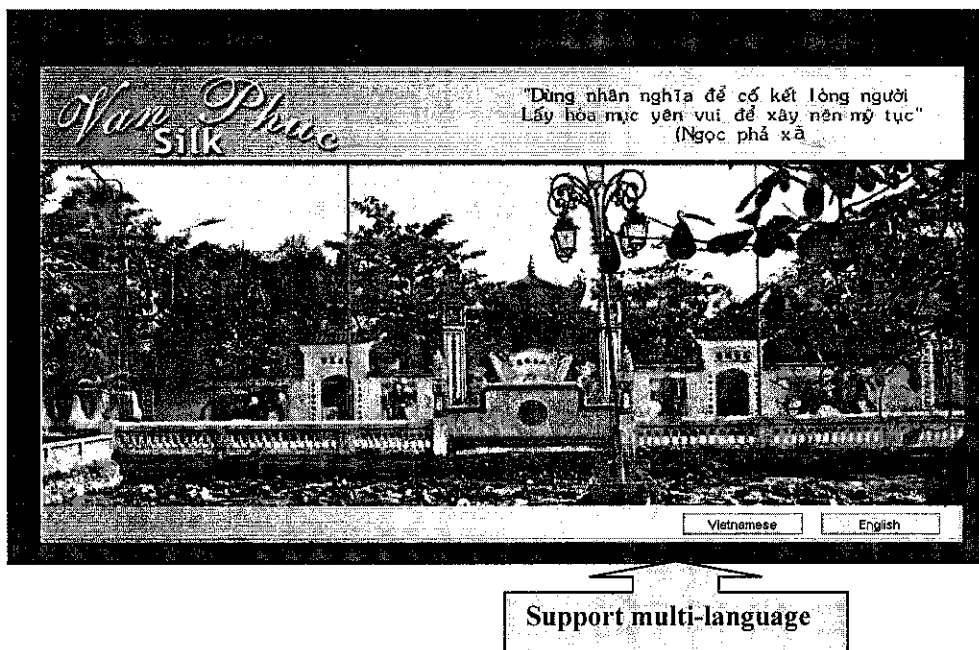
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1.2. Hanam Province: (www.hanam.gov.vn)

- vi. Support Vietnamese and English
- vii. Information is not updated (some data is back in 2003)
- viii. One way communication: the website play as the notice board of the local community



Appendix 2: Van Phuc Cooperative of Weave Silk website (www.vanphucsilk.com).



Van Phuc Co-operative of Weave Silk
HỢP TÁC XÃ DỆ LƯA VAN PHÚC

History of Van Phuc

Introduction of the village

Introduction of the production line

There lies a bamboo stump
And it is famous for ponds and silk weaving
(folk song)

Van Phuc Silk Village is located on the banks of Nhuê Thi River, Ha Dong Town, Ha Tay Province. Van Phuc is not only famous for its sericulture and weaving but also proud of its patriotism, industry and creation since its formation.

Product catalog

Contact information

Appendix 3: Streamyx package in Malaysia

PACKAGE	SPEED	MONTHLY RMB	WARRANTY	USAGE TIME	MIN. SUB.
STREAMYX BASIC 1M	1Mbps	RM69	LIFETIME	UNLIMITED (WITH MODEM)	1 YEAR
STREAMYX BASIC 1M	1Mbps	RM88	LIFETIME	UNLIMITED (W/O MODEM)	1 YEAR
STREAMYX 512K	512Kbps	RM77	LIFETIME	UNLIMITED (WITH MODEM)	1 YEAR
STREAMYX 512K	512Kbps	RM66	LIFETIME	UNLIMITED (W/O MODEM)	1 YEAR
STREAMYX 512K	512Kbps	RM44	LIFETIME	60 HOURS (W/O MODEM) ADD. USAGE = 15EN/MIN	1 YEAR
STREAMYX ENTERPRISE ADSL 1.0M	1Mbps	RM418	LIFETIME	UNLIMITED (WITH MODEM) * 1 Fixed IP * 3 emails	1 YEAR
STREAMYX ENTERPRISE SDSL 1.5M	1.5Mbps	RM618	LIFETIME	UNLIMITED (WITH MODEM) * 1 Fixed IP * 3 emails	1 YEAR
STREAMYX ENTERPRISE ADSL 2.0M	2Mbps	RM698	LIFETIME	UNLIMITED (WITH MODEM) * 1 Fixed IP * 3 emails	1 YEAR
STREAMYX CORPORATE ADSL 1.0M	1Mbps	RM618	LIFETIME	UNLIMITED (WITH MODEM) * 5 fixed IP * 3 emails	1 YEAR
STREAMYX CORPORATE SDSL 1.5M	1.5Mbps	RM1048	LIFETIME	UNLIMITED (WITH MODEM) * 5 fixed IP * 3 emails	1 YEAR
STREAMYX CORPORATE ADSL 2.0M	2Mbps	RM1188	LIFETIME	UNLIMITED (WITH MODEM) * 5 fixed IP * 3 emails	1 YEAR

4. Appendix 4: Survey results

4.1. Community officials:

Question	Content	Criteria	Frequency/Percentage
1	The village population		5600
2	Percentage of household has silk business		60%
3	The total income from silk		USD 2.8 million
4	Total income from silk/total income		75%
5	Total income per capita		667USD/year
6	Total income per capita (on silk industry)		835USD/year
7	The educational level		
		Preliminary school	
		Secondary school	
		High School	80.00%
		Degree	20.00%
8	Percentage of household that have at least one person speaking English		
		<5%	
		<10%	
		<20%	V
		<30%	
		<40%	
		<50%	
		<60%	
		<70%	
		>70%	
9	Percentage of household that have at least one person can use computer		
		<5%	
		<10%	

		<20%	
		<30%	V
		<40%	
		<50%	
		<60%	
		<70%	
		>70%	
10	What type of internet connections supported in Vanphuc		
		Dial-up	V
		Broadband	V
		Wimax	
11	Percentage of subscribing to the Internet in the household		60%
13	What type of communication means that the information can be spread to all the villagers?		
		Speakers system	V
		Community officers	V
		Telephone	
		Internet (email, website)	
		Other (please specify)	
14	1. What are the main activities in the commune?		
		Preserve the business secrets and traditions	
		Keep the villagers	

		updated with new information	
		Promote tourism	
16	Does Vanphuc have any development scheme for preserving traditions		
		Yes	V
		No	
17	Does Vanphuc have any development scheme for promoting ICT		
		Yes	V
		No	
18	The number of households that are supported by websites		Less than 10

4.2. Community members

Question	Content	Criteria	Frequency	Percentage
1	Gender	Male	10	33%
		Female	20	66%
Total			30	100
2	Age			
		<20	1	3.3%
		20-30	14	46.7%
		30-40	9	30%
		40-50	5	16.7%
	>50	1	3.3%	
Total			30	100%
3	Level of Education			
		Secondary School	13	59.1%
		High school	9	40.9%
		Degree	1	4.5%

Total			22	100%
4	What do you family does in the silk business?			
		Making raw material	5	16.7%
		Weave silk	30	100%
		Sell materials	9	30%
		Selling finished products	29	96.7%
		Providing supporting services	4	13.3%
Total				
5	What are the main sources of customers?			
		In the surrounding provinces		21.4%
		From other provinces		60.7%
		Overseas		17.9%
Total				100%
6	What are the types of communication media employed to contact customers?			
		Mobile phone	24	80%
		Telephone(fixed line)	25	83.3%
		b. Email	7	23.3%
		c. Postal mail	6	20%
		d. Others/ Define	5	16.7%
Total				
7	How do you advertise your products or business to new customers?			
		Newspaper/TV	6	20%
		Words of mouth	29	100%
		Exhibition	19	63.3%
		Send brochures through postal service	11	36.7%

		Website	0	0%
		Email	4	13.3%
		Others/ Define	1	3.3%
Total				
8	What is the size of your business			
		Enterprise	0	0%
		Household business	30	100%
Total			30	100%
9	The number of working people involved?			
		<3	0	
		3 to 5	26	89.7%
		6 to 9	3	10.3%
		More than 10	0	
Total			29	100%
10	Have you ever heard of doing business online (e-commerce)?			
		Yes	27	90%
		No	3	10%
Total			30	100%
11	Do you have credit card or bank account?			
		Yes	21	72.4%
		No	8	27.6%
Total			29	100%
12	How long have you used it?			
		<1 year	0	0%
		1-2 years	10	52.6%
		>3 years	9	47.4%
		>5 years	0	0%
Total			19	100%
13				

	How often do you use the card/account	Always for every transaction	0	0%
		Sometimes. Just for compulsory situations	15	100%
		Only few times if there are no other ways	0	0%
		No, never	0	0%
Total			15	100%
14	Do you know how to use Internet?			
		Yes	20	69%
		No	9	31%
Total			29	100%
15	If yes. What are the purposes that you are online?			
		Display company information and the product/services offered	0	0%
		Handling customers feedback/queries on-line	0	0%
		Online help-product updates	0	0%
		Processing sales order from customers online	0	0%
		Research and evaluate suppliers	0	0%
		Research on consumer preference	0	0%
		Research on competitor (go to the website that offer the same type of products like yours)	0	0%
		Communicate through email	20	100%
Total				
16	Do you have website			

	to advertise products on the Internet?	Yes	0	0%
		No	30	100%
Total			0	100%
17	If Yes. Do you think it is effective and support the business?	Yes	#	
		No	#	
Total				100%
18	Can it support ordering online?	Yes	#	
		No	#	
Total				100%
19	Rate your website in 10 scale			
		1	#	
		2	#	
		3	#	
		4	#	
		5	#	
		6	#	
		7	#	
		8	#	
		9	#	
	10	#		
Total				100%
20	If no, what is the ordering process for domestic customer and foreign customers?	Face to face discussion	25	83.3%
		Telephone(fixed or mobile)	25	83.3%
		Email	8	26.7%
		Postal service	7	23.3%
		Interest order	0	0%

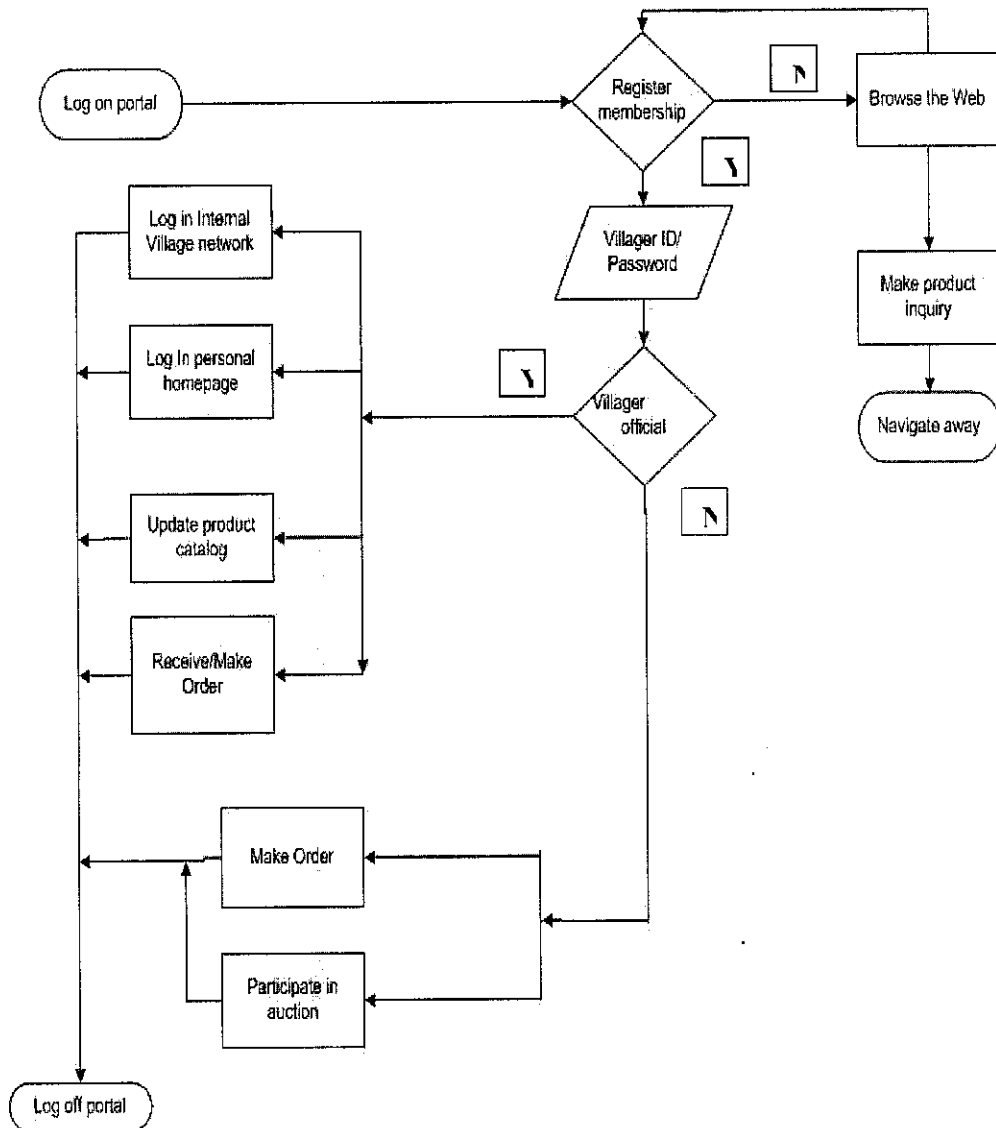
		Other. Specify	0	0%
Total				
21	What do you think are the fastest ways to process order?			
		Face to face discussion	0	0%
		Telephone(fixed or mobile)/Fax	25	83.3%
		Email	7	23.3%
		Postal service	13	43.3%
		Internet order	1	3.3%
		Other. Specify	0	0%
Total				
22	If yes, What is the cost to maintain your website? (Development + implementation + maintenance)?			
		Development and implementation	#	
		Maintenance	#	
Total				100%
23	Do you maintain it on your own or use professional service			
		Yes		
	No			
Total				100%
24	In the near future, are you going to implement website?			
		Yes	27	90%
	No	3	10%	
Total			30	100%
25	If yes, how much each user should pay monthly			
		<1USD	3	10%
		<3USD	11	36.7%
		<7USD	16	53.3%
		<15USD	0	0%
	>15 USD	0	0%	

Total			30	100%
26	What are the reasons that prevent you from setting up a website?			
		It is expensive	0	0%
		The current business size does not need it	26	86.7%
		Cannot manage (lack of language and technical ability)	22	73.3%
		The business info is exposed to rivals	0	0%
		The account number is stolen	10	33.3%
		Can be deceived by unethical customers	11	36.7%
Total				
27	What are the following features that you think a website for community should have?			
		Aesthetic look	0	0%
		Easy to navigate for naïve users, understandable scheme	21	70%
		Member can advertise their own products	2	6.7%
		Secured (not easily be hacked, or user information is not exposed)	1	3.3%
		Have a search engine allowing to find products cross websites	2	6.7%
		The participation fee is cheap	21	
		Information about the community is updated frequently	3	10%

		Support multi-languages (translate directly from the page)	24	80%
		The new users can be taught how to use the website features	26	86.7%
Total				
28	Your family annual income?			
		<2500 USD	1	3.6%
		2500 - 5000USD	18	64.3%
		5000-13000USD	9	32.1%
		>13000USD	0	0%
Total			28	100%

5. Appendix 5: Diagrams of system design

5.1 Flow-chart diagram



Different user ID will be granted different system accessibility authorization.

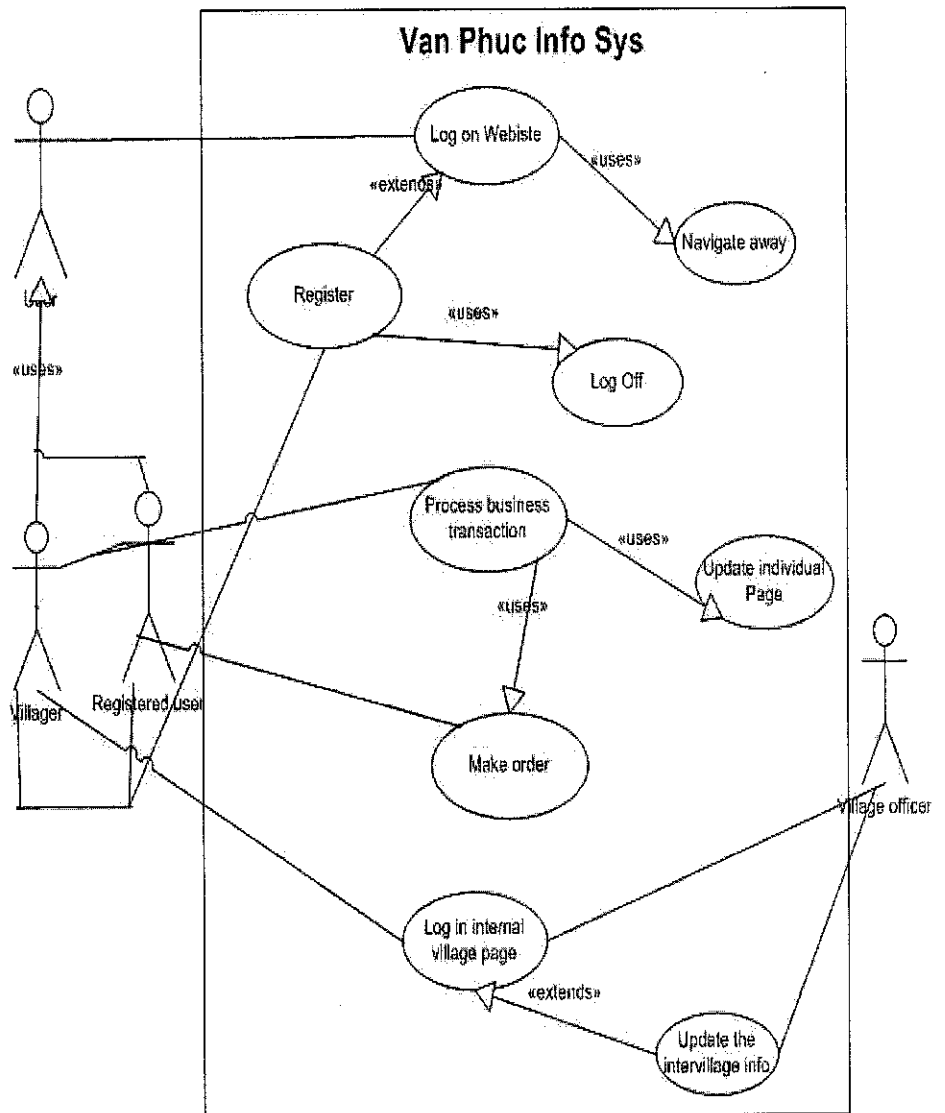
Basically, there are 6 types of system users:

- **The system administrator:** Manage the technical aspects of the system, for instance, grants user authorization, and maintains system.
- **The villager:** able to access all the content of the system even the inter-village network.

- **The registered customers:** Those find the website a B2C shopping site where they can order products with small quantity and get it delivered to their home addresses.
- **Normal Internet surfers:** They are random visitors, such as tourists, who are able to view general unsecured area of the system, make the product inquiry but unable to make direct purchase.

5.2 Use-case diagram

- "Uses" represents "include" relationship.



5.3 Activity diagram

- Due to the limitation of the CASE tool which offers small drawing space, only certain activities of representative system users, are recorded

