

**THE DEVELOPMENT OF AN EFFECTIVE MODEL FOR
IMPLEMENTING INFORMATION MANAGEMENT
STRATEGIES IN HIGHER EDUCATION INSTITUTIONS**



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**A THESIS SUBMITTED IN PARTIAL FULFILLMENT
OF THE REQUIRMENTS FOR THE DEGREE OF
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MAHIDOL UNIVERSITY**

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Thesis
entitled

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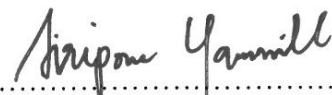
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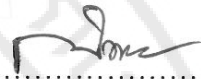


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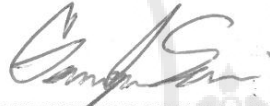
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THE DEVELOPMENT OF AN EFFECTIVE MODEL FOR IMPLEMENTING
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ABSTRACT

This research aimed to: 1) study the components of the information technology management strategies implementation in higher education institutions, and 2) develop an effective model for information management strategies implementation in higher education institutions. This research used quantitative research methodology. The data were collected from 879 participants from 25 universities under the Office of the Higher Education Commission which have good score of management assessment above 4.51 and has been ranked in the world's top 100 universities based on the site <http://www.webometrics.info/en/Asia/Thailand>. The gathered data were analyzed using exploratory factor analysis (EFA).

The study indicated that there were 8 components of the information technology management strategies implementation in higher education institutions, which were database development and information system security, budget allocation, strategic information systems assignment and review before implementation, leadership, organizational culture, organizational capabilities, internal communication, and rewards and incentives. The result of Bartlett's Test of Sphericity included all components in accordance with Chi-Square statistical significance at the 0.05 level and the Kaiser-Meyer-Olkin Measure of Sampling Adequacy was 0.850.

The result of the development an effective model for information management strategies implementation showed that causal relationship was consistent with the empirical data. The first three of causal factors which directly influenced on organizational capabilities was internal communication, strategic information systems assignment and review before implementation, and leadership. Moreover, the causal factors which had influence on organizational capabilities was strategic information systems assignment and review before implementation, leadership, and organizational culture.

Therefore, higher education institutions should have a database system to store information in a secure environment; the information management strategies should be assigned to the responsible people based on their abilities and experiences, and the management team should clearly display the vision in the operation of information management system.

KEY WORDS: STRATEGY/ IMPLEMENTATION / INFORMATION SYSTEMS
MANAGEMENT

159 pages

การพัฒนาแบบที่มีประสิทธิภาพของการนำกลยุทธ์การจัดการระบบสารสนเทศไปปฏิบัติในสถาบันอุดมศึกษา
 THE DEVELOPMENT OF AN EFFECTIVE MODEL FOR IMPLEMENTING INFORMATION
 MANAGEMENT STRATEGIES IN HIGHER EDUCATION INSTITUTIONS

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 จิตรลดา อมรวัฒนา, Ph.D..

บทคัดย่อ

การวิจัยเรื่องนี้มีวัตถุประสงค์เพื่อ 1) เพื่อศึกษาองค์ประกอบของการนำกลยุทธ์การจัดการระบบสารสนเทศไปปฏิบัติในสถาบันอุดมศึกษา 2) เพื่อพัฒนาแบบที่มีประสิทธิภาพของการนำกลยุทธ์การจัดการระบบสารสนเทศไปปฏิบัติในสถาบันอุดมศึกษา

โดยกลุ่มตัวอย่างที่ใช้ในการวิจัยครั้งนี้คือ บุคลากรในมหาวิทยาลัยที่ผ่านเกณฑ์คุณภาพในคะแนนการบริหารจัดการในระดับดีมาก ค่าเฉลี่ย 4.51 ขึ้นไป และเป็นมหาวิทยาลัยที่ได้จัดอันดับอยู่ในเว็บไซต์ <http://www.webomestics.info> อันดับ 1-100 มีจำนวนทั้งสิ้น 25 แห่ง ผู้ให้ข้อมูลจำนวน 879 คน ใช้การสุ่มตัวอย่างแบบเจาะจง และใช้การวิเคราะห์ข้อมูลองค์ประกอบเชิงสำรวจ (Exploratory Factor Analysis)

ผลการศึกษาพบว่า การนำกลยุทธ์การจัดการระบบสารสนเทศไปปฏิบัติในสถาบันอุดมศึกษา มีทั้งหมด 8 ประการ ประกอบด้วย การพัฒนาฐานข้อมูลและความปลอดภัยของระบบสารสนเทศ การจัดสรรงบประมาณสำหรับระบบสารสนเทศ การมอบหมายกลยุทธ์และทำการทบทวนก่อนนำไปปฏิบัติ ภาวะความเป็นผู้นำ วัฒนธรรมองค์กร ความสามารถขององค์กร การสื่อสารภายในองค์กร และการให้รางวัลและสิ่งจูงใจ

ผลการทดสอบ Bartlett's Test of Sphericity รวมทุกองค์ประกอบ พบว่ามีค่าสถิติ Chi-Square มีนัยสำคัญทางสถิติ ในระดับ 0.05 และ ค่า KMO (Kaiser-Meyer-Olkin Measure of Sampling Adequacy) เท่ากับ 0.850 ส่วนความสัมพันธ์เชิงสาเหตุของรูปแบบที่มีประสิทธิภาพของการนำกลยุทธ์การจัดการระบบสารสนเทศไปปฏิบัติในสถาบันอุดมศึกษา มีความสอดคล้องกับข้อมูลเชิงประจักษ์ โดยองค์ประกอบที่เป็นสาเหตุและมีอิทธิพลทางตรงต่อความสามารถขององค์กร 3 อันดับแรกได้แก่ การสื่อสารภายในองค์กร การมอบหมายกลยุทธ์และทบทวนการนำกลยุทธ์ไปปฏิบัติ และภาวะความเป็นผู้นำ ส่วนองค์ประกอบที่เป็นสาเหตุที่มีอิทธิพลทางอ้อมต่อความสามารถขององค์กร ได้แก่ การมอบหมายกลยุทธ์และทบทวนการนำกลยุทธ์ไปปฏิบัติ ภาวะความเป็นผู้นำ และวัฒนธรรมองค์กร และมีข้อเสนอแนะสำหรับงานวิจัยครั้งนี้คือ ผู้บริหารควรออกนโยบายให้หน่วยงานที่รับผิดชอบในงานด้านต่างๆ จัดทำระบบที่คำนึงถึงความปลอดภัย เกิดความเหมาะสมกับงาน และเชื่อมโยงระหว่างแผนงานกับการปฏิบัติงานให้สามารถทำงานได้อย่างรวดเร็วเกิดประสิทธิภาพ นอกจากนี้ ควรศึกษาปัญหาและข้อจำกัดของการนำกลยุทธ์การจัดการระบบสารสนเทศไปปฏิบัติในสถาบันอุดมศึกษา เพื่อนำมาสู่การวางแผนพัฒนาให้มีประสิทธิภาพยิ่งขึ้น

CONTENTS

	Page
ACKNOWLEDGEMENTS	iii
ABSTRACT (ENGLISH)	iv
ABSTRACT (THAI)	v
LIST OF TABLES	viii
LITS OF FIGURES	x
CHAPTER I INTRODUCTION	1
1.1 Statement of the problems	1
1.2 Research Question	4
1.3 Research Objectives	5
1.4 Scope of Research	5
1.5 Definitions	7
1.6 Research Utilization	7
CHAPTER II LITERATURE REVIEW	8
2.1 Information Technology Concepts	8
2.2 Strategic Management Concepts	15
2.3 Concepts of Information Systems Management Strategies	53
2.4 Efficiency concept	71
2.5 Model Concept	74
2.6 Related Research	77
2.7 Research Framework	84
CHAPTER III RESEARCH METHODOLOGY	86
3.1 Research population and sample	86
3.2 Data sources	87
3.3 Research Methodology	88
3.4 Research tools	90
3.5 Data collection	91

CONTENTS (cont.)

	Page
3.6 Statistics for research	91
CHAPTER IV RESEARCH RESULTS	94
4.1 The analysis of the components for implementing information management strategies.	94
4.2 The Development of an effective model for information management strategies implementation in higher education institutions.	122
CHAPTER V RESEARCH CONCLUSION, DISCUSSION AND RECOMMENDATION	138
BIBLIOGRAPHY	152
BIOGRAPHY	159

LIST OF TABLES

Table	Page
3.1 Present a factor Loading value in appropriate number of sample	93
4.1 Respondents' characteristic	94
4.2 The mean (\bar{x}), standard deviation (S.D.) and level of performance for the information technology management strategies' implementation.	97
4.3 Presenting of Skewness, Krutosis, Range and Maximum and Minimum	105
4.4 Present of Bartlett's Test of Sphericity and KMO-Meyer-Olkin Measure of Sampling Adequacy include all components	107
4.5 Present of Bartlett's Test of Sphericity and KMO-Meyer-Olkin Measure of Sampling Adequacy for component 1	108
4.6 Present of Bartlett's Test of Sphericity and KMO-Meyer-Olkin Measure of Sampling Adequacy for component 2	108
4.7 Present of Bartlett's Test of Sphericity and KMO-Meyer-Olkin Measure of Sampling Adequacy for component 3	109
4.8 Present of Bartlett's Test of Sphericity and KMO-Meyer-Olkin Measure of Sampling Adequacy for component 4	109
4.9 Present of Bartlett's Test of Sphericity and KMO-Meyer-Olkin Measure of Sampling Adequacy for component 5	110
4.10 Present of Bartlett's Test of Sphericity and KMO-Meyer-Olkin Measure of Sampling Adequacy for component 6	110
4.11 Present of Bartlett's Test of Sphericity and KMO-Meyer-Olkin Measure of Sampling Adequacy for component 7	111
4.12 Present of Bartlett's Test of Sphericity and KMO-Meyer-Olkin Measure of Sampling Adequacy for component 8	111

LIST OF TABLES (cont.)

Table	Page
4.13 Display of Initial Eigenvalues, percentage of Variance, percentage of Cumulative Variance of components for information systems management strategies implementation in higher education institutions	112
4.14 Show of Factor Loading and components	113
4.15 Factor loading for component 1	114
4.16 Factor loading for component 2	115
4.17 Factor loading for component 3	115
4.18 Factor loading for component 4	116
4.19 Factor loading for component 5	117
4.20 Factor loading for component 6	117
4.21 Factor loading for component 7	118
4.22 Factor loading for component 8	119
4.23 Present statistic of the consistency of the model with empirical data	123
4.24 Show the correlation coefficient between the components of information system management strategy implementation	125
4.25 Presented of the confidence and reliability of the measurement.	126
4.26 Influence of correlation components on the implementation of information management strategies in higher education institutions.	131

LIST OF FIGURES

Figure	Page
2.1 Strategic management process	23
2.2 shows the strategic management process model.	26
2.3 shows the strategic management process	28
2.4 shows the conceptual framework for implementing the strategy of Fevzi Okumus	32
2.5 Conceptual frameworks that obstruct the implementation of the strategy.	36
2.6 shows the steps for implementing the strategy	38
2.7 shows the information system (physical)	60
2.8 shows the information system.	61
2.9 shows the relationships between information technology and information systems, organization processes and organizational environment.	65
2.10 shows the relationship between organizational strategies and information management strategy	66
2.11 mutual relationship of organization environment	69
2.12 value chain from Porter	71
2.13 Research conceptual framework	85
4.1 key components for information system management implementation in the higher education institution	121
4.2 the relationships of factors for an effective model for information management strategies implementation in higher education institutions	128
4.3 Model of structural relationship in organizational competency in higher education institutions	132
4.4 An effective model of information management strategies implementation in higher education institutions.	137

CHAPTER I

INTRODUCTION

1.1 Statement of the problems

The world is constantly evolving and changing. Sometimes it may change suddenly but sometimes it gradual change. The change is depending on many factors. Alvin Toffler has divided the developing world into three era, each of era has called waves. Since the early days. The first wave or the agricultural society. Later, a second wave or industrial era. And into the third wave or the Information era. This information era has been changed from being the industry that using the machine instead of human labor for more efficient and standardized of work. However, the information era is still dependent on the traditional industry but more focus on the information. The information society is a society in which the majority of the population is more information-oriented than in the industrial sector or in agriculture. Most of the work is done using brain rather than labor. And education is very important in preparing the population into the information society. Therefore nowadays all organizations have to adjust and adapt to development society that have a lot of pressure and stress to compete with other organizations. The adaptation depends on factors, especially technological and innovative factors. This is the information system to facilitate the management of the organization to be more flexible

Since the establishment of Thailand IT Year 1995, Thailand has evolved into the widely and vary use of information and communication technology both in corporate management and government services. The use of information and communication technology reduce costs but increase efficiency in the industrial sector. Moreover it is for better quality of life in civil society sector including all organization, community and family level (Office of Secretary, National ICT Development Board, 1995). In the past two decades, the evolution of information technology has grown steadily and fast. It has powerfully changed both the public and

private sectors. For the private sector, the potential of information technology has been leveraged to compete in the product's production and services to maximize customer value and satisfaction to achieve goal in term of profit and organization's existence. The government has enhanced the use of information technology for both in facility establishment and provide services to the people. But there are some obstacles that cannot be fully met the needs of the people. However some government agencies have started to use information technology for routine work to facilitate their staffing and serving the public. It represents a good trend of using technology to in government organizations.

To promote the implementation of information systems in the government completely. It is important to prepare an understanding of visionary leaders to have a clear goal in developing an information system. Preparation for user groups or civil servants, the operational staff who responsible for the development of information technology. For the application of information technology, it should understand and recognize the necessity, value and benefits in each type of information technology, along with the improvement of the development competency in different dimensions. The right information technology can help the organization drive the new model or known as the development of administrative innovation and management. Another necessity is to change the attitude of staff to be in line with the modern world. Since new public management is the application of the characteristics of successful private sector management which can be used in the government as much as possible. At the present, people are more important to government agencies therefore it is important to emphasize on speed, accuracy and good governance including it can meet the needs of the people thoroughly.

Moreover, it also emphasizes the quality of service at every stage due to the advances in technology, if there are an error, the competitor can take advantage of the opportunity to become a leadership of the organization or market permanently. And the impact to create a state-of-the-art information technology, requires a high budget and the long preparation time. Creating a plan and vision makes the government manage the work effectively and understanding in the same direction is an important reason that should be considered together to provide technology as a tool of making information accessible to the recipient and to meet the needs of the service. At

the same time, the study of information management system is the driving force for Thai society to be a wise society or a society that is widely used of information and communication technology and ready to become an ASEAN citizen and world citizens in the future.

The situation that affects the direction or trend of organizations which has goal to be an innovative organization. The importance of this part is considered a key role in every organization both public and private sector. Especially in the academic organization in various levels and special emphasis in higher education because it is considered an advanced institution. As the influenced from globalization, there is an impact on the administration of the university. Therefore the university needs to adjust its management approach to maintain its academic leadership including response to the public. It is predicted that in the 21st century, the number of students in higher education will continually decline. There is a competition between universities to attract student to enroll in their university. Higher education faces the problem of the number of admission. Government subsidies are not proportionate. The expansion of public and private higher education institutions is lacking in good planning which cause confusion of internal processes that affect the quality of education. All of this will have serious consequences for developing country and vulnerable people and the key word. "University" (Manit Boonprasert et al., 2006: 2).

Nowadays, the development of higher education institutions is want to be recognized to attract students and try to maintain a standard of quality that is apparent to the outside world. The University is continuing developing academic and information technology to support the change and the educational advantage. At the same time, more and more courses are being launched both in undergraduate and postgraduate degrees, as well as the establishment of a large number of education centers. The competition in education institution is more business. Therefore it is important to have agencies which responsible for quality assurance and standard certification to check and control to ensure the quality of education is ongoing and continuous. And the results of the university assessment presented that some universities are lower than the standard. (Office of Educational Quality Assurance and Accreditation, 2014)

This reflects the management of the university that may cause the problem later on. One of the reasons is the lack of readiness to use information management systems for all management works. The basic study found that most universities have already defined and implemented strategies for managing information systems. The strategic plan relevant to the overall university's strategic plan. Then divided into sub strategies to easier understanding but it still has problems with the management of information systems are as follows; lack of readiness in modern technology development, the budget is limited, human resource knowledge in information systems management, collaboration between agencies and the integration of information. Even there is a policy and strategic for information technology implementation but there are problems with the information management system implementation, so the information system for university management has a barrier for organizations' development. In particular, the implementation of information systems in the organization to drive the development of the organization is require the study of strategy implementation. Especially for using of information systems to enhance the universities' ability. As it is an important organization in the community and is a place for cultivating knowledge for various groups. The knowledge can be brought to benefit the community, society and the nation.

From the information above and the reason that there is a little of the research on the information management strategies implementation in the higher education institutions. Therefore, it should conduct the study of an effective models development for information management strategies implementation in higher education institutions to be a guideline for information systems management at higher education institutions for other universities or to the interested person.

1.2 Research Question

1.2.1 What are the components of information management strategies implementation in higher education institutions?

1.2.2 What is the efficiency of information management strategies implementation in higher education institutions?

1.3 Research Objectives

1.3.1 To study the components of information system management strategy implementation in higher education institutions.

1.3.2 To develop an effective model of information management strategies implementation in higher education institutions?

1.4 Scope of Research

To develop effective models of information management strategies implementation in higher education institutions. The research used both qualitative and quantitative research methods.

1.4.1 Scope of contents

A study of the appropriate components of information management strategy or information management system in the organization to develop effective models of information management strategies implementation in higher education institutions. Specifically, at the University. The source of information from the literature review and data collection from field.

1.4.2 Population and sample

The population in this study is the public and private universities under the Office of the Higher Education Commission which have good score of management assessment in above of 4.51 and has been ranked in the site <http://www.webometrics.info/en/Asia/Thailand>, in the top 100. There were 25 universities such as Chulalongkorn University, Suranaree University of Technology, Mahidol University, Chiang Mai University, King Mongkut's University of Technology Thonburi, King Mongkut's University of Technology North Bangkok, King Mongkut's Institute of Technology Latkrabang, Thammasat University, National Institute of Development Administration, Srinakharinwirot University, Prince of Songkla University, Khonkaen University, Mahasarakrm university, Kasetsart University, Rachbaj Somdej Chao Phraya university, Nakhon Pathom Rajabhat University, Phuket Rajabhat University, Rajamangala University of Technology

Thanyaburi, Stamford International University, Mahanakorn University of Technology, Shinawatra University, Sriprathum University, Rangsit University, Siam University, and Krirk University.

Sample in this research is the organization but need to collect information from representatives. The selection of sample for study were as the staffs of the universities who met the standards of quality assurance and standard certification were 25 universities. The sampling were a vice president of Planning and Information Technology office, Planning and Information Technology Director, Planning and Information Technology Division Associate Dean who responsible for Information and Communication Technology and operational staff of plans and information technology both in the university and the faculty level in total of 879 participants who were selected by using a specific sampling method.

1.4.3 Location

There were 25 universities such as Chulalongkorn University, Suranaree University of Technology, Mahidol University, Chiang Mai University, King Mongkut's University of Technology Thonburi, King Mongkut's University of Technology North Bangkok, King Mongkut's Institute of Technology Latkrabang, Thammasat University, National Institute of Development Administration, Srinakharinwirot University, Prince of Songkla University, Khonkaen University, Mahasarakrm university, Kasetsart University, Rachbaj Somdej Chao Phraya university, Nakhon Pathom Rajabhat University, Phuket Rajabhat University, Rajamangala University of Technology Thanyaburi, Stamford International University, Mahanakorn University of Technology, Shinawatra University, Sriprathum University, Rangsit University, Siam University, and Krirk University.

1.5 Definitions

Strategic of information systems management means the determination of methods or guidelines for the promotion and development of the system, data storing from various sources to provide information for decisions making to support the work in various fields to increase effective operation of the organization.

The effective form of information management strategies implementation is the ability to successfully implement the model with regard to accuracy, suitability, feasibility of information management strategies in organization management.

1.6 Research Utilization

- 1) Knowing the components of information management strategies implementation in higher education institutions.
- 2) An effective model for information management strategies implementation in higher education institutions.
- 3) Apply the model as a guideline for information management strategies implementation in higher education institutions.

CHAPTER II

LITERATURE REVIEW

2.1 Information Technology Concepts

Information technology is a modern technology which plays a very important role in the daily life of the organization. Information technology is a tool, device or process used to collect, store and maintain information. Analysis and dissemination of information (March and Sproull, 1990; Zuboff, 1988), or, in other words, information technology. The nature of information technology is considered to be a challenge to the technology used in organizational theory.

2.1.1 Information Technology Definitions

At present, information technology plays an important role in the organization and is more widespread. The meaning from the institution and the scholars as follows. Behan (Behan: 1990). Information technology refers to the technology that directs people into data storage, processing, retrieval, transmission, and information recovery. Modern technologies include computer, fax, micro-graphics, telecommunications and microelectronics. The old technology, including the arrangement of documents and electronic bookkeeping

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and disseminate information in the form of information. Text and subject matter using computer technology and telecommunications technology. Vityakorn Chiangkul(1994:105) mentioned that as a result, microelectronics and telecommunications, we can create, store and communicate information (text, numbers, sound, images) more widely and quickly. And can communicate well all over the world fast. The type never before occurred in the history of mankind. Vasin Chuprayoon (1997: 59). New technologies used in information processing include microcomputer. Word processors and other automated processing machines. These brainstem. It is an innovation of human beings, created to compile, produce, communicate, record, and remix. And the benefits of information technology. (1999: 265). Information or information. Information refers to the implementation of data and false computing. It does not need to be interpreted or interpreted real data can be used immediately or find out.

Another meaning is information technology It refers to the process of bringing computer hardware, software, data to processing and searching. The data is processed and the media and devices are used to communicate information. Kanchit Malaiwong (2001: 25), meaning that information technology It consists of two major technologies: computer technology. And telecommunications technology By computer technology, it allows us to store, save and process. Information is fast and accurate. Telecommunication Technology This allows us to quickly and easily deliver the results of our computing experience to remote users.

Therefore, information technology means. Process of Operation Seeking analysis, storage and dissemination of information. To improve efficiency, accuracy and usefulness for organizations and users of information technology systems. Computer technology with telecommunication technology This is a new innovation of humanity created for the benefit of business and education. Information technology is important to the development of the organization as a whole. Distance education Internet Search Introduction of information systems through computer networks spreading in the digital world leap.

2.1.2 Importance of Information Technology

The development of information technology has progressed rapidly. Improved tools, useful to information work at all times. Every professional has to turn to improve their professional mechanism to keep up with the information society. For example, using Geographic Information System (GIS), Automatic Teller Machine (ATM), Electronic Fund Transfer (Electronic Fund Transfer), Distance Education Tele-education, telemedicine, or telemedicine. (Tele-medicine) teleconference Tele-conference and library automation, etc., have resulted in new forms of service, while the price of such tools has been reduced. The social transformation into information age. Industrial countries such as the United States, Japan, European countries. Taiwan, Korea, Hong Kong, Singapore, etc. Ministry of Science, Technology and Energy (1989: 2) has used information technology as an infrastructure. Infrastructure that is critical to the development of information systems. In addition, the United Nations Institute for Social Development Studies (UNRISD, 1999: 2-3) also discusses information technology. Information technology is not the cause of changes in past lives. But if there is no newer information and communication technology. It may be that our lives have not changed. It has been pointed out that since the 1990s, the world has managed a network of computer-based communications, the heart of human activities and actions, based on the power of information. Innovative new technology. Is continuous And there is a recognition of the way of life of human beings thoroughly. And they can handle the housing more systematically. Developing computer programs facilitates the user to have easy-to-access functions. And it is said that the education and education for children and youth will go to the knowledge that is different from many children before. But be careful of the differences that will follow.

Both government and private organizations today. They turned their attention to information technology more seriously. It is used as a tool to create information systems for their agencies. Because it recognizes that Information plays a role in almost every activity, whether it is communication. Performance, problem solving, or decision making for planning and management. And by the information technology will help get information quickly. Be reliable, timely have the content and format you want. There have been established organizations and organizations, such as

the collection agency. Analysis and preparation of information. Information Services for Users National Information Policy Committee.

In order to make use of the information widely and effectively. For business, whether it is a large business. Or small information is important. Especially in competition. Business owners need to know the market conditions and goods. So almost all businesses need to find a computer. Communication Equipment And office equipment To be a tool to work properly. And more efficient. Nowadays, it is accepted that information is knowledge. Whoever gets the right information faster will be the advantage. It can provide information to help them make decisions quickly and accurately, so the phenomenon of competition to develop information networks. To provide both commercial and non-commercial services. This is because the development of computer technology is integrated with the telecommunications technology. It became a computer network (Computer Network), which uses digital technology. Information generated by computer systems has been developed in the form of multimedia, including numbers, text, audio, still pictures and video. Will communicate through a computer network. And is linked to the world. Make information dissemination to all parts of the world without borders (Borderless), resulting in a new society of the human world. So called Information Society (also known as Information Society) Third Society or Third Wave The development of the agricultural society. (Agricultural) and Industrial Society (Globalization). (Globalization) that makes every nation as a whole the same village. The village is called Global Village, especially Internet (Internet) is very popular today. A new world is called cyberspace, which represents the digital world. It is full of electrical information in the form of bits and bytes that can be touched by information technology (Chunyuth Tinclig, 1995: 6-7).

Information technology is very important nowadays. And more likely in the future. It is a tool to operate the information to be effective. From the production, storage, processing, retrieval, communication, information exchange The use of information resources together to fully benefit. The importance of information technology (Soonthorn Kaewlai, 1990: 1 - 41) is summarized as follows.

2.1.2.1 Helps to organize large amounts of information each day.

2.1.2.2 Improve the efficiency of information production, such as complex numbers. Sorting information, etc.

2.1.2.3 Helps to store information in a form that can be retrieved at any time.

2.1.2.4. Automation can be provided. For storage, processing And run the information.

2.1.2.5 Helps to access information quickly. More effective

2.1.2.6 Help to communicate quickly Reduce barriers to time and distance. By providing the phone system and so on.

From the above mentioned. The importance of information technology is about the advancement of technology, which leads to new ways of dealing with knowledge storage. And then through the media effectively and effectively. It is important to be user friendly, make it easy, fun and happy to work. So information technology is important. And related to the changes in daily living.

2.1.3 History of Information Technology

Information technology is the most used information management technology. The use of computer systems in the early days was called the Data Processing Era. The purpose was to calculate and process the data of the routine. To reduce personnel costs. Later in the second century, computer assisted decision making, monitoring, and analysis of the performance of various levels of management called the Management Information System (MIS) in the third generation. Most will focus on the management of information resources (Information Resource Management) to use information that will help in the decision to lead the agency to success and in today's era. The technological advancement is very high. Extend the scope of data processing. Go to the creation and production of information. It can create alternatives and new forms of goods and services, which are called Information Technology (IT) or IT era, using computer systems. And telecommunications systems. It is a tool to help the information system and the idea of providing information services to users effectively. It is an important objective (Poppel & Goldstein, 1987: 59-69).

The use of information technology in the management of information systems is seen as changing the process of working in the information system. Since the production. Collection, storage, analysis, retrieval and dissemination of information. The development of computer technology. Hardware and software advances. This helps to streamline the flow of information that is overwhelming more effective. The ability and performance of media used to store information, such as magnetic media, light media, electronic media, can record and store large amounts of information. Access to information in the media faster. Microprocessor or integrated circuits have the ability to work and more flexible. It has been combined with the tool. The machine can be used in many types such as calculators, watches, refrigerators, automatic washing machines. Radio broadcasting Radio, television, etc., and because of the computer software task command. Work more efficiently.

Intelligent technology (artificial intelligence) helps the computer system to be intelligent. And feel human. It is used to create expert systems for a wide range of specialized tasks. Data processing is extended to a larger system. Overall, the system is small. In order to share information and materials. You can use the technology to fully benefit. Instead of doing sub tasks, it is evident that computer technology plays an important role in the management of information systems. Whether it is the input. Processing data or displaying data in minutes. As well as advanced reporting, it can attract the attention of information seekers. It also supports quick retrieval and retrieval.

Telecommunication technology is the technology used for distance communication. Or telecommunication, such as telephone, telegraph, fax, teletype, radio, television Satellite Radio Broadcasting Optical fiber technology Computer and network systems both near and far. It helps to convey and communicate information or information to users in different places. Or the user does not have to spend time and travel expenses manually. Like a fax system. Teleconferencing, etc. These technologies. Will reduce the dimension in the distance. And time to delivery, access to exchange information on each other. The network is in various forms, such as text, image or sound. Development and improvement are ongoing (Poppel & Goldstein, 1987: 69-70).

2.1.4 Information technology role for the organization.

The use of information technology in various services. In the current society. Human can use information technology to effectively work in various fields. Examples of information technology applications include:

2.1.4.1 Application of information technology in office

Nowadays, many offices have adopted information technology in order to create positive results, such as convenience, speed, accuracy and ability to make duplicate copies in a number of ways.

1. Document preparation: the use of word processors or content processing machines as a tool to prepare the equipment. The use of this technology includes computers, modems, and communication channels, in order to be able to link information between departments or between departments, both internal and external units.

2. Distribution of documents. Distributing information to users at various points can be done by linking through the telecommunications network. IT products At this point, it is possible to automate this process, including computer networking, teletext, fax, teleconference and so on.

3. Documentation and retrieval. Can be implemented both online and offline via computer network. Or through other telecommunications networks such as database systems.

4. The preparation of information in the image. Information technology that can do this work is computer graphics devices, television scanners and video.

5. Communication of voice information such as telephone use. Conference calling, voice recording using Sound Blaster, etc.

6. Communication with audio and visual information such as multimedia. Video conferencing and video conferencing.

2.1.4.2 Application of information technology in communication services, including telephone services. Mobile phone, radio, television, cable TV, satellite information retrieval, online satellite And ISDN. (Vanee ThapanaWongsanit, 2000: 26-29)

2.1.4.3 Application of Information Technology to Training and Education The application of information technology in the study. There are many ways to use it. Mostly it is. Computer Assisted Instruction (CAI) Information technology used in distance education is many. From simple forms such as using the radio, including the education network. The educational network is designed to give teachers, teachers, and students the opportunity to use the network to seek out the vast knowledge available in the world and to use the services that are beneficial to education. And use in the library. State University Library And almost everywhere. Kulm Malaiwong, 1997, 40 - 43). In addition, they are encouraged to cooperate in providing network services such as PULINET (Provincial University Library Network and THAILINET (Thai Library Network). Users are more convenient, such as loan services, search for books, journals, publications that need to be convenient and fast. (Northeastern Rajabhat Institute, 1998: 13-22). There are also other network services. Electronic mail, Electronic discussion group, Electronic bulletin board, File transfer, Interactive communication, Electronic journal, Library search, Database search, Finding software, Finding someone, World Wide Web, etc.

From the meaning, importance and originality. It will be seen that information technology is using computer-related equipment. It is a mechanism and process that yields a significant productivity for economic, social, political, and environmental development, and will be of great benefit if used in the organization, from inputs, processes and exports. Can be planned. Implementation, evaluation and decision-making are more precise. At the same time, it also demonstrates the credibility and image of organizations or services that are acceptable to the wider society.

2.2 Strategic Management Concepts

2.2.1 Strategic Management for Government Organizations

Strategy is derived from stratgos in Greek, which is derived from the word stratgos, which means army or army combined with the word agein, which means lead or lead, meaning to lead the total organization or navigation to the organization as a

whole. (Greenly, 1989: 5). The concepts and theories that are relevant to the strategy are: It is related to the limited distribution of resources. To achieve good results is an advantage and can achieve one of the objectives. Or multiple objectives simultaneously At the acceptable level, the strategy is important for the performance of the organizations. The researcher has gathered the meaning of the term "strategy" that the academic. Both Thai and foreign executives have given the following meaning. Foreigners such as Sero and Peter (Certo and Peter, 1991: 17) say that the strategy is a means of ensuring the success of organizational goals for Des and Miller. (Dess and Miller, 1993). Strategic management refers to the process of three main components. It consists of strategic analysis. Strategic Planning Beatrice Heuser, 2010: 27 states that a strategy or strategy is a military term that implies a plan of action to achieve a specific goal. Strategies or strategies in the military are different from tactics. That is, with the implementation of the battle (Engagement) while the strategy. It is a tactical problem to link the various battles together. However, the terms and conditions of combat and the suitability of combat are strategic issues. Four levels of warfare: political or strategic objectives. Action and tactics. One thinker defines a strategy as a comprehensive way to work towards a political end. Including intimidation or real force. In the dialectic way. These parties are interactions, and so the strategy will be less successful without the ability to adapt. In addition, Porter (Porter, 1975) states that strategy means The precise targeting process. Businesses in both short and long term. The creation or development of the practice, as well as the mobilization. And allocate resources of business organizations. And Paul (Paul, 1983: 57) says that the strategy is a set of long-term choices about goals, actions, and policies. Including the action plan of the government plan. Government organizations. Take into account two important factors: the purpose of the government plan. And the environment influences the implementation of the plan. Thai academics, such as Siriwan Serirat and his team (1997: 5), said that strategy is the form of action that managers use to achieve organizational objectives. The company's real strategy was planned. For the sake of silence, Saikaeo (2002: 77) states that the strategy is a framework or an overview of the various ways. Pairoj Piyawongwatana (2002) states that the strategy refers to the direction of the boundaries of the organization's organization in order to achieve the objectives of the organization. By utilizing the

limited resources available. Under the circumstances of the complex and ever-changing environment. By direction and boundaries. Thongchai Santiwong (1996: 140) states that the strategy refers to the long-term direction of the story. Most of them are the messages that suggest ways to prepare the short-term plans and coordinate the work plans. To be one of the units. The focus is on practice. And it will be understood throughout the middle and senior management of the organization.

So, from the definition of strategy (Strategic) mentioned above, can be concluded that the strategy refers to the long-term implementation guidelines. May be defined as a broad guideline. Indicates what the need of the organization is. This allows administrators to set clear boundaries and direction. To be able to effectively manage the objectives.

2.2.2 Strategic management

2.2.2.1 Definition and Significance of strategic management.

Current Factors and conditions both inside and outside the organization have played a role in the operation of various agencies. More every moment in business, every effort is made to acquire competency and competitive advantage. In the public sector, efforts must be made to improve the efficiency and effectiveness of the service. And the person who is most involved in the goals of the operation. It is accepted that. Organization Management Today Executives are faced with more difficult problems than before. Crises in the environment have impacted the efficiency of the organization's management has fallen from the past. The key issue facing executives is Performance issues especially in terms of productivity. The lower the Productivity. So, if the executives define the management activities based on the traditional management process, based on the assumption that the future is the same as the past. The idea is that the organization will not be able to continue. Because of the current situation, the operating environment has changed dramatically. Complexity and uncertain direction. Leaders in organizations need information. Understanding dynamic dynamics can evaluate the impact to target and bring the organization to the desired destination effectively.

The management of the organization must now review the strategies or methods used in the operation that are effective and appropriate to the

circumstances that occur. Management of the organization must increase the skill and ability to analyze and make strategic decisions that will lead to organizational empowerment. The current strategic management concepts are gaining in popularity. Strategic management embraces the knowledge and skills that have been studied, merged and merged, and gives an overview of the various subjects. The study was a tool for analysis and decision making. To achieve organizational goals, vision, strategies and objectives.

There are many foreign and Thai scholars who provide the definition of strategic management: Certo and Peter (1991: 5). Strategic management refers to a continuous process. And the process is constantly reviewed. Wright et al. (1992: 15) provides the definition of strategic management as a continuous process in defining the mission and goals of an organization within the context of the organization. External environment determining the right way to perform the task according to the prescribed tactics. Use of authority to control strategy. To ensure that the strategies used by the organization. Higgins and Vincze (1993: 5) state that a strategic management process is a management process to accomplish a mission.) Of the organization by creating an inter-organizational relationship to the environment. Especially those who benefit from the organization. (Stakeholders), which factors in the environment situation that affects the decision. The policy of the organization consists of customer, employee, employee, community and shareholders. The Stockholder Davis (David 1997: 5) says that strategic management is science and art. 1) Strategic formulation 2) Strategic implementation 3) Strategic evaluation of strategic management focuses on the integration of management, marketing, finance, accounting, production, research and development of computer information systems to achieve the success of the Vevey. Wheelen and Hunger, 2002: 2. Strategic management refers to the set of management decisions and practices that determine the performance of a Thompson and Shakespeare organization. Strategic Management: Strategic vision, goal setting, strategic planning, strategic planning, strategic planning, formulation and reaction approved the strategy (Strategic implementation) strategic management. It is initiated by vision, purpose and strategy. The management is appropriate in the Thai academic. Siriwan Serirat (1998: 9) provides the definition of strategic management, ie planning, implementation, and control in a strategic way.

This will help the management to be effective and effective. The focus of strategic management. The concept of strategic management is based on an analysis of the environment, both internal and external. To evaluate and analyze. Find the best choice. Supanan Prasitwanich (2001: 9) gives a definition of strategic management, ie, the overall management of the organization, with its core strategies and competitive strategies. Somchai Pakkaswiwat (2001: 20) gives strategic management meaning. Jintana Boonkang (2011: 14) provides the definition of strategic management, a process that consists of an analysis of the environment. And important information of the business used in decision making. Implementation guidelines It is the responsibility of the organization to ensure that the organization is able to operate in a consistent manner. And the situation is happening. Pirat Piyawongwatana (2002: 3) has provided the definition of strategic management, ie, the management of the organization to achieve its objectives efficiently and effectively by utilizing the Existing resources to achieve competitive advantage in a changing environment. Strategic management generally refers to the decisions and actions taken to achieve the organization's goals. It focuses on the process, from strategic planning. Apply strategy And strategic assessment. It is a planning process and ensures that the plan is used effectively to achieve long-term goals. The key step is to analyze the external factors. Internal Factor Analysis Mission assignment And purpose Strategic Planning Strategic use and strategic control. Concisely Strategic Management Somboon Navarapan (2003: 3) says that many organizations have set a strategy for more competition. And use strategic management to keep the organization's strategy effective. All executives must understand the strategic management process within the organization. The strategy describes the way in which the organization will follow to achieve the purpose of the organization. Under obstacles and opportunities within the external environment. And resources and capabilities within the organization. The strategy provides a basic understanding of how an organization will compete. There are three types of organizational strategies: external environment, internal environment. The purpose of the organization Strategic management is the process of determining the long-term direction

The meaning of the foreign and Thai scholars mentioned above. Strategic management refers to the organization's management processes,

including strategic planning, strategic execution, implementation, and strategic evaluation to enable the organization to achieve its goals effectively. And effectiveness Accurate, accurate, and timely environment.

2.2.2.2 The benefits of strategic management.

The importance of strategic management is that it can help the organization to have a clear purpose and direction in the future. Make mandatory Commandments work more efficiently. Make work in the organization towards the same goal. With the opportunity for the management level. Participation in management, which reduces the potential anti-change. And can predict the problem of change. For Siriwan Serirat (1998: 52-53), the importance of strategic management. It helps organizations to have a destination. Clear goals in addition, strategic management can be used over several periods of time. It should study the needs of the organization in the long run. And short, along the way. It involves the use of appropriate methods to achieve the goals (Goals) effectively. In addition, Pasu ddejarin (1999: 7-9) states that strategic management is important to organizations in terms of strategic management, vision, direction, mission, and purpose. Business system It defines how or how to conduct activities and activities. To achieve the direction and purpose. Strategic Management It covers the implementation of methods, methods, or practices that have been invented. This is to ensure that the organization achieves its goals. That said. Strategy and implementation of good strategies. Can be used as a measure of the management capabilities of the management as well. Include strategic management and strategic decision making. Often associated with Or affect the direction in the long-term operation of the organization. It is an attempt to gain competitive advantage of business organizations. For success or failure of the organization. And the strategy of the organization affects the various stakeholders. People These cover from shareholders, senior executives, societies, governments, employees and others.

For Boonlert Yenkong (2003: 20), the benefits of strategic management include helping the organization set its objectives and determine future directions or missions in the future. Ensure consistency of operations in various functions. In the organization for the purpose. Leadership Allows management level. Take part in the administration. Be creative to develop the organization. It helps the

organization to predict the problems that will occur. In addition, Saroj Oopakpochin (2005: 32) states that the benefits of strategic management It helps prevent problems. Support for strategic decision making by individuals. Tend to be the best choice Have a better decision-making process. Employees can take part in strategy building, giving employees an understanding of the relationship between outcomes and rewards, resulting in greater motivation for work. The activity or gap between the disjointed will be reduced. The resistance to change is reduced. And the tendency to accept those decisions is higher, and Sow Sukrit Srivong (2008: 234) states that Organizations that are able to effectively implement strategic management processes will be instrumental in bringing the organization to success. Defined as the main goal and goal of the organization. It is a framework for organizations to travel out of the way should be. A competitive environment can be evaluated effectively, leading to the development of appropriate strategies. And consistent with the environment, both inside and outside the organization. The strategies that are used effectively and get the desired results. And can create a competitive advantage in the competition

The benefits of strategic management that many academics have come to expect from strategic management. It is very important to the organization. This makes the organization a clear future. Can set the mission. And strategic goals are central to the operation. It is a tool to help senior executives manage the organization to a large extent, thus reducing the potential risk. Organizations can adapt to changing external environment. Make a higher return than competitors. It also gives the opportunity for executives at various levels. Participating in the management helps to develop the mindset and reduces the potential for counteracting the change. Management is better at strategic planning than ever before. It also helps executives compare performance levels with the past. This is a new strategy that can be achieved in a shorter time.

2.2.2.3 Principles of Strategic Management

Many scholars have mentioned. Somyot Navarakan (1997: 16) states that the principles of strategic management are to monitor and evaluate both opportunities and obstacles within the external environment. Patcharakol Chow (1997: 34) states that the principles of strategic management relate to the overall management of the organization to the external environment. Somchai Pakkaswiwat (1999: 23)

states that the principle of strategic management It is the right strategy and can respond to changes in the environment. Taking into account weaknesses. Supan Saritsavanich (2001: 3) states that the principles of strategic management relate to management decisions and actions that determine the long-term performance of the organization. As stated, Jintana Boonkarn (2001: 1) states that the principle of strategic management is that leaders as leaders and decision makers can lead their organizations through Each stamp the dynamics of the environment occurs rapidly in the prosperous Piya Wong Wattana (2546: 1) states that the principles of strategic management. Managers must understand the dynamics of change as well as be able to understand the changes. Pibulsipple (2008: 10) says that the principles of strategic management Defines the way or way of operating the organization. To achieve the goal or purpose. The direction or direction of the operation. Management needs to analyze and evaluate factors. It is caused by the environment inside and outside the organization. To make the best plan. To achieve the goals laid out effectively.

2.2.3 Strategic management process

Higgins and Vincze (1993: 3, cited in Siriwan Sittirat 1998: 13-22) discuss the strategic management process. Strategic management has the management process to achieve the mission of the organization by building relationships between organizations to suit the environment as follows: 1) Assessment of the external and internal environment. R. (Internal and external environment analysis) Strategic management is a management approach that takes into account the right consistency of the organizational environment. The first step of strategic management is to consider opportunities. The Company's Opportunities and Threats are assessed by the external environment. And strengths and weaknesses (Weaknesses) of the organization by evaluating the internal environment. 2) Strategic planning is the development of a long-term plan of the organization on the basis of the opportunities and obstacles of external environment assessment. Strengths and Weaknesses of Organization from Environmental Assessment in Organization. Strategic planning consists of Decision making, purpose Identifying directions or main missions Goal Setting Strategy Development Policy formulation of the organization.

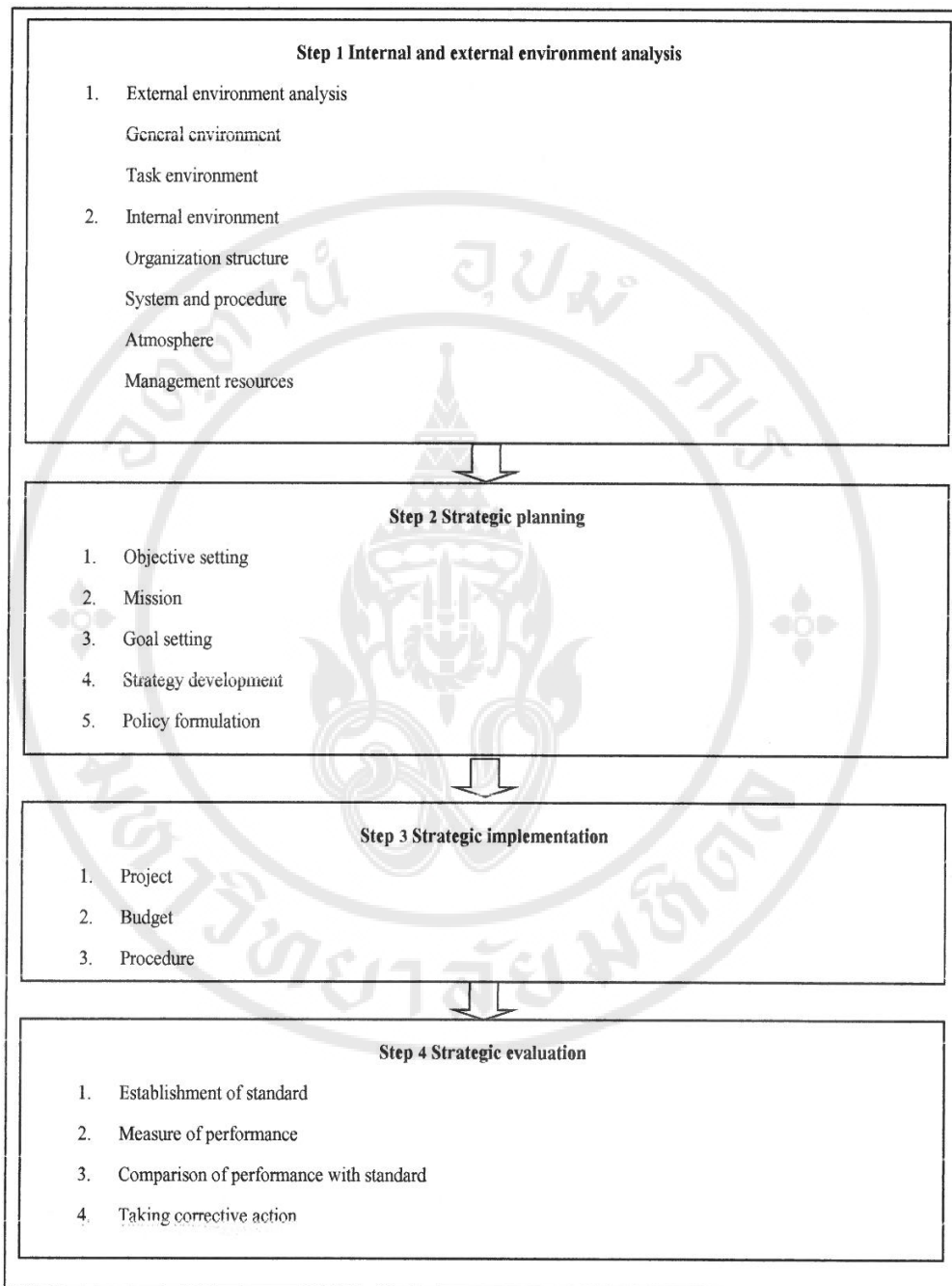


Figure 2.1 Strategic management process

Desess and Miller (Dess and Miller, 1993: 1) say that strategic management processes include

2.2.3.1 Strategic analysis is the basis of a strategic management process.

2.2.3.2 Strategic formulation is a means to achieve long-term objectives. Considering each level:

1. Organizational level strategy is the process of defining all aspects and objectives of an organization, including investment, operation, improvement and organization.

2. Business strategy is a strategy that seeks to compete in organizations that try to create a competitive advantage. Organizational leadership is not cost leadership. The investment is lower with the goal of the management. Quick adjustment Quick-response is a change in the way operations are performed when there is a similar or similar operation. Focusing on a small clientele (Focus) is a strategy that addresses the needs and operations of the community.

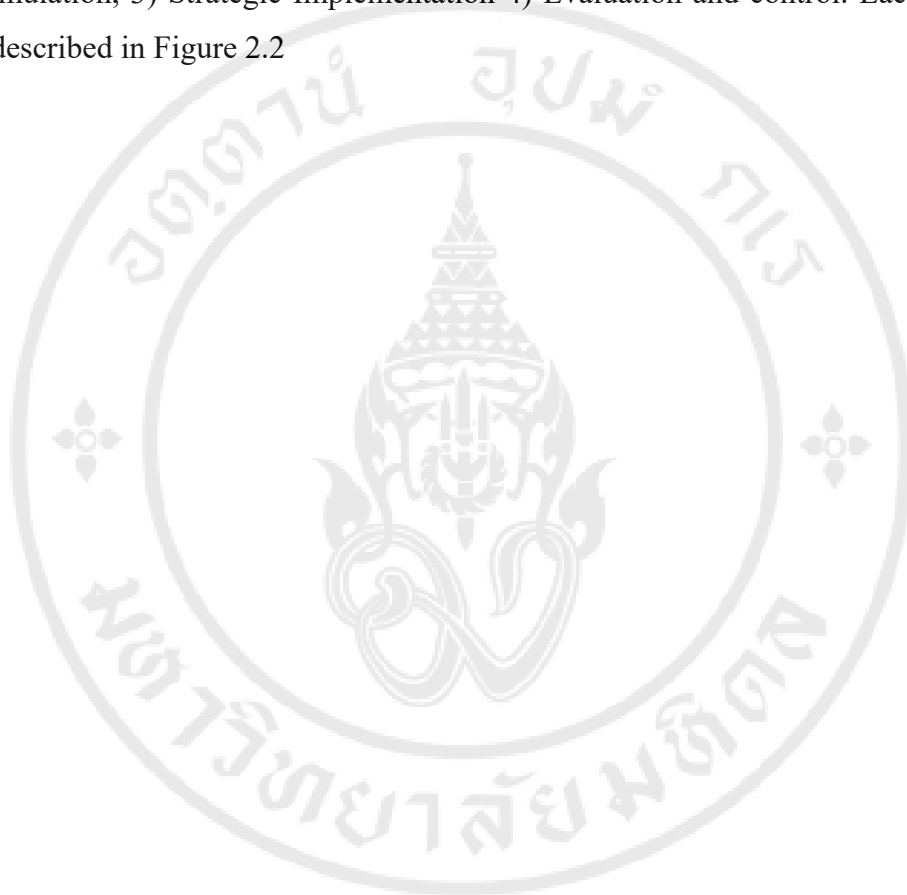
Function level strategy is to create an advantage for the competition. This is the reason why the components of the success depends on the value chain, taking into consideration the value, efficiency, and value delivery of the service provider: (1) (2) Operations or production are consistent in the operation. (3) Research and development is the coordination of the needs of the community. (4) Accounting (Accounting) (5) Financing, the use of financial strategies for survival and mobility. (6) Human resource management. Procurement and training of human resources to suit job description

2.2.3.3 Strategic control to monitor planned performance and improvement of external and internal development plans.

For Bateman and Snell 1999: 131, strategic management is a process that involves executives from all sides of the organization. To define and implement organizational goals and strategies. It is a continuous process to determine. (Formulation) Implementing and Controlling is a combination of strategic management. Strategic planning is a continuous activity that all managers are encouraged to think strategically. By focusing on long-term issues. Executives must consider the long-term situation of the organization from a broader perspective. To

plan internal capabilities and resources and external environment. (Bateman and Snell 1999 : 131)

Wheelen and Hunger (2006: 11) argue that the basic form of strategic management consists of four elements: 1) environment scanning, 2) strategic formulation, 3) Strategic Implementation 4) Evaluation and control. Each component is described in Figure 2.2



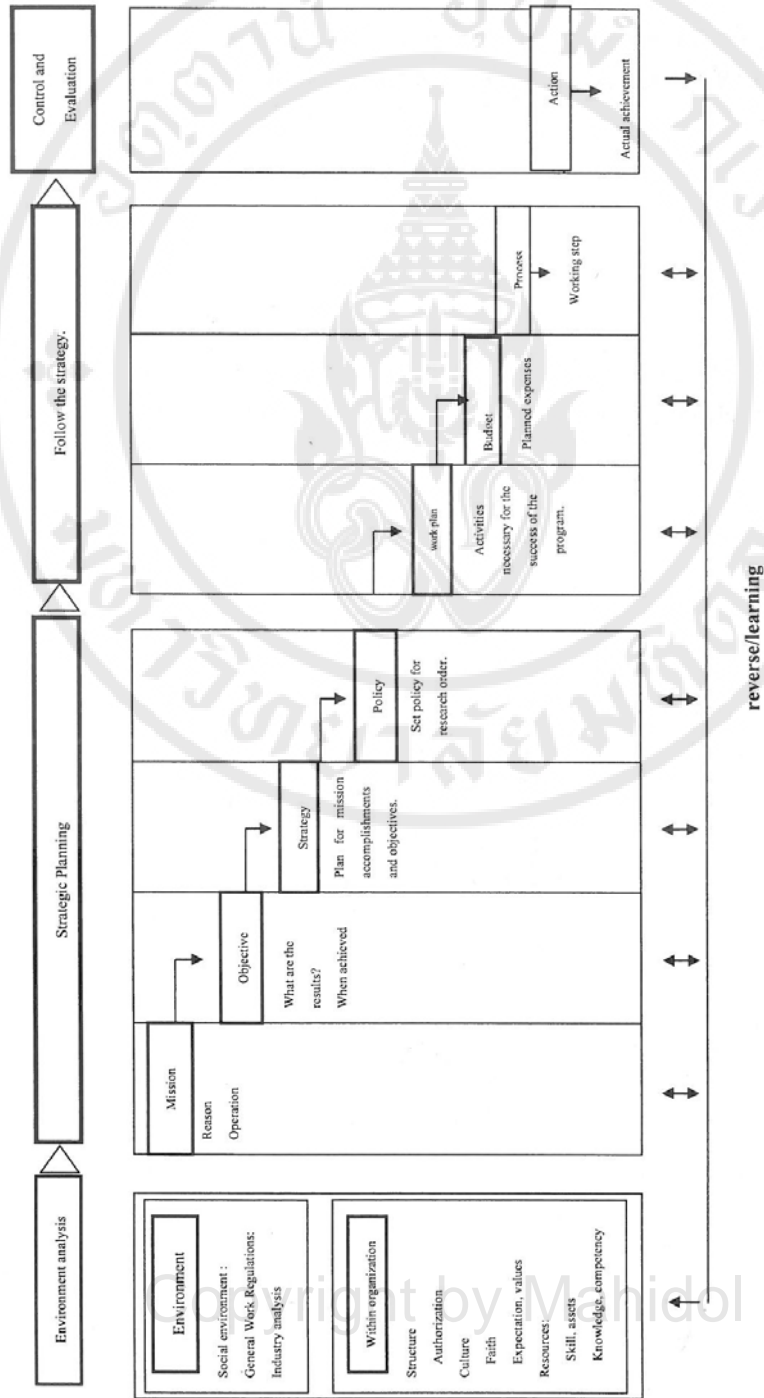


Figure 2.2 shows the strategic management process model.

Figure 2.2 illustrates the strategic management process in every process, from strategic planning. Follow the strategy. And control and evaluation strategies. This is a strategic planning process in the organization. If the strategy is to manage the information system in the organization or agency. The process of implementation will depend on the plan, budget, and personnel to coordinate the organizational structure. And the acquisition of information. Systematically linked the result of the process in the above will lead to the information to decide together in the organization.

For Thai academics, the concept of strategic management is the same and different. For Thai academics, the strategic management process consists of the following steps: Patcharavong Chom (1997: 38) states that the strategic management process consists of strategic analysis. Management or strategy strategist in line with business objectives and policies. Management must study. And analyze the feasibility of business operations, both opportunities and obstacles. Considering the problems arising from the internal environment and the external environment. Analyze the strengths and weaknesses or weaknesses and strengths of the business, as well as study the problems and gather the information needed to solve the problem. And strategy. Define goals, goals, or strategies and make decisions based on an analysis of the situation inside and outside the organization. Other factors determine the strategy to use. This process is called. Strategic formulation

For Siriwan Serirat et al. (1999: 24-50), the strategic management process consists of Conduct a situation analysis consists of strategic analysis, SWOT analysis, strategic planning, Strategic implementation is the process of changing an established strategy into a realistic strategy or a process of changing the strategy into action and results. Strategic control is the process of determining whether a strategy has achieved its goals and objectives. If so, and there is practice to solve the problem. Strategic strategists will assess the impact of strategy and response appropriately. It is a management process that requires strategic planning and strategic change.

In addition, Somyot Navvijarn (2005: 7) also noted that in general, strategic management processes can be divided into five distinct components: mission formulation and key organizational objectives. Analysis of the external environment of the company. Analysis of the company's internal environment to identify strengths and weaknesses. Determining the strategy on the strengths of the company. And fix their

weaknesses to exploit opportunities and resist external obstacles. At the same time, Siriwan Serirat (2005: 15), to formulate strategies for effectiveness and efficiency. Be accurate with the opportunity to beat that time. Management must understand the process of strategic management because the process of strategic management (process) is a tool of senior management to direct. And the long-term schedule of the organization. The strategy is defined. Implementing strategies and evaluating the strategy continuously, with careful action under two goals, is to create and maintain a competitive advantage. And value creation and prosperity, including shareholders, the process. Step 1: Conduct a situation analysis Step 2: Strategic planning: Strategic formulation Step 3 Implement the strategy. Strategic Implementation and Strategic Control.

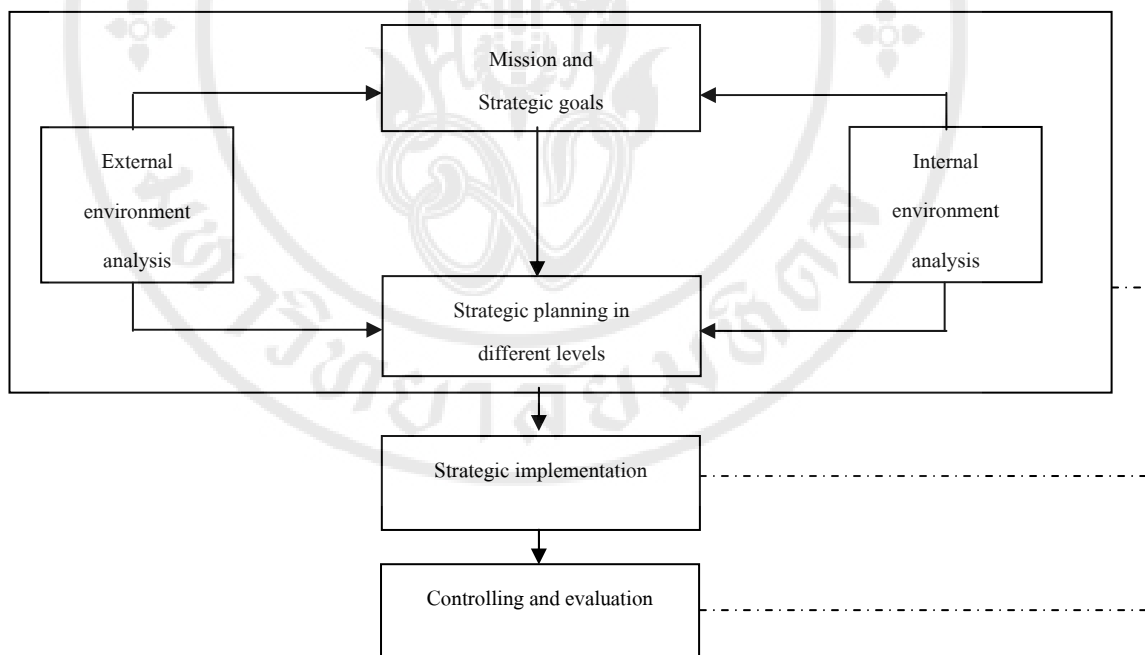


Figure 2.3 shows the strategic management process (Sakorn Suksrivong, 2008).

The strategic management process consists of strategic formulation, strategic implementation, and strategic control.

2.2.4 strategy implementation

After the executives have planned and decided on the strategies to be used. The next important step is to implement the strategy. The implementation of the strategy will be different from the strategy. Strategic planning is a task that involves setting vision. Analysis of the environment. Including the creation of various strategies. But the application of the strategy is related. Leadership Employee motivation as well as working with others. Application of organizational change strategies. Designing and guiding new processes. Include incentives for employees to meet the goals set. It is accepted by executives that the application of strategy is a more difficult task than strategic planning. It must be related to many management and management activities, as well as good management skills. Just because management can invent new strategies does not mean that most employees are obedient and supportive. Include and follow the strategy. There may be conflict or disagreement on the part of the employee on several issues, such as the ethics of the strategy. Conflicts with the purpose of the organization. Or cannot see the way that the strategy will be successful. Or the strategy will affect their career. It can be seen that implementing strategies is not a job that can be easily accomplished and accomplished in a short time. Sometimes the application of the strategy may take a period ranging from a few months to several years. Implementing strategies is a work of all levels of employees within the organization. The executives of each unit are leaders in the application and all employees are collaborators. One of the key factors in successful implementation of the strategy is communication within the organization. If there is any change. Happened due to the strategy. Management must be presented to the staff clearly and stimulate. Encourage employees to agree on changes that need to happen. When the organization achieves both financial and strategic goals. It is assumed that the application of the strategy of the organization succeed

2.2.4.1 Definitions and the significant

Strategic implementation has been defined. Anawat Kaewjongngong (2008: 9-10) says that the implementation of the strategy. Implementation refers to the work of individuals at all levels in the organization. Each of the executives applied and understood the strategy, so they had to communicate to the people in the organization to understand and follow the strategy. If this cannot be

done, it may result in the implementation of the strategy. This can be corrected by changing the strategy as appropriate to be able to handle the changing circumstances. Management must be able to analyze the business environment factors. The decision to implement each level of strategy may have an impact on each other. In addition, Pitts and Lei (2000: 301) has meant that Implementing a strategy means turning a strategy into action (action) as needed. To achieve the desired results. In a broad sense Implementing a strategy involves several efforts to strengthen the organization. More talented Understanding Strategic Implementation It is important that the success of any organization depends on how well the people in the organization work together. To translate the strategic plan into action. Managers and employees are the most important to the company's competitive advantage. Competitive advantage occurs when managers and employees in the organization work together. To achieve high success only. So it can be said. Strategy and Competitive Advantage Wheelen and Hunger (2002: 192) have given meaning. Implementing a strategy is all that is needed. To use in the implementation of strategic plans. Strategy implementation is the process of implementing the strategy and policy into action. Budgeting And how to practice. Although the implementation of normal strategies will be considered after the strategy. Strategy implementation is an important part of strategic management.การนำกลยุทธ์ไปปฏิบัติ (Strategic implementation)

It is concluded that the implementation of strategies is a strategic change process. To lead to practicality. To achieve the results set. Implementing strategies may be more difficult than strategic planning. Since the implementation of the strategy requires the cooperation of many parties, many of the activities must be leadership. Good interpersonal and communication skills. Will make a plan Strategies lead to successful completion of the plan.

2.2.4.2 The principal strategic implementing tasks

Thompson and Strickland (2003: 271) state that the implementation of managerial strategies. In addition to adjusting to external circumstances. There are major tasks that the manager must do. The external situation of the organization is in a crisis situation. There are eight main tasks.

1. Strengthening the organization in terms of capacity, competency and resources to be used in the implementation of the Strategic Plan.

2. Make a budget to control the resources. To use in the chain of values. Necessary for strategic success.
3. Set policies and procedures. To support the strategy.
4. Schedule the best practices and drive continual improvement.
5. Install the information system. Communication and Operations to help personnel be able to carry out their strategic role. To be successful each day.
6. Provide incentives and incentives. To achieve the objectives and strategic management.
7. Create a work environment that supports the strategy. And organizational culture.
8. Use the necessary strategic leadership to push forward.

Fevzi Okumus, 2001: 327-338) offers research on Towards a Strategy Implementation Framework The purpose of this project is to develop a conceptual framework for the implementation of strategies by grouping variables related to strategy implementation into four groups: Strategic content) Organization Management Process (Organizational process), the outcome of the strategy and the environment (Organizational context)เฟฟซี่ โอคูมัส (Fevzi Okumus, 2001 : 327-338)

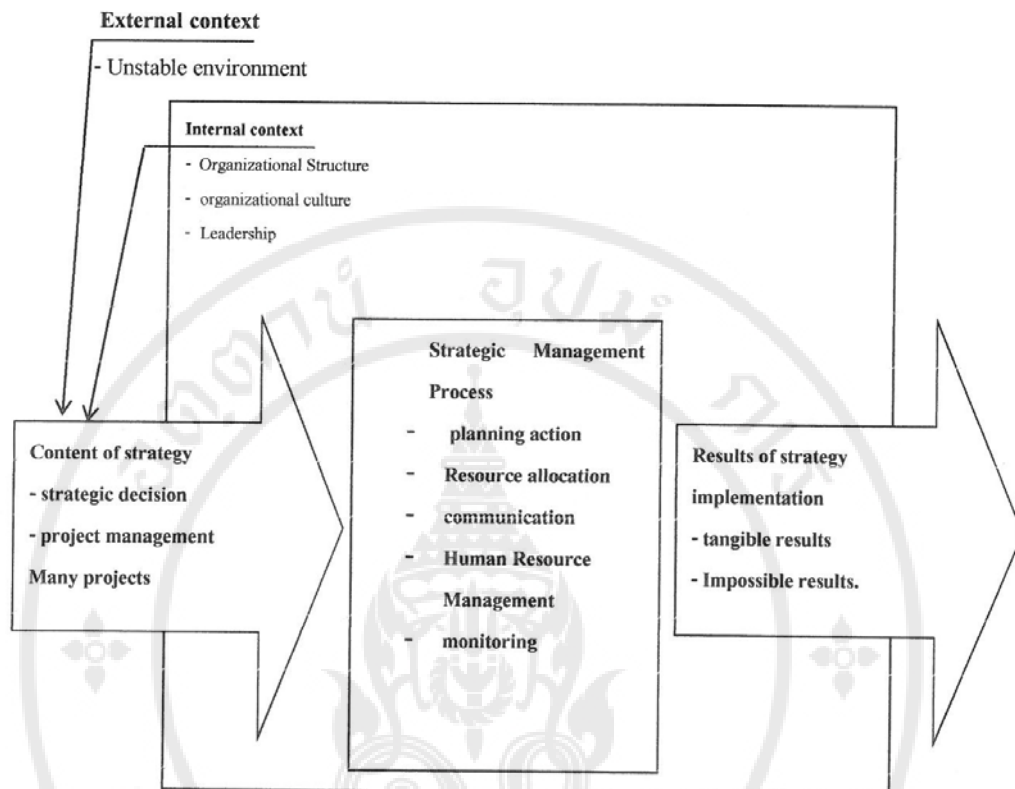


Figure 2.4 shows the conceptual framework for implementing the strategy of Fevzi Okumus

Source: Towards a strategy implementation Framework in International Journal of contemporary Hospitality Management (p327 – 338) by Fevzi Okumus . MCB : University Press

Somyot Navirakan (2003: 930-933) states that strategy implementation is one of the strategic management processes. Strategy implementation is the most important and difficult process. Strategic management, no matter how creative the strategy is. Companies or organizations will not benefit at all if they are not properly implemented. Several important internal factors of the organization must be consistent. To implement the strategy into action. Important factors are human resources, information systems, leadership and structure, as detailed below.

1. Organization Structure

The structure must be based on strategy. Establishing consistency between structures and strategies will be critical to implementing strategies. Without the proper structure, design work, departmental arrangement. And delegation Companies cannot execute their strategies to achieve success. Management will have many ways to structure the organization. The structure is not static. They will change. One major structural change that occurred within many companies in 1980 was the cancellation of middle management and advisory services. These structural changes will be part of efforts to reduce costs and decentralization to lower levels. So they can make more decisions. Increased decision-making power makes lower-level executives more responsive to local conditions than top executives. In addition, companies are beginning to be designed by processes such as workflows rather than functions such as marketing or production. Compared to government agencies. Organizational changes are more closely related to the company. After the private sector has changed for about 2 decades.

Corresponding to Alfred Shantler, he was the first researcher to recognize the importance of structural and strategic relationships. From the perspective of Tanners. Organization Structure Should be designed to support the company's strategy. The underlying assumption is that the consistency between strategy and structure leads to higher performance. How should organizations be structured? The inefficiency of poor customer service. Communication failed. Or the grievance of personnel. It may point out the inconsistency between structure and strategy. Strategic change may require structural changes. In order to avoid inefficient management and structure is not a goal. The structure is the way to go. Target is the performance that meets the highest organizational needs.

2. Human resources

Human Resources is a member of the organization. Having the right person in the right position will be the foundation for effective strategy execution. To accomplish this, human resource planning is often a source of competitive advantage. Usually skilled human resources are capable of finding ways to reduce costs or produce new products. Human resource functions will select, relocate, and disengage individuals in order to achieve strategic goals. For example, training personnel can

help them understand the purpose and importance of a new strategy. Or help them develop new skills and behaviors. Sometimes a person may be discharged and replaced with a new person. When a newspaper changed their strategy from cold newspaper to morning newspaper In order to compete with some newspapers. New tactics have created resentment and resistance among department managers. In order to carry out their new strategy, 80 percent of department managers have been resigned. Because they do not cooperate. New people are recruited and filled in these positions, and the morning book strategy has achieved great success.

3. Leadership

Effective leadership is essential to achieving a successful strategy. Leaders must be motivated. Communication and motivation and create the culture necessary to work to achieve success when John. As Sculley becomes CEO of Apple Computer, he is being distrusted due to very little knowledge about computers. However, he learned business from the lower level. When Sculley was in conflict with Steven Macop, founder of Apple Computer, the board of directors had to choose between these two executives. Eventually they had chosen Sculley and he would have had little difficulty selling strategic ideas to the company ever since. Leadership is the ability to influence a person to take the action necessary to execute a strategy. Leadership is related to communication, motivation and cultural change. Executives who try to implement a new strategy may need to clarify to the person. Create a Partner Encourage middle managers to accept organizational vision. If the leader has given other executives an incentive to participate in the strategy. Strategy implementation is easier. Because these executives will understand and engage with new strategies. Leadership is used to motivate people to adopt new behaviors. And cultivating new values and attitudes is a value that the organization should adhere to.

4. The technology

The technology is composed of knowledge, tools, equipment. And how it is used by the company. To produce and sell products. Technology is often one of the key factors in implementing a strategy. The strategy must take into account the technical functions of the business. Technological changes may be necessary to reduce costs. Using differentiation strategies may change the technology in order to develop new products. Companies must ensure that they have the right technology to execute

the strategy effectively. At present, executives face some important strategic issues: Bring the product from the design stage to the customer as quickly as possible, as Deer & Company has created a new product within two years. They used to spend five to seven years to bring the product to market. Under current rapid technological change The role of internal technology in implementing the strategy will become even more important in the future. 5. Information and control systems

Information and control systems include reward systems, budget systems, information systems, and policies. And organizational practices. Changes within these systems are important tools for executing strategies. For example, resources can be reallocated from research and development to marketing. If the new strategy is to increase advertising, not change the product. Information systems are used to communicate strategic goals and decisions to other people within the company, and control systems will be critical within the operational monitoring in order to achieve strategic goals. Assume that the executives will need to set up a new factory. As part of the company's strategy. One important factor in decision making is Budgeting The budget-based approach provides feedback to executives on how well the strategy is being implemented. Fairborn Rahimnia, Yiannis Polychronakis, John M. Sharp, 2009: 246-261). A conceptual framework of impedes to strategy implementation from an exploratory case study in an Iranian university It is a comprehensive conceptual framework that examines the factors that hamper the implementation of the strategy within the context of higher education institutions. By using qualitative research methodologies, semi-structured interviewing with senior and executive academics, especially universities in Iran, the main factors that hinder the implementation of the university's strategy can be divided into 5 main areas

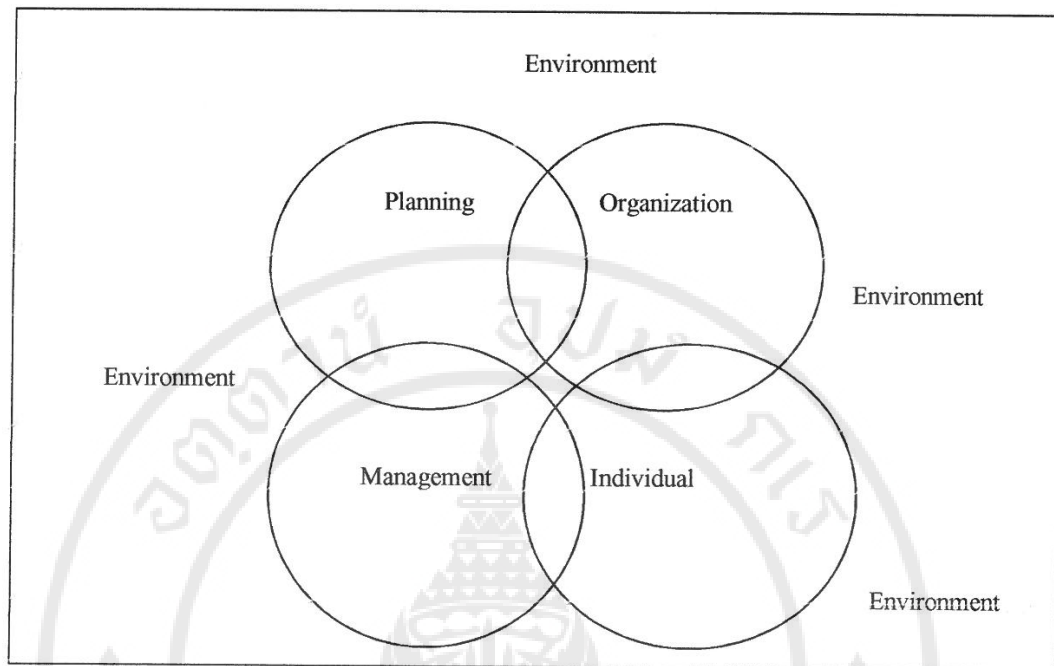


Figure 2.5 Conceptual frameworks that obstruct the implementation of the strategy.

Source: A conceptual framework of impeditors to strategy implementation from an exploratory case study in an Iranian university (p. 246 – 261) by Fariborz Rahimnia and Yiannis Polychronakis and John M. Sharp. UK : Emerald Group Publishing Limited

71. The impediments of planning consequences include lack of strategic planning. Missing the main problem that Jane Lack of policy-makers with effective roles. There is no proper training system. There is no proper regulation and policy. Lack of consensus among policymakers

2. The organizational impediments include organizational structures and strategies that are inconsistent. Appropriate resource allocation. Lack of proper communication. Lack of effective coordination. Lack of sufficient information system Organizational culture is incompatible. Competition in the event. Poor pay system. Inappropriate control and evaluation.

3. The managerial impeditors include inadequate leadership. Insufficient support of the organization. Commitment to management is not enough. Fear of insecurity between managers Political Facts on Power Management is not appropriate.

4. The individual impeters include inadequate personnel. Anti-change
Fear of insecurity between employees Lack of understanding of strategies and

5. The environmental impediments include political, economic, and Impact
of Competition สภาพแวดล้อม (The environmental impeters)

2.2.4.3 Strategic Implementation Process

Pasu decharin (1999: 1-2) state the strategic implementation
process as follow

1. Review whether the chosen strategy is the right strategy and
the best one.

2. Organizational Identification and Factors Is the organization
ready and capable enough to implement the strategy? It may be determined by various
factors. The structure of the organization today is appropriate to the strategy used. Is
the organization's personnel talented and appropriate for the strategy? Is the
organization capable of mastering or being able to implement the strategy? Another
important factor in the application of the strategy is: The ability of leaders in the
organization. If the factors. Within the organization, it is not suitable for the
application of such strategies, such as the comparison with other organizations to find
ways to improve and develop themselves. (Benchmarking) Reengineering the
operational system within the organization. (Reengineering) When the factors. The
organization is appropriate and consistent with the chosen strategy. It can be applied to
follow the strategy.

In the same year, Siriwan Sericrat and team (1999: 331-334)
stated that tactical aspects of strategy implementation (Tactical aspects of strategy
implementation) Or the desire of the organization broadly. To change to a continuous
and interrelated action. It looks at the nature of short-term goals. And the goals. How
does the organization use its policies and strategies? To achieve short-term goals.
There are steps.

1. The translation of the organization's mission into action.
Although the process in practice is different in each company. It also has similarities.

2. Strategic plans are messages about future missions and
directions. Long-term and long-term goals Strategic work to achieve the purpose of
the organization. Or refers to a map related to the organization as a whole. It

determines the overall purpose and position of the organization in the circumstances of the environment. It is the way to achieve the strategic goals (Strategic goal) set by senior management. Strategic plans cover resource allocation. And define the scope of the business. Or a plan to demonstrate understanding and identify the long-term needs and directions of the organization. Or a long-term plan, which affects the various departments of the organization.

3. Developing short-term meaningful goals. Short term plan development Affect the success or failure of an organization's strategy. Short-term objectives Basic as a basis for long-term goals, successful short-term goals. Must be specific and can be measured

For Supanan Saritvanich (2004: 380), the strategy is to implement the following steps.

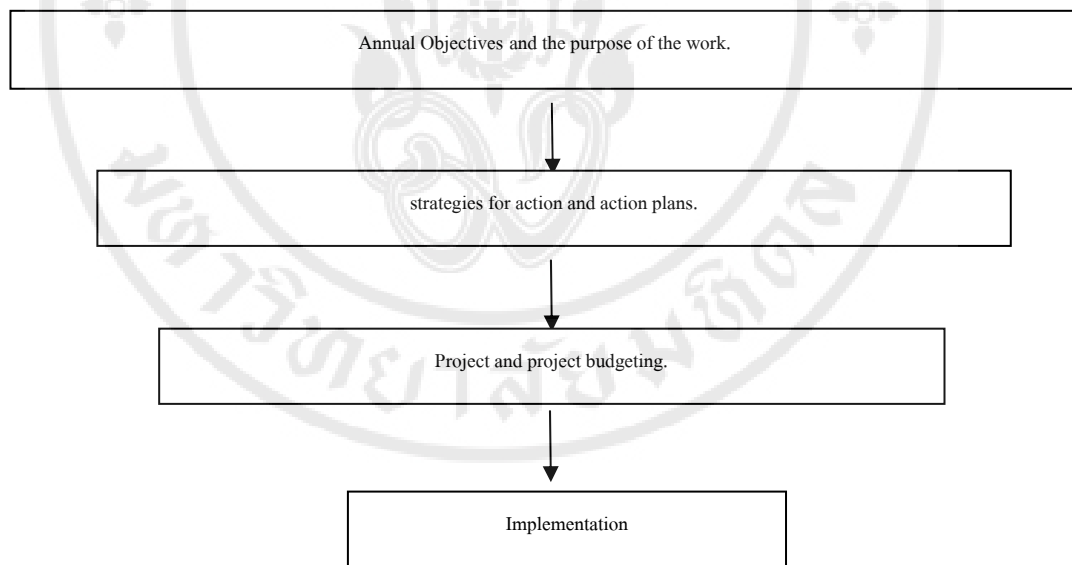


Figure 2.6 shows the steps for implementing the strategy

source : Suphani sakitwanit (2004). Strategic management, concepts and theories. Bangkok: Thammasat University.

2.2.4.4 Strategy Implementation Components

Both foreign and Thai scholars have discussed the components of strategy implementation. There are both the same concept and different in each element.

1. Assigning Responsible Strategies

Boonkij Chivakrakulkit (2005: 172-177) states that the strategy is allocated to the host or the person responsible for implementing the strategy. It is often a function. In the organization or individual the CEO is assigned by each strategy, the host will not have only one but more than one. In practice, the main host will have the authority to call the remaining co-hosts to divide the management of the strategy. It has a duty to monitor the operation. Report on the implementation of the strategy to the management meeting at the time. Ongoing activities, such as routine activities, are routinely assigned to multiple units. Lecture: Lawrence G. Herbiniak, 2008: 276, 359). The idea is that responsibilities are shared. And all oversight must be clear. If all workers know who to contact As well as understanding or responsibility of others, the strategy will be successful. The exchange of information between each other and the transfer of knowledge, resulting in organizational capabilities. Defining responsibilities or overseeing that someone is responsible. And oversee strategies or issues. In the change process Incorporation of responsibility responsibilities and clearing up of those involved in change are essential to successful change management.

In addition, Stephen P. Robbins (2005: 187) proposed that changing management or delegating strategies to new executives would have an impact on organizational culture. New executives bring new values or cultures into the organization. In addition, it is in line with the concept of Supananasarit Panich (2005: 402). The idea is to delegate the strategy to the responsible person and to delegate responsibility to each person responsible for each strategy. For Pearce and Robinson (2005: 14-16), the concept is that the role of individuals and teams is clearly defined in the organizational strategy. Encourage employees to create works to achieve their objectives, which will be linked to the organization's reward structure.

2. Understanding strategy before implementation

Jintana Boonbongkanand Nattapan Khuntanan (2005: 176-178), said that the implementation of the strategy would involve concrete action. The person responsible for implementing the strategy and procedures. It goes smoothly and produces the best results for the organization. The person responsible for implementing the strategy should follow the procedure. Specifically, understanding strategies. Understanding strategy is an important step for strategic leaders to follow. Especially those who are not involved in the strategic planning process. Those who are responsible for implementing the strategy must study. Understand the direction and strategy of the organization. To set guidelines in accordance with the requirements.

In addition, Fred R. David, 2005: 201-240 states that the process of managing a strategy does not end when the company decides what strategies to implement. We need to change our thinking strategy into action. The variation is easy. If the manager and employee of the company. Understand the business There is a sense of belonging to the company. They are involved in strategy building activities to help organizations succeed. Without understanding and commitment, efforts to implement the strategy will be problematic. Concepts and tools for creating strategies are not very different for profit organizations. And whether it is small or not. However, the implementation of the strategy is diverse according to the type and size of the organization. Implementing strategies requires the following activities, such as changing sales. Add new department Hiring new employees Changing the pricing strategy of an organization Financial Development Develop benefits for employees. Creating a Cost Controlling Process Changing Ad Strategies Creating Comfortable Facilities New employee training Managerial interruptions and the creation of information systems, etc. These types of activities are significantly different in service organizations and governments.

3. Review and change strategy to suit the situation before implementation

Wattana Wongkittikarn et al. (2003: 116-126) noted that the strategy implementation was smooth, leading to the desired success. The organization should review and change strategies to suit the situation at that time. And before implementing any strategy, the organization should consider issues such as the level of strategic change. Strategic change may be classified into 5 levels under different

conditions: Level One Continuity Continuation Strategic Approach If the new strategic plan does not change the type of business Organization characteristics Product characteristics and marketing, such as no change, how to promote and disseminate. In other words, the new strategy is similar to the second strategy. A small change (Routine strategic change) is appropriate if the new strategy does not change the type of business. Organization characteristics But there is a change in marketing. It is an improvement on the process of doing things like changing the packaging format. In order for the organization's service products to remain of interest to third-party service providers, a limited strategic change is appropriate if the new strategy does not change the type. business Organizational characteristics But there is a change in the nature of the product, which affects marketing change. It is a change of activity, such as the electronics industry, producing a CD player instead of a turntable. Or photographic companies producing digital cameras with computers instead of cameras with a fourth level of film. Radical strategic change is appropriate in case the strategic plan does not change the type of business. However, there is a change in the nature of the organization which affects the nature of the product and the change in the nature of the work / project. To emphasize the increase or cancellation of projects, such as one organization to acquire another. Similarly, different types of organizations are merged together, with a new organizational structure. Organizational redirection is appropriate in cases where new tactics change. The plan changes with increasing or canceling plans. The dissolution of the business and the new business. This affects the characteristics of the organization. And affect the product and marketing.

4. Organization Capability

It is important to note that the ability of organizations to apply the strategy effectively depends on the quality of the organization. This means having skills and abilities. As required by the organization. As well as the internal management and operation of the organization, it must be effective. Before executing a strategy, the organization's executives must create their own organization to be competent and effective. In order to build an organization, it must start with qualified personnel. The appropriate personnel for the position or staff. Important Then it must build on the skills and capabilities of the organization as the organization demands. And lastly Process of work And the right decision and systematic. To effectively

implement the strategy. Strengthening organizational skills and capabilities is another important role in building effective organizations. This is to strengthen the skills and capabilities of the organization. Through the human resources within the organization can do any activity. It's better than the competition, apart from the fact that the organization needs to be ahead of the competition. Businesses need to adopt that strategy. And the ability to compete with competitors.

Especially if the strategies of the organization and competitors are similar or very similar. The difference between the two organizations lies in their ability to apply the strategy. Building organizational core competencies is one way of overcoming competitors in applying that strategy. Building organizational core competencies is one way of overcoming competitors in applying strategies. The core competencies of an organization can be determined in many ways, such as the ability to develop new products. Production capacity Good after-sales service, ability to respond to changing customer needs. Ability to reduce costs. Marketing Capabilities Knowledge of some technologies, for example, Sakhon Sukrit Srivong (2008: 244-248). (Organizational alignment) Before executives implement the strategy, executives need to analyze the factors. Within the organization, whether the coordination is consistent or not. The part of the organization does not coordinate or support the operation of other parts. this will result in other interruptions and interruptions. Follow the strategy set. If the executive discovers a defect that may lead to inconsistent coordination. In order to be able to carry out the business of the organization, it is necessary to start the adjustment process. It consists of seven factors, based on McKinsey's 7'S theory, namely, strategy, structure, system, staffing, skills, (Style) and shared value of members in the organization (Shared value)

In addition, Glamba Hubbard (Graham Hubbard, 2004: 244-245) says that organizational performance or ability is an important link between the analysis and implementation of the strategy. Good organizational performance. Allow the organization to do the strategy is to stay. Having the ability to perform an organization effectively and effectively is essential for effective implementation of the strategy. Good organizational performance depends on the system. General system theory Say, most problems arise. As a result of system problems. For example, the quality of a product or service may be modified by installing a quality assurance

device. But the main reason is often one of the systems or processes. It should be monitored for systemic reasons and corrected to the point where there is only one good system that is not sufficient but needs to be effectively utilized. Hubbard concludes that effective use of the system requires What is the following? The process is clear and acceptable. Operational and technical efficiency Job responsibilities Good control Strict performance measurement Continuous development culture Decision system Hubbard says that effective management and rapid adaptation capabilities depend on efficient and rapid decision-making systems. It is an important element to a winning organization.

For Thompson and Strickland (2004: 359-360), effective strategy management is based on more competitive people. And effective internal organization. Building a talented organization is always critical to managing three tactics. Building an organization is important to finding employees, creating a strong management team, and selecting and retaining skilled staff. Techniques and intelligence are needed. Creating Core Capabilities and the ability to compete to achieve good strategic management. Organizational structure and the effort to work. And business processes in a manner conducive to administration. Successful tactics

Ward and Daniel (2006) say that in building the capacity of organizations to realize the potential of information technology Is seeking ways to address the gap between theory and practice. Along with seeking ways to achieve broad acceptance. About Making a Successful Enterprise Technical Or Information Technology The key is to effectively manage the benefits to the people.

5. Human resources

It is important to note that in the application of the strategy, creating the right administrative team One of the important factors. Top management must determine the nature of the management team to include, what kind of person, and what type, and then find the right person for each position. Most businesses. There will always be a management team. Sometimes the management team is appropriate, but sometimes it may be inappropriate. There may be additional people who may need to be considered in terms of basic skills, abilities, experience. The concept of new management is appropriate to the nature of the work. For example, if a business enterprise is in a situation where a turnaround strategy is required, if the business

entity does not have an internal person who has the capability and experience to do so. Supanan Saritvanich (2004: 383-403) also mentions human resources from the mission and purpose of the organization. I can see that any business. The importance of human resources. And important goals or values to these people. Because of human resources. It is an important foundation to achieve success in everything you want. Organization must have human resources. Or valuable personnel Knowledgeable Motivation to perform the tasks or objectives that the organization needs. Human Resource Management Activities The focus must be on the organization's strategic management process. contain with Strategic human resource planning, strategic selection, strategic appraisal, strategic reward system, employee development. Strategic development. (2005: 178-190). The military must comply with the strategy. The same applies to structural conformation. Strategies are key to the success of implementing strategies. Different strategies require different personnel. In terms of quantity and quantity, the government's strategy is to make government agencies work more on planning and support, and reduce the amount of work required. To lead to the limitation of the capacity of the CBO, the growth strategy must be increased and the people selected with the appropriate characteristics and knowledge. The organization is in a bad situation. It will reduce and maintain personnel as necessary. In addition to the number. The qualities of people must be consistent with the strategy.

In the case of Pasu dedhisarin (2008: 1), it is important to have the right people (Ring people) as the most important factor in the implementation of the strategy to the quality and suitability of personnel. To implement the strategy clearly. At present there are new management tools. It's about developing and maintaining quality people to stay with the organization for a long time. It is a matter of performance management. Competencies or Talent Management, especially in the current demographic trends in Thailand. And the world is likely to fall. Labor force has a young hand ghost. Older workers are becoming more and more involved. Today, the concept of person management in the so-called Aging Workforce is becoming more and more aligned with Graham Hubbard. , 2004: 278). We use the term employee instead of employee or worker or human resource to reflect. It's human, not just one manual. The mind of the person who works in the organization is often valued. It is one of the key factors in the knowledge-based approach to strategy. Even

performance strategies. How good is a structure and leadership? The skills and attitudes of people have a profound effect on the performance of the organization. For Richard Licht and David Colliss (2005: 111-126), people and incentives Managers and employees. From executives to employees, the cargo must be involved in the execution of the strategy. Executives are responsible for conveying. Strategic Intent to middle-level executives and operational managers reinforces their goals. And translate that goal into a language that the operations can understand. Managers need to ensure that the organization is well-equipped with sufficient skills to follow the strategy. The source of success lies in the outsourcing and training. Personnel have the attitude to promote and support the strategy. Enough resources. To provide effective staffing. Most companies rarely have qualified personnel and are aligned with strategic operations.

In addition, Fred R. David, 2005: 201-240, says, "Taking into account human resource management when implementing a strategy. The work of HR managers has changed dramatically when the company reduced its size. And organizational change in the 1990s. Strategic responsibility of HR managers. This includes assessing the needs of executives and the cost of changing strategies and developing strategies for implementing strategies. The plan must take into account how best to manage it. For the cost of insurance and health care. The cost of health care for employees was spent 26 percent of the company's net profits. Although most companies want their employees to pay some of their premiums But the plan must motivate employees. And managers set clear plans for layoffs with clear strategic compensation. The decentralization of managers and employees by involving strategic management activities will be most beneficial. When members of the organization understand how they will benefit when the company. The work that connects the interests of the company to employees is the primary strategy of the HR manager. Human resource managers will include: Setting up and administering an Employee Stock Ownership Plan (ESOP). Promoting leadership for employees and managers in order to balance work with families.

For Wheenlen and Hunger, 2006: 240. Implementing new strategies and policies requires prioritizing human resources management and personnel utilization. Employing new hires with new skills. Inadequate layoffs And

lower And / or training existing staff to learn new skills. If the growth strategy is to be implemented, it is necessary to hire and train new employees. It is necessary to find someone who has the experience and skills to move them to the newly created management position. Rowley and Sheman (2007: 7) investigated the issue of implementing strategies for higher education institutions: special attention for institutions. In economic development The research found that Implementing strategies successfully Human resource management system to bring about change. It is one of the factors that must be managed effectively. The system is efficient. Human Resource Management System Must be a long-term plan. And short-term plans. University leaders should not ignore human resource management plans. There should be a strong strategic plan that identifies the direction of the university. Before university leaders decide on personnel changes.

6. Leader

Organizational leadership is a very important person. It is the direction of the organization's objectives and goals. Is the heart of the administration. Able to complete the work from the cooperation of others. A good leader is responsible for coordinating the destination. It is a visionary and can make people accept. And I'm glad to be a follower. Leadership is the key to success. In addition, Wattana Wongkittikarn et al. (2003: 116-126) argue that leaders should be leaders in leadership. working Skills in control of operations. And change management in line with the proposed new strategic plan. This will be one of the key factors in the success of strategic transformation into action. Leadership in practice is classified into 3 levels, namely, micro level, ie skills to collect information on performance monitoring. Skills in directing or directing. And the emotional control of the subordinates. Structural factors include the interaction between supervisors and subordinates to control work processes. There are formal. And unofficial. And the level of the department is the way to emphasize the command (Commander Model). The way to focus on organizational restructuring. Organizational change model A culture model that emphasizes the management of the staff (Coercive Model). In order to control the performance of the strategy, the operational strategy will be effective. When the management level. The organization has four basic skills to control the operation. Skills in dealing with people. The importance of human relations and Understanding

social psychology. Resource allocation skills In particular, the personnel and budget to meet the volume and timely. Skills to track performance. In particular, the analysis of the results from the use of information systems for effective management.

Jintana Boonpong and Natthapan Khuntanan (2005: 172-174) argue that the appropriate incentive system supports the effective implementation of the strategy. The incentive system allows a person not to resist, accept, and bring change to his or her part. The incentive system does not always have to be in money. However, it may be a way for members to be satisfied and ready to behave, such as increasing responsibility or giving opportunities for self-development, etc. It also corresponds to the concept of Sakhon Sukrit Srivong (2008: 2001-248). Motivation means making a person happy to perform this task. Motivation is very important. Because of the organization's new strategy. And bring new strategies to practice. The change in the field. This change may be offensive to the people in the organization, not to the members. And may not be consistent with the expectations of many of the people in the organization. Management must be able to motivate supervisors to follow the strategy. And in accordance with Lawrence G. Herbiniaak (Lawrence G. Herbiniaak, 2008: 346). This is a stimulus for performance-oriented behavior, which is consistent with the desired end result. While the controls allow for feedback from the performance. Encourage the implementation of strategies to practice strong. It is a mechanism that helps to validate and correct the process, as well as encourage the learning and change within the organization to occur smoothly. Compensation, incentives, and control are important factors in driving the strategy into concrete.

For Supanan Prasitvanich (2004: 383-403), it can be said that Reward system and reward Organizational reward the use of reward or reward has a great impact on the performance of employees in general. Return system is based on the attraction of qualified personnel into the organization and the maintenance of qualified personnel. With the organization To encourage or motivate employees to make extra efforts, to improve their own work, to improve their organization or to innovate, as a result of their performance. Executives and employees can achieve the objectives. Or strategic goals set Rewarding the implementation of the strategic plan has been placed. Management must assess the performance of subordinates. Should be used in several ways. 1) How to weight factors to be considered. (Weighted-factor

method) If the business has many business groups Executives should consider business segments separately based on growth rates. And will weight factors. 2) Long-term evolution method. Top executives will assess whether the organization can achieve its objectives during the period. Time to consider Do not focus on only one year or one year. 3) Evaluation method that separates development costs. Strategic-funds method out of normal expenses. In this way, management will consider the costs. For development, this will be the long-term benefit of the business. Excluded from the consideration of normal operating expenses. It is hoped that executives will be encouraged to finance the development of activities. More strategic, such as research and development Advertising costs to create new market value. Financial reporting distinguishes these costs from the normal costs. With many evaluations, the results will be good. Make the management reward system (Reward system) to the executive is done properly and more appropriately. This award must be designed to reward individual performance, such as pay for performance and pay for knowledge, or pay for competency, and at the same time, a compensation system. Group reward to promote teamwork.

8. Communication

Jintana Boonbongkan and Nattapan Khuntanan (2005: 172-174) state that communication is an important factor in the success of management. By clear communication can create understanding. Resolve doubts among members. This will reduce rumors and conflicts that affect the morale of the personnel. For Anivat Kaewjamnong (2008: 180-181), the strategic management success does not come from the success of one organizational structure. Part of the success comes from the ability to work properly by communicating with executives and practitioners in the same department and across departments. Success Strategies for communication are important and necessary for the successful implementation of strategic management. In summary, the importance of communication for the implementation of the strategy has been achieved as follows. 2) It helps to have a good coordinator to work together successfully. 3) Helps to exchange. The Union informed each other 4) allows operation in either an agency or agencies to be successful, and 5) encourage or motivate individuals to work.

9. Resource allocation

Fred R. David, 2005: 201-240. Resource allocation is an important management activity that drives the strategy. In organizations that do not use a strategic management approach to decision making. Resource allocation is often based on political factors. Or personal Strategic management enables resources to be allocated on an annual priority basis. So if resources is allocated in accordance with the priority set by the annual purpose. It does not create problems or jeopardize the success of strategic management and the organization itself. Every organization has at least four resources to achieve its desired goals, including financial resources. Physical resources human resource and technology resources. The allocation of resources to a particular department does not mean that it can succeed when implementing the strategy. There are many components that make allocating resources ineffective, such as over-protection of resources. Focus on short-term financial measures. Organizational policy the goal of the strategy is not clear. Do not deal with risk. And lack of sufficient expertise. For Thompson and Strickland, 2004: 390), strategy implementation and strategic management require managers to consider how their resources are allocated. An organization's sub-units need sufficient budget and resources to accomplish a strategic plan. Budget managers must review their subordinate requests for the subject. Budget in action Facilities and equipment Strategic executives also need to document the superior to consider requests for resources needed to follow the company's strategy. In addition, Somchai Phakasvatat (2004: 258-280) states that Plan and allocate resources. It is a process of planning resources efficiently to achieve a strategy. The nature of resource allocation must take into account two elements: the changing environment of the business that affects the use of resources and the management of resources.

10. Organizational culture

Wattana Wongkittikarn et al. (2003: 121) argue that organizational culture has a profound effect on organizational processes. As a result, one of the functions of an organization and its executives is to get the people in the organization to think about what is best for the company in the future. Going to the goal and mission of the organization. The organization can create a strategy that is consistent with the culture of the organization. Or modify the organization in

accordance with the strategy to be implemented. It is an enterprise strength. If there is a need to adjust or change organizational culture. Management should analyze and consider the effects and returns that are worthy of a change, perhaps by modifying the communication. Understanding and Accepting Development of Structural Change Training Or hire a new employee to fit the strategy.

For Supanani Saritwanich (2004: 383-403), organizational culture will make members of the organization. Know what to do? In existence in the organization. In general, culture will reflect in the form of norms, values, beliefs and practices. That the organization is operating Management must assess whether the strategies to be implemented are consistent with the culture of the organization. 1) Do not care about the culture of the organization. 2) Work on the culture of change, some strategies need to be changed. 3) Try to change the culture. 4) Change strategy to be consistent with culture. 5) In general, if culture is strong culture, neglect does not take into account factors. Whether this would not be very practical. May be resisted by employees. Especially in the case of organizational mergers and acquisitions, organizational culture differences will prevent the entity from achieving its intended purpose. Guidelines for utilizing organizational culture. In a successful organization to operate. The management should reinforce the culture of the organization by cultivating the concept of creation. With the support of the strategic plan. Starting from engaging in strategic planning. Analyze the consistency of culture and organizational strategies. Create a culture of workplace entrepreneurship. Focus on adaptation to the environment and new innovations. Let the work not sloth. Self-development is at the same time as creating an atmosphere of work ethic. It is very important that all organizations wish to convert.

In addition, there are a number of internationally respected academics, including Thomson and Strickland (2004: 420). Creating a organizational culture that supports all strategies has a unique organizational culture. And each company has its own philosophy and business principles. There are solutions to their decisions, beliefs, behaviors and thoughts. Wal-Mart culture is dedicated to customer satisfaction. Trying to find the right customers. Work Ethics McDonald's culture is the focus of quality, service, cleanliness and value. The staff was heavily trained to provide excellent service to the Richards and David Collins (Richard Luecke, 2005:

111-126). It is the last element that needs to be taken into account in implementing the strategy. And the implementation of each strategy. Culture refers to values, values, traditions. And the organizational model of the organization. Determine the behavior of management and employees of the organization. The culture here includes People's opinions on the place of work and their work. Organizational culture is both strong and weak. Of course, strong culture is hard to change. Without all the effort, time and commitment to change.

Therefore, the organization has a strong culture. Therefore, the organizational strategy should be consistent with their culture. Wheelen and Hunger (2006: 248-249) argue that organizational culture can influence the behavior of all employees. It can affect a company's ability to change its strategic direction. The issue of a strong culture is a change of mission, purpose, strategy, or policy that is unlikely to succeed if these do not conform to the established culture of the company. Organizational culture is highly likely to resist change because of the fundamentals of organizational culture, where the protection of relationships and behavioral patterns are unstable. Company culture can support the strategy. If the strategy does not conform to the culture when the strategy changes, the organizational culture must be adapted. Although organizational culture has changed. But it takes a lot of time and effort. The main task of the management is to manage the company culture. Management must assess what changes in strategy affect organizational culture. Evaluate whether the culture of the company has changed and decide whether the effort to change the company culture is worth the effort. Brenes and others, 2008: 590-598. Key success factors for strategy implementation in Central America. Organizational culture is a critical success factor for implementing strategies. Successful companies, 86 percent, found that tactical culture was very important, unlike the less successful 55 percent of companies. Show that successful companies think that culture should be a factor that is being managed in the same direction as the company's strategy requires. Organizational culture must be consistent with business strategy. A culture that is aligned with predefined business strategies is an indicator of successful business strategy implementation.

2.2.4.5 Organizational Competency

Implementing strategies effectively and effectively It depends on the ability of the personnel. Competency and Competitiveness and organization with good management system is so important to strengthen the organization. It is a task that management must do before all other tasks of implementing the strategy. There are three ways.

1. Choose people who can work in key positions.
2. Make sure that skilled organization have technical knowledge. Competitive and have the resources that the organization needs.
3. Organize the work process. Value chain activities and quality decision systems. To make the management of the strategy lead to success.

In addition, Anivat Kaewjamnong (2008: 169) mentions organization as the starting point for the organization's activities in accordance with the plan and goals. The organization will carry out various activities. Effectively designed structural design. Organizational structure influences the success of strategic transformation into action, as the strategy to be implemented is appropriate for the various agencies. Defined in organizational structure. When the organization changes, the strategy may affect the organizational structure used today. It is found that the modern organization is changing the structure to suit the changing business environment, so the new executives must study and understand this seriously. To implement the strategy effectively and to achieve the goals and objectives.

The above can be summarized as. Implement strategy It includes two important issues: strategic planning and implementation. Strategic management is a process that focuses on the market. The implementation of the strategy. Will focus on the operation. Or operating It is related to human resource management activities. And business processes are important. Strategic planning and implementation of the strategy is a partnership. Which requires a great deal of both. It will be successful. Implement a successful strategy. It is based on two factors: good organizational management. With skilled personnel. Implement strategies to achieve goals. No clear formula. It can be done in several ways. And depending on the conditions of the environment is a component. The strategy must be adjusted to reflect changing circumstances. The strategy is to use both the science and art to help.

2.3 Concepts of Information Systems Management Strategies

The information system is a system that has a significant component, both computer hardware. Database software System developers, system users, users to work together to put data into memory, which can be processed. The results of this study are as follows. It is useful to set policies, planning, follow-up, management results. In the state or private sector. In order to understand the information system, we will discuss the following in detail.

2.3.1 Definition of Information Systems for Management

Laudon & Laudon, 1999: 7, says that management information systems are systems that are interrelated and work together to collect, preserve, and retain information. In addition, Turban et al. (2001: 17) reported that Management Information System means a system that collects, processes, analyzes and disseminates information for specific purposes. For Stern and Reynolds (1999), Stair & Reynolds (1999: 25) That is the total process people software. Database and markers Systematically Jirawan Fullbranchin (2006) states that the Management Information System (MIS) is a system that collects and stores information from various sources. Inside and outside the organization. To be processed and formatted to get information to support the work. And decisions in various fields. The management of the organization to the effective operation of the organization. The management information system consists of two main functions.

2.3.1.1 Collect data from both internal and external sources in a systematic way.

2.3.1.2 Can process data efficiently. To provide information that supports the operation and management of the management.

So if any system consists of two main functions. As well as being able to perform both functions in a complete and complete manner, the system can be classified as a management information system. The system will not need to be built from a computer system. Management information systems can be built from any device. It must be able to perform both functions perfectly and completely. But since computers are now a powerful device for managing information. System Analyst and Designer designed the computer system as the main device in information management. At present, the scope of

information systems extends from the gathering of information from within the organization to the linking to the external environment. Local, international and international. Today, businesses need more information technology. To create a management information system. To perform duties effectively. It is an important tool to increase the capacity of the business. And the management capabilities of today's executives. The problem is that most people still do not understand the potential and scope of using information systems (MIS). In addition, some personnel lack real understanding of information technology. There are also people who have a negative attitude toward using information systems. Some do not learn and open to change. The focus or focus on adaptation to management information systems is less than it should be.

2.3.2 Components of information systems for management.

The importance of information technology has been highlighted in the previous section, which plays an important role in the operation of both state and private enterprises. For the components of the management information system, there will be a distinct difference in the other parts of the retrieval. To get involved, such as personnel, networks, collaboration with other organizations, etc., especially business organizations need effective information systems. For the existence and growth of the organization, according to Sakkarn Tangwanit (2555: 57), the reason businesses use information technology to manage the system. To use in strategic planning with business competitors. It also has the ability to work effectively. Make the units or organizations. Need to allocate a budget. For continuous management of information systems. Need to understand how to use. And the structure of the information system more thoroughly. In summary, the components of the information system are 3 parts.

2.3.2.1 Tools for creating management information systems.

Refers to the components or infrastructure that are integrated into the management information system. It helps the information system to operate efficiently by identifying tools for creating information systems in two parts.

1. Database The database is at the heart of information management systems. Quality information is based on good, reliable, up-to-date information. The user can access and use it quickly and easily. Therefore, the database is an important component to ensure the integrity of the system. And effective.

2. Tools are tools used to store and process data. Typically, information systems use the computer as the primary device for data management. The hardware is the computer or the components of the computer. The software is a set of commands that collect. And manage data for management or decision making. And people or people (People ware) is the person who is responsible for supervising, controlling and directing. The purpose of the information system.

2.3.2.2 Process or procedure to get the results you want. The plan must be planned and processed correctly. To get the information or information you need.

2.3.2.3 Results display, Once the data has been processed. By the way, the information or information management system will occur. It may be presented in tables, graphs, pictures, or voices for effective presentation. It depends on the nature of the data. And the nature of the implementation.

2.3.3 Management Information System Features

At present, organizations can develop their own information systems or outsource their operations. By designing and developing information management systems. Compliance The system will be able to fully benefit the organization. The development of information systems must take into account the key features of the management information system.

2.3.3.1 Data manipulation. Good information systems must be able to improve and manage information. The information is ready to use effectively. Businesses are constantly changing. Information entered into the management information system. It should be updated and developed. To be up-to-date and always up-to-date.

2.3.3.2 Data security is another important resource for organizations. If some information is leaked to a third party, especially a competitor May cause competitive disadvantage. Or damage to the business. The loss may be due to ignorance or terrorism. This will directly affect the efficiency and well-being of the organization

2.3.3.3 Flexibility, business environment, or rapidly changing competitive environment. As a result, good information systems need to be able to

adapt. To be consistent with the use or problem. Where information systems are built or developed, they must be able to meet the needs of the executives. With lifetime Maintenance and the cost is reasonable

2.3.3.4 User Satisfaction The information system is usually developed with the intention of allowing the user to apply the task or increase the efficiency of the work. The good information system must stimulate or persuade the user to use it. the development of the system must be developed to meet the needs. And try to make users happy with the system. When the user is dissatisfied with the system. The importance of the system diminished. It may not be worth the investment.

2.3.4 Management Information System Subsystem (MIS Subsystems)

It can be said that the main function of management information systems is to collect information from both inside and outside the organization. And outside the organization systematically. To process and format information to obtain the appropriate information. And publish them as forwarding reports to users. To help make decisions and manage them effectively. If considered in the details or the actual state of the organization. Businesses will acquire information for executives. There must be a procedure for each subsection. In the system spread out. To be responsible for specific tasks. To get the right information for the user. We can say that. MIS subsystems can be divided into four sub-systems of management information systems

2.3.4.1 Data Processing / Transaction Processing Systems, also known as TPS, are information systems that are designed and developed to be relevant to the operations of an organization. Using electronic tools In particular, computers are the main equipment of the system. TPS helps to support the day-to-day operation of the organization. Specifically, the day-to-day operations often involve a lot of data. In addition, the data processing system (TPS) allows users to easily and accurately refer to the information in the future.

2.3.4.2 Management Reporting System (MRS) is an information system that is designed and developed to gather, process, organize and produce reports. Or documentation for decision-making related to administration. The system manages the report for management. Make a report or document. And send to management at the specified term. Or as required by the management. As the reports

are being systematically developed, the administration of the system is efficient. In general, the operation of the system, issued a report for management, is used for planning, monitoring and control management.

2.3.4.3 Decision Supporting System (DSS) refers to information systems that manage or provide critical information for executives. This will help in deciding the solution or choosing the opportunity. Normally, the problem of management will be characterized as semi-structured. Semi-structured and unstructured Non-structure, which is difficult to position. DSS will not make decisions for the management. It will supply and process information. Or something. Necessary to make decisions with executives. Current decision support system Developed and deployed in organizations. This is a topic that has attracted many people and directly involved with the management.

2.3.4.4 Office Information System (OIS) refers to the information system that is designed and developed. To help in office work effectively. Office Information System It consists of information technology and office equipment technology that is designed to work together. To maximize office productivity. Or, in other words, office information systems have a purpose. In order to facilitate communication between employees within the same organization. And between organizations. Including contact with the environment outside the organization.

2.3.5 Benefits of Information Systems for Management

The use of information systems for management in organizations is considered essential for the management of the modern enterprise. Many agencies have more mission-focused work. The tools that facilitate the organization is the computer and modern information technology. Describe the benefits of information systems in many ways.

2.3.5.1 performance

Information systems make operations faster. In case the organization has a regular job to do every day. And the amount of work is increased, so add staff or add jobs to employees. I need a computer to help in the routine. Make it work faster and more accurately, and let employees learn new tasks. To increase efficiency. Helps to communicate quickly. The world is currently using computer

networks all over the world, despite the distance. The communication will make the data as both voice messages, still images and movies can be transmitted immediately. It also reduces costs. The fact that information systems help make the operations associated with large amounts of data. Complex Can be made quickly. This saves a lot of money. In particular, the system is designed to allow both internal and external units in the production support system. This will make it easier for stakeholders to share information and to facilitate coordination or understanding (Haag et al., 2000, Turban et al., 2001).

2.3.5.2 Effectiveness

Decision Support Information System Information systems designed for executives, such as decision support systems or executive support systems, will allow managers to make better informed decisions. This will result in the fulfillment of the objectives. Information systems can be used to choose the right product or service. This will make the organization aware of the information related to the cost of the market, the type of goods or services available. Or help the agency to choose products or services that are appropriate to the expertise. Or resources available. In addition, the information system improves the quality of products or services by evaluating the quality of the customer satisfaction measurement system.

2.3.5.3 Competitive advantage

Information systems are used throughout the supply chain to create a competitive advantage. For example, Wal-Mart has created an information system linking with suppliers. To coordinate the contact about the order. It's fast and reduces the cost of storing stock in the warehouse. In addition, information systems help to produce new products or services. The difference between the competitors. As well as the information system, the customer service is improved. By improving the characteristics of the product or service to meet the needs of customers in more quantity. (Tippawan Say Suwarnarat, 2007: 25)

2.3.5.4 Quality of work life

This benefit may not be much discussed. However, the use of information technology today. There are many agencies that use modern information technology to operate. At the same time, the use of information technology as a management tool to control the work force, whether it is to check the working time.

Controlling the use of the Internet, email, video installation to capture the work of the operator

The use of such control technology. It cannot guarantee that it will always be effective or effective. It may cause the opposite effect is possible. (Dysfunctional behavior) is to make people work day by day. The criteria set out regardless of the actual purpose of the organization

So according to the concept. Sociotechnical Systems Information systems must be designed to achieve a balance between human needs. And the efficiency of the technology. Examples of using information systems to create quality of work life, such as video conferencing, which allows people to spend less time traveling. The meeting was held without any restrictions on venue. The time and opportunity for participation from different levels of staff. There are more. I do not have to deal with travel expenses. Ergonomics is used in the design of computer hardware to match the physical characteristics of the human body. And help prevent health problems such as the use of computer filters. Keyboard designed to prevent problems with the wrist because of too much printing.

In addition, Remenyi and Sherwood-Smith (1998) describe the steps for improving the efficiency of information system project management through continuous evaluation. The process of utilizing the benefits. Stakeholders must be involved in project development, which will provide information to support business objectives or organizations by realizing the goals of the information system or expected outcomes. For information systems Development is based on repetitive action until the completion of the project.

2.3.6 Information Management for Government

Trends in transforming government organizations into innovative ones. This is what many organizations define as their core mission or goal.

2.3.6.1 Government organizations are innovative organizations that use state-of-the-art innovation.

2.3.6.2 The goal of a 15-year government organization is to focus on responding to customer needs. By adjusting in that direction. The government may be more difficult to adapt than the private sector. Because the operation. Must be

operated under the rules. Regulation The structure of NGOs is not complicated, compact, dynamic, flexible, flexible and fast.

2.3.6.3 Management in the organization has a clear vision, clear working framework. Pay attention to strategy analysis. Be proactive, look for opportunities to change. Adapt quickly to change Be sensitive to change and be ready to take risks.

2.3.6.4 The role of human resource managers in government organizations. To step into the organization of innovation. Must work with organizational executives. And a supportive business partner. Be a professional executive. Is a change administrator can work under pressure and work well with others. Organizational structure of human resources is small. Establish a clear personnel development policy. Diverse Support for technology implementation in the performance.

Modern government management requires an information system that can demonstrate a living. Demands include public issues. The problem of government administration. Including information or information systems. The quality of service is high. And effective. The state management information system is the system that will facilitate the achievement of the service. The basis of systematic work and information systems. Management must understand. And the intention is to develop management information systems. Also known as MIS (Management Information Systems) used in the organization (Dmitrievattana, 1996: 18-19)

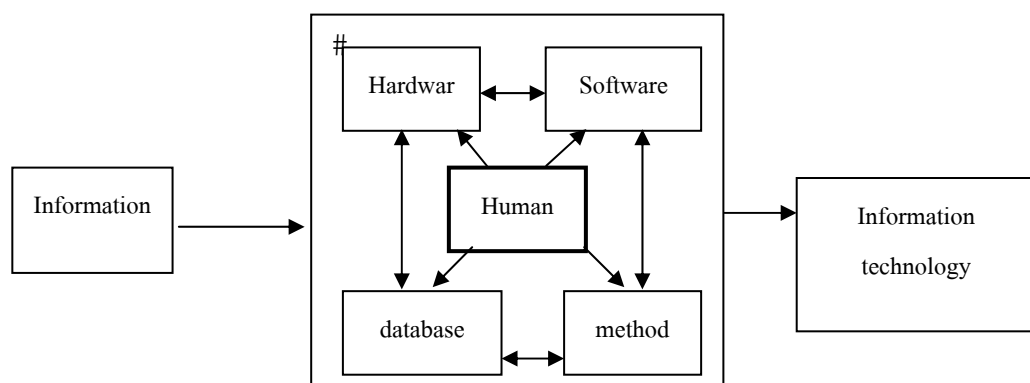


Figure 2.7 shows the information system (physical)

Figure 2.7 shows the components of a physically focused information system. From the data that is processed by the process that consists of hardware, software, people, databases, and methods, which are processed so-called information, it can be seen that the presentation of the information system This style focuses on what we usually see, such as computer equipment. To be dealt with. Especially the hardware system. It is a component of computer systems and telecommunications systems. Other subsystems include:

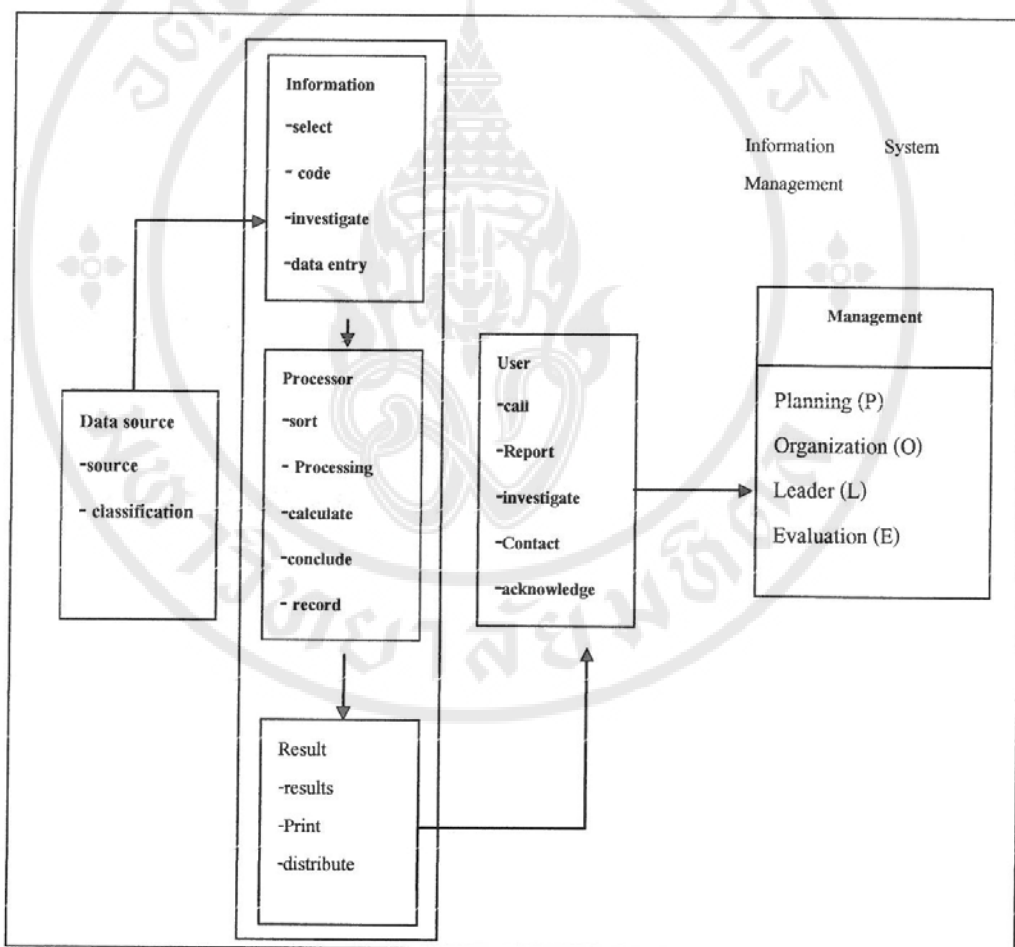


Figure 2.8 shows the information system.

Figure 2.8 shows the system of data management. This is an information system that may not be bound to information technology. Or in other words. We can create IT without having to consider IT first. In fact, data management is the first thing to do. Then IT planning is used to manage the information system that is organized. Unlike the start of an IT plan, consider a data management plan.

The concept of the above information system is a gradual movement (Static) considered in a dynamic manner. It is the study of the growth of information systems, usually the hierarchy of data processing of organizations, resulting from the investment in science and development of computer programs. Interest and participation of members in the organization. The growth of information systems in the organization. The description of the academic theoretician Richard L. Nolan (Nolan, Richard L., 1979: 118-126, cited in Wong Wawthana, 1996: 20-21), is available in six steps as follows.

2.3.6.1 Initiation The organization begins to improve its operational system, such as financial efficiency. Modern tools are used to process data.

2.3.6.2. Contagion The organization seeks to develop a variety of applications. The use of computer help to develop the computer. Computer expenses Data processing has increased significantly during this expansion.

2.3.6.3 Control The management begins to control the costs of the computer generated by the needs of the various departments. In the organization, this policy was set up to allocate computer resources to key areas. Before the official establishment of MIS

2.3.6.4 Integration The use of computer science in various fields. There are no links. Lack of coordination in data processing. Can not exchange or share information of many. This is the stage. The organization began to integrate data. By using the database, networking and telecommunications

2.3.6.5 Data Administration The use of processing technology enables the coordination of organizational data. To apply to many tasks is not the same side. Management of database and telecommunications is required.

2.3.6.6 Maturity At this stage, administrators at all levels are aware of the importance of MIS to support the organization's management, such as planning and control.

Awareness of management information systems in the structure of functions. There are many useful comments. And interesting and should be shown to the other side and very important. Organizational Governance in Information Technology IT Governance by Bryce Boyd and Shadid (Brisebois, Boyd and Shadid, 2011) is meaningful. Principles of Information and Communication Technology Management in Organizations To consider the value creation of information technology. IT Governance is a part of organizational governance, which is the system of organizational governance. Considering both the management of the organization or the institution, customers, policies and laws, which are related to the accuracy of the management. Accountability and fiduciary duty, Economic efficiency, Strategic efficiency and Stakeholder view, IT Governance focuses on effective information technology. And the risk of information technology in the enterprise. Organizations need to set up a framework for IT Governance.

(1) Strategic alignment: The strategic plan of the organization to define the strategic plan for information technology. The top executives of the organization. And Chief Information Officer (CIO) must work together. The top management of the organization must understand the information technology. Information technology strategy. 2) Resource management is the investment and allocation of information technology resources to various parts of the organization according to the needs. 3) The creation of information technology (Value delivery) is the investment in the development of information technology system to meet the needs. To create benefits for organizations. In the development process, the system must also consider the development of information technology in the organization. Or use outside the organization. Outsourcing 4) Performance measurement is a measure of achievement. The objective of the project is to develop the information technology system. This will measure both the suitability of the work, the accuracy. Benefits 5) Risk management is the estimation of the risk. In addition, the IT Governance Institute has set the framework for managing and supervising information systems. A good IT strategy must be aligned with the organization's management strategy to achieve the same goal. 1) resources are individuals, technology and finance; 2) services are direct project and delivery systems; and 3) organizations are policy and decision-making

structures. These three components must be aligned with vision-related oversight. Alignment And guarantee the confidence of the organization.

In the early stages of development, the problems and obstacles of information system management continue to arise in governmental organizations, such as information systems for management. It requires cooperation from several subsystems to process the data to obtain the desired information. If not cooperated. To get information that may. Not useful In addition, management information systems should have a common database. In practice, most organizations do not believe in linking databases. Management lack of knowledge in information systems. Can not tell what information is needed. And the creation of information systems for management is complex and complex. It requires a skilled system builder. Therefore, the creation of information systems for management in the public sector to complete the system. And without defects, it is quite difficult. Because the nature of government agencies generally have the vision, objectives, policy, and mission of the agency (Kanchit Malaiwong, 1997), lack of vision or not focus on IT. It is possible that there is a lack of knowledge and understanding from top management. Both of these agencies should set a vision to be serious. The vision is like a beautiful future. A picture of what to expect. Especially if the vision is shared by staff in the agency as well. Will make everyone feel together. In addition to the main unit. The organization must define the vision of the use of information systems, such as determining what information to use. To be responsive and consistent with the vision of the main agency. By setting objectives and strategies appropriately. For agency policies, there must be a clear policy for the acquisition of information systems, such as whether they may be purchased directly from software vendors or outsourced to developers. Or may be established to develop information systems directly. In addition to the standardization of information. It is very important. Hardware, software, network, data, location, etc. If the standard is not standardized at the beginning, the problem cannot be shared. Data transfer is not possible. Because each unit has its own code that is inconsistent. Or conflicting

The principle of information management in the organization above. It brings to the stage of strategic planning. Implement strategy And control strategies. This is the key to determining the direction of the organization. It is used as

a basis for designing strategies related to information technology management. Strategic Information Technology, Organization and Strategic Information Management Systems Therefore, the three strategies must be consistent. And support key strategies. At the same time, strategic planning requires an analysis and assessment of the environment. Factors affecting the operation To find out the potential of the organization.

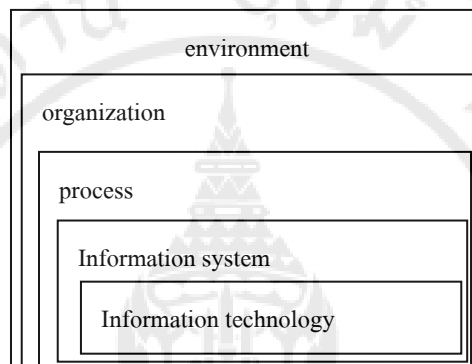


Figure 2.9 shows the relationships between information technology and information systems, organization processes and organizational environment.

From the figure 2.9, it can be seen that information technology is a component or fundamental factor in the organization. This is a systematic collection of data. And to classify them for ease of implementation. It is important to understand the importance of the organization and its role in the organization and its role in the organization. Information Systems The information technology strategy of the organization and the information management system strategy is most effective.

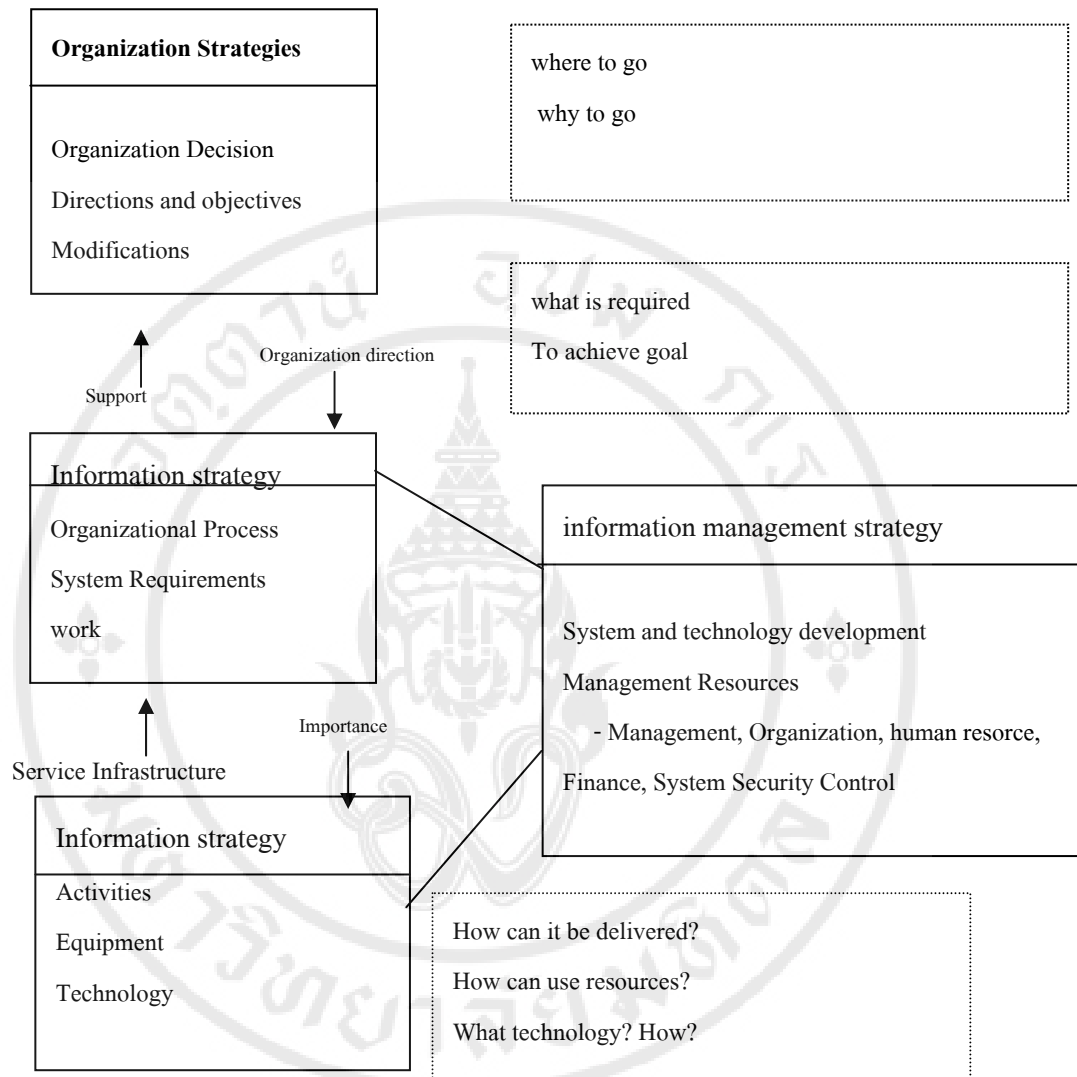


Figure 2.10 shows the relationship between organizational strategies and information management strategy

source : Ward and Peppard, 2002 : 41

Figure 2.10 Organizational strategy is the direction and mission of the organization. What does the organization want to do? Why do i need to Then consider that. What does the organization need? The information system is an information technology strategy for gathering, processing, and communicating information. The scope of operations of the information system strategy. Strategic management of information systems and information technology strategies to support the use of

information systems in various fields. Relate to information system strategy (Ward and Peppard, 2002).

TASANA (2009) Discusses the concept of information technology management. It can be classified into three major management strategies: Information Systems Strategy Information Technology Strategy and information management strategies. To be relevant and in line with the policy, strategy, objectives, plan of the organization as well as the operation method. Details of each.

The information system is the information system that needs to be created for information purposes. Or is it a departmental level in the organization? Determine the characteristics and format of the information required. Information needs to be aligned with the organization's strategic plan. It is an organizational plan that defines what information an organization should have over the next three to five years, and an annual action plan to meet that goal. Determining Information System Requirements It can be used to analyze the organization's information systems. Classified by function. work process And the information required. Or may use strategic analysis. Analyze factors of success. Information systems in the organization can be classified according to the level of management in the organization. Information System for Job Functions And the information system supports the work of the organization. And information systems can be used as strategic information systems, depending on the strategy of the organization.

Information technology strategy is the use of information technology. To develop or develop information systems. Consider that. The required information system has any activity or process that requires technology, equipment, techniques, and processes. Strategic Information Management System is the management of the information system and the computer network to achieve the objectives and goals. Consider that. How can it be done? And how to be effective. Strategic information management systems deal with three management issues: the development of information systems and the use of information technology. Resource management issues in managing information systems include organization of information technology organizations. Human Resource Management Financial resources and the security issues of information systems. Strategic Information System Design Information Technology Strategy And information management strategies. To study

the technology of the organization. Including other agencies that perform similar tasks. Trends in technology and use of information technology. To develop information systems. The development of the system must have a way to manage information resources, such as organization. Related Personnel And costs. And how to control the security of the system.

Meanwhile Prepare for competition or fight for space in various occasions. And to live in a stable society. The only way to develop an organization-based management system may not be as beneficial. Should follow a business or private organization that must focus on growth along the way. It should also understand the characteristics of modern government organizations. What features will affect the kind of information that will be used by the organization? Additional features include:

1) business processes or routine work The routine that is repeated each day, sometimes called. Standard Operating Procedures contain clear rules and procedures that apply to the operation. All employees must learn these procedures. To lead to efficient and effective production process.

2) Political organization Organizational Politics The use of new information systems for organizations. This will affect the behavior of employees who have been on a regular basis. New technology or information systems. Used to improve work processes within the organization. It is used to replace human labor. Including reducing the number of employees. These are always countered by the employees.

3) Organizational culture (Organizational Culture) Organizational culture is inherited from generation to generation. Most cultures have a respect for obedience and submission to the elders. Therefore, the introduction of new information technology. Used in the organization. This will affect the change and affect the organizational culture inevitably.

4) Organizational Environment

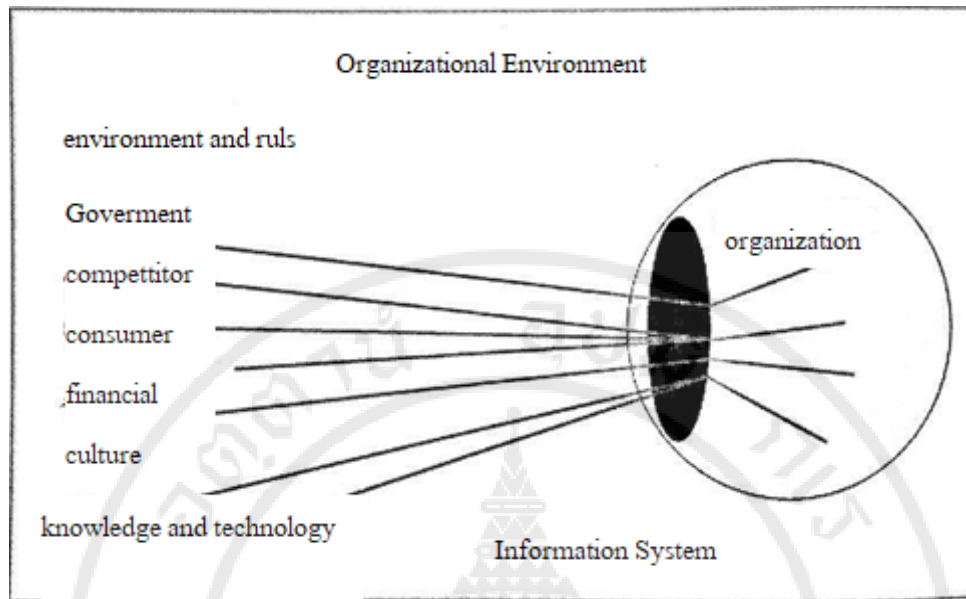


Figure 2.11: mutual relationship of organization environment
 source: Laudon and Laudon, 2010, p.112

Figure 2.11 shows that information systems play a role in helping organizations. Understand changes in the environment. It also helps the organization to stand on the environment. Allows managers to be aware of external changes. So the efficiency of the organization. It does not depend on the performance of the organization alone. It also depends on the organizational environment. And this environment is one of the factors that the organization must consider. And to improve services. Satisfaction with service recipients.

5) organizational structure All organizations must have an organizational structure to represent the organization. Organizational structure reflects complexity. Working Standards and decision level especially in the field of education or university. It will be structured as a faculty, with administrators such as Dean, Vice President, and Rector. The library will have information systems to work with. Each department will have a group of information systems to operate differently according to each activity.

That target and enforce constraints such as prisons, profit-oriented organizations such as businesses and organizations that target knowledge and belief,

such as educational institutions or theology, will contribute to this. The organization's approach to technology adoption varies from type to organization.

The importance of using information systems as a business strategy. It is the source of strategic information systems. Used to support the race and use as a tactical organization. Strategic Information Systems can be used for any type of information system, whether TPS MIS or DSS, with the help of information technology. To create a competitive advantage to competitors. The cost and quality. This competition strategy itself. This can help reduce the pressure of intense competition in the market. Porter's Competitive Forces model is applied to information systems that will be used to help create competitive advantage. The model consists of: 1) competition between competitors 2) threats from new traders 3) threats from substitutes 4) bargaining power of customers 5) bargaining power of suppliers Factors of production But after studying and analyzing the various pressures. As mentioned above. Can be used to plan information management strategies in the public sector to enter the competition.

- 1) Cost leadership strategy.
- 2) Difference Strategy
- 3) Innovation Strategy
- 4) Strategies for Growth
- 5) Strategies to find a business partner.

The five strategies are the basic competitive strategies that all organizations need to define and implement for efficiency and effectiveness. It can promote the company's core mission to gain competitive advantage. What is the role of management in investing in information technology? To support this strategy.

In addition, Porter (Porter) also said. Good strategy 1) The importance of the strategy 2) The strategy must be appropriate and suitable for the organization and 3) The goal of success and difficulties in the implementation.

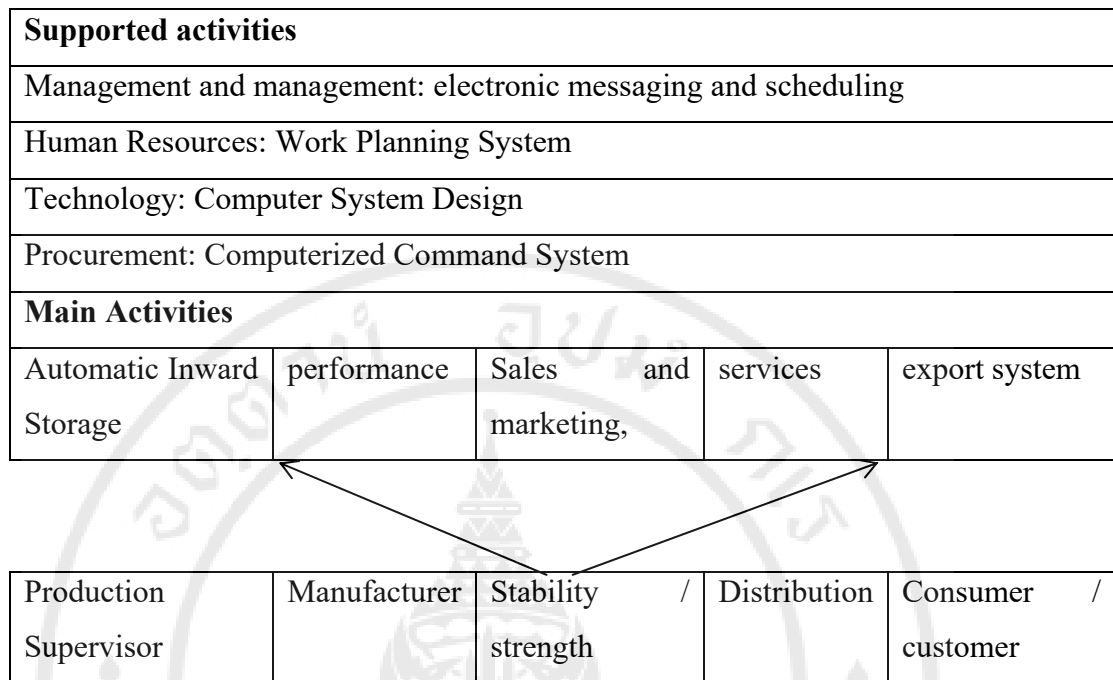


Figure 2.12 value chain from Porter

From the information above. The management information system is very important for effective management. Both in public and private sectors. Based on the analysis of system requirements in both the strategic planning phase. And implementing strategies. To support the decision of the executives or those who want to use the information. Should achieve the objectives set. Each of these sections is consistent and interrelated, such as hardware, software, people, management, and database. Including security checks. In addition, it will focus on information accuracy, speed and link to integrate the use of information systems in the entire agency. And in the most important part is to define a strategy for managing information systems. They are aware of the importance and necessity of information systems.

2.4 Efficiency concept

Efficiency is a widely used term. Whether it is business administration. State Enterprise And the government. Meaning of this word Dictionary of the Royal Institute, 1999, said that efficiency means the effect that results in the work. And when used with a person, it means being able to work well, fast, and completed on time. If

used with an organization or agency, it means a system that performs well. (The radio show "Know Thai Love" was broadcast on the radio station of Thailand on March 23, 2009.) In addition, both Thai and foreign scholars gave the meaning of the word efficiency and the same. As follows Peterson and Plowman (1953: 433) discuss the meaning of business efficiency. In a narrow sense, it means reducing production costs. In the broad sense, the quality of effectiveness and the competences and capability are the business operations that are considered to be the most effective. In order to produce the product or service in the quantity and quality that is needed and appropriate. And the least cost. Therefore, the concept of business efficiency in this area has four components: cost, quality, quantity and method of production. For Millet (Milet, 1954: 4), the meaning of efficiency is defined as the performance that results in satisfaction and profit from action. And Simon (Simon, 1960: 180-181) gave an opinion on performance. Considering what works best. This is the result of the relationship between the input and the output. Therefore, according to this view, the efficiency is equal to the output minus the input. In case of government and government organizations. Plus, the satisfaction of the service. (Satisfaction) with the formula as follows.

$$E = (O - I) + S$$

E = Efficiency

O = Output

I = Input

S = Satisfaction

In addition, caches and beams (Katz and Kahn, 1978) say efficiency is a key component of effectiveness. The efficiency of the organization means. Goal attainment of the organization in achieving its goals. Factors consisting of training, experience, sense of engagement with the organization also correlate with organizational performance. In addition, Robbins and Coulter (Robbins and Coulter, 1999: 9) gave the definition of efficiency. The relationship between inputs and outputs. Use limited resources. Thongchai Santiwong (1998: 253) states that performance refers to how the resources used to compare the results of the work are improved as they are working on organizational goals. Unlike effectiveness, which means success in running a business and achieving goals. (1998: 2) discusses the

effectiveness that the size and ability of success. Or achieve the goal For the purposes of this section, the term "education" means the term "education". And to save money. And it goes without saying that this performance depends on the quality of the personnel. Good materials and equipment. In addition, the Office of the Higher Education Commission (2003: 340) says that efficiency is a high performance. The system can work to create resources and internal stability to expand. And Uthai Laohavichien (2556: 25) says that efficiency means less inputs than inputs, ie, if any. Imports are less than inputs. It shows that the business. Effective The thing that should be considered. What are the inputs of the organization? Imports are about people. In terms of labor costs, budget costs, materials, equipment, land, buildings, etc., factors include: Products and Services Business organizations will also have the lead in the product. Or sometimes it will serve as a bank or hotel. When the output factor is greater than the input factor Hold that organization. Effective Show that the organization is operating the direction. Business is considered profitable. The government can hold that the budget is spent. The public will be rewarded with a budget that is cost effective.

In terms of efficiency, the first phase will be of special interest. There is a separation between politics and administration. The organization is trying to think of ways to develop to meet the objectives of the organization. As the study broadens the rational administration principles for the use of decision-making and planning, according to the ideas of Herbert A. Simon or James March, performance has been a constant attraction. Even with the development of another management principle. Postmodernism Postmodernism, which focuses on the application of philosophy to government administration, such as interpretation. Discourse or use of language, which will focus less on performance. To look in the abstract. By pointing out other alternatives. To the organization and to find new directions. Performance has been less attention. But postmodern concepts are more in line with the first and second countries. As third and fourth countries have scarcity in terms of human knowledge, money, materials, equipment, performance will be more important in terms of freedom. Participation or Representation The philosophical concept has an alternative view as a good cause. It is very abstract, difficult to implement.

In summary, the concept of performance is still an important value. In both government and private sectors. There will be more or less, or vary depending on the situation, depending on the time period. Considering economic, social, political and environmental factors. Influence of organizational change on the organization. So performance, the principle is to use limited resources. To produce the most beneficial. The efficiency will be achieved when output or output is greater than input or cost. The organization has achieved its goals. The value and satisfaction of the management with all parties concerned.

2.5 Model Concept

2.5.1 Model definition

There are many scholars. You define the meaning of "form" as both as and as follows. Smith and others (Smith and others, 1971: 461-462) describe the meaning of the form. The format is a fraction of the actual smaller. To consider and help understand facts, phenomena or behaviors. The layout is easy to understand. Which is like the real thing. Good (1973: 370) has the meaning of the form. 4) Meaning: 1) An example of a thing to be a way to create or repeat.) Is an example for imitation. 3) A chart or a 3D image representing one thing or principle or concept. 4) A set of factors or elements. Or variables that are related to each other. In addition, Corsini and Auebach (1996: 537-574) provide a definition of a form that refers to a set of relationships that are created between phenomena. In the real world and the structure of the transmission being studied. Which represent the phenomenon in the real world. In addition, Thai scholars have given meaning as well, such as Kannika Jimsienchai (2538: 82). Phenomena the proponents have studied and developed to show or explain phenomena more easily or may be useful in predicting the occurrence of phenomena. Vorasathep Puttipong (1997: 21-23) states that patterns are desirable characteristics which are idealistic and can be used as a guideline for any one of the actions. Or in the world of truth. In particular, what we want to do with the ability to find things that are very different, such as the ideal city, etc., Udonthani (2541: 22), meaning the structure of the relationship between units. Various tasks Or variants Suppose that the model is

a simple model of various phenomena. The proponents have studied and developed to describe one phenomenon and show the relationship of variables or factors. In addition, the Neptune (2003: 11) defines the term as: Simple scenarios or miniaturization of phenomena. The proposed model has been studied and developed. To show or explain the phenomenon easier to understand. And should show the relationship of variables or factors. Related. It may be used as a guideline for any one of the actions.

2.5.2 Model components

Brown and Moberg (1980: 16-17) have synthesized the components of the model. The majority of the models consisted of 1) the environment (Environment 2) Technology 3) Structure 4) Management process and 5) Decision making for Bardo and Hartman (1982). Sukrit Aram, 2004: 11) commented on the composition of the model. To specify how a particular format should be detailed, it should be appropriate and what format should it contain. There are no definite requirements. Ivyvich and others (1989: 16) propose a systematic model of some of the open systems that represent a subset of the system. This is the first step in the development of the system. Imports are sent through the process, which will be productive. And pay attention to input data from the external environment. This shows the beginning of a more open system.

2.5.3 Model development

Joyce and Weil (1986: 19-20) say that the development of the model is as follows: 1) The model should have theoretical support. 2) When developing the model. Before being widely used, research is required to test the theory. And check the quality in use in the real situation. 3) The development of the model. May be designed thoroughly. 4) The development of the model will be the main aim in determining which model to use. That is, if the user applies the style to the main goal, it will result in the highest achievement. But can take the form. It can be applied in other situations.

2.5.4 Features of the good model.

Keeves (1988: 560, cited in Jintana, 2004: 12-13) stated that the useful form should have four requirements: 1) The pattern should consist of a structured relationship. 2) Patterns should be used as a guideline for predicting the outcome, which can be verified by observation. It is possible to test the model based on empirical data. 3) The model should identify or point to the rationale of the subject. In addition to the model, it is a tool for forecasting. 4) The model should be a tool to create a new concept. The relationship between variables is new, which is an extension of the subject.

2.5.5 Model validation

There are scholars both Thai and foreigners. Einner (1976: 192-193) proposed the concept of model validation by using a panel of experts. (Connoisseurship) on some subjects that require more clarity than quantitative research. It is believed that the same perception is an important element of knowledge. 1) Evaluation by this approach. Targeted or targeted achievement based on goal-based model, response to problems and needs of stakeholders in response to a responsive model or decision-making process. One However, a qualitative assessment will be an in-depth analysis of the issues to be considered. This is not necessarily related to the purpose. Or those who are involved in the decision. It may be a combination of factors. The judges of the experts to the conclusion. About the quality, effectiveness or appropriateness of what is being evaluated. 2) It is an assessment model that focuses on the specific expertise of the subject, which will be assessed by developing a sensitive art criticism model. It requires a high level of expert judgment. Because it is a measure. It can not be measured with any gauge and requires the expert knowledge of the evaluator. Later, this concept was applied to higher education in the academic field of higher education. For Thai scholars, the examination of the pattern is as follows: Uthumporn Charmonman (1998: 23) states that the important purpose of creating a model is to test it. Or check the format with empirical data. There are several ways to check for patterns, which may be based on evidence-based analysis. (Qualitative) and Quantitative A quantitative examination may be used by the expert as a reviewer. Quantitative evidence models are based on statistical techniques, which

should examine two characteristics. 1) To examine the relative importance of the relationship and the relativeity of the variables between the variables. 2) Estimate the parameters of the relationship. This estimate Can be over time Sample Or place Or refer to the sample to the population. The results of the investigation led to two answers: the creation of a new model. And the improvement or development of the original.

Conclusions that the model represents a model of any phenomena. It can also be used to describe and visualize the phenomena that will occur, as well as to predict future events that hold the organization's objectives as an important mechanism, but also illustrate the relationship between variables or factors. Related it is used as a guideline for any one of the actions to achieve the goals that have been placed effectively.

2.6 Related Research

The document review and research related to the development of effective models of implementation of information technology management strategies as follows.

2.6.1 Research in the country

Boonkongsilp Wanomontri (1996). Management Information System Model The research found that The model of the information system has the following guidelines: 1) The current situation, problems and needs. The importance of role assignment and working group. 2) The development of information systems must be conducted in the following processes: Organization of projects there is a network of information systems. Follow up and evaluation. 3) Provide organizational structure for information system development. The team developed the information system. Data Collection Unit Program Development Unit Processor To perform the task of developing the information system as it is intended.

Nawarat Darunsri (1998) studied the subject. Management Information System for Burapha University. The results of the research were as follows: 1) The current information system of the university. Top executives And middle managers

use information and information in management decisions. Each unit collects the required data. The information that managers receive in order to be used in the administration is the most. Budget information In the opinion of the executives, the information system is being implemented at a high level. Data collection 2) The problem of operating the information system of the university. 3) The need for information and information. 4) High level executives and practitioners agree that management information systems should be formulated. 5) Management information systems should be in place. There is a unit responsible for administering a single information system. There is an Executive Information System Executive Committee.

Prateep Charoenporn (1998) has researched Problems and Development Guidelines of Information System of Provincial Land Office. In the East Coast Development Zone The research found that The problem of operating the information system of the office. The development of the information system. Consider that training should be provided to staff who are knowledgeable and skilled. Data collection Data validation Organizing information And presentation The system should cover the needs of the user. By setting up a central operating center, data center services serve the needs of users efficiently.

Suwit Piwpankam (1999) has researched Presentation of management information system model. The research found that Information Management System The least practical way to do this is to develop the knowledge and skills of data analysis. The process of managing information systems is minimal. Personnel responsible for processing information on a regular basis. The database system is minimal. Student Cost Information

The Chairman of the Council of University Teachers Nationwide (2001) New style of management in the university. The results of the study concluded that good management is a recognized practice among those involved in higher education institutions. At present, the emphasis will be on efficiency and effectiveness by promoting accountability and transparency. At the same time, the focus remains on engaging. Decentralization and justice

Watcharin Duangphanchan (2004) studied the development of information system for academic affairs at Srisawat School, Nong Phok District, Roi Et Province. The research found that Implementation of information system development. The

evaluation of the learning outcome using the strategy training workshop, study visit and internal supervision.

Devan Thongtrak (2005) developed a management information system for management. Faculty of Business Administration Chiang Mai University To support executive decisions. And to improve the performance of the operator. By collecting relevant data and analyzing it using the concept of system development cycle. The results showed that. System of work in each system, including personnel. Budget system, research system, international affairs system And the educational quality assurance system. They are interoperable and all systems are designed to be user-friendly and have a good security system. And most importantly, the system that meets the needs of users. Make it more efficient and effective.

Somchai Kongnoo(2005). Management of information system in schools. Chai Nat Provincial Municipality The research found that Management of information system in schools. 1) The resources are the people who see the importance of the information system. Organizing, storing and searching for accurate information. 2) The process is the use of equipment, technology tools used in the information system. Planning for data collection. 3) Database is the introduction of modern information technology. Accuracy of Information And the speed of the data.

Mitrutit Vibulsakunanakarn and Jittipong Sathorn (2006) studied the A Study of Administrators Opinions on Policies and Directions of Using ICT in Ubon Ratchathani Rajabhat University. It is found that the master plan / strategic plan in the agency. Including supportive policies on the use of information technology to manage education. But with the problems in policy and budget are quite.

Vilawane Somayaran and Derek Teeraputhprn (2015) studied the subject. Develop a state-controlled university information technology strategy. The research found that Components of the plan include the vision, mission, objectives, strategy, indicators, strategies, measures, and plans / projects. Executives, universities, governmental oversight have the policy to bring the university to Digital University. The university's strategy for information technology is government-directed. There are six strategies: a strategy to support learning. Research Strategy Strategies to support the dissemination of knowledge and communication. Strategic Management Support Infrastructure Development Strategy And the integrated information system

development strategy. To support the university's intelligent organization. A review of the state of the art information technology strategies of state-run universities. At the highest level.

Nonglak, Pongthong and team (2014). Factors and processes that affect the reaping of the benefits of information technology in organizations. From executives in information organizations of government agencies, private sector and state enterprises. Most of them did not plan to use the technology directly. Lack of follow up Personnel in the organization or users of information technology rarely know the process and use of information technology in some systems. The use of information technology in the field of information technology is not efficient. It cannot make full use of information technology.

2.6.2 Foreign Research

Phelps (refer in worasin Kotmontri,2004) studied information management and information system use for all members. The study indicated that The researcher has two management information systems clearly defined as maintenance. To find something to replace And these two strategies can be integrated to bring the level of information management to the next level.

Blaustein, (1984). The development of automated information systems for government. There are important functions. Complexity of the task And problems. It is expected that the information system manager will face. The method used for the design is education. Survey theory Various decisions And the relationship of these theories. In order to adapt to the operation of the information system. Targeted Research Based on the analysis of the political environment of the organization. And interpersonal interaction

Witcher (1993) has researched Case example of systematic arrangement of school system with related policies. The research found that Information about the role of information management systems. Executive Decision Making Acceptance in the form of reporting. Information to the various regional agencies. Whether it is local, district or provincial level. In addition, this study highlights the importance of management information systems to play a significant role in the future.

Penrod (1993) conducted research on The reflection of the information technology plan. : A decade of change The changes in information technology in higher education institutions are found in three basic forms: 1) from work alone, group work and communication. 2) from single system to holistic and 3) From internal organizations to joint ventures on computer systems and communications, and found a significant conclusion. Strategic information technology is the key to the leadership and management will bring the planning and decision-making in other areas.

Wilson (Wilson, 1996) studied the use of information systems for management in public organizations: a case study of Richmond. Virginia To study the attitudes of top management. City of Richmond Will the information system be used to manage within a public organization? The research found that Management has a positive (positive) attitude toward adopting information systems to manage within an organization or organization. It is an important tool of management. Although there are concerns about the use of such a little.

Clott and Fjortoft (1998) studied the cultural and Strategic management of the effectiveness of the Faculty of Business Administration at the University of the United States found that organizational culture based on the framework of Cameron and Ettington. Clan culture influences the effectiveness of the organization within the framework of Cameron's 7 dimensions of the system and its interaction with the community. Student Satisfaction and Job Satisfaction Higher marketing culture And official culture Family-style culture is also found to be more productive in dimensions, with a focus on the individual and a sense of openness within the institution. Organizational culture is a key factor in the conflict. The culture of care is an important characteristic of organizations with low conflict. While the culture of self-defense is characterized by conflicting organizations. In addition, the subculture within the organization has caused conflict.

J.Y.L. Banner and C.S.Jap. (J.Y.L. Thong and C.S. Yap, 2000). The study of information technology adoption in small businesses. Based on the characteristics of the management. And organization There are 3 factors involved: innovation, attitude and knowledge. Even small businesses. Management Features It is important to accept information technology. When executives are thinking about innovation,

they have a positive attitude toward the use of information technology. This has led to an increase in IT learning organizations.

Evelin, 2000). Information technology planning for strategy support: The design of information technology and vision has found that while it is favored to adopt new technologies. Come to create opportunities. Facilitate lifelong learning. The university has struggled with how to make it available to students on and off campus with the knowledge and skills they need. To compete with other people. Major challenges come from strategic plans and information technology plans. This will be the main task in the education. Challenges lead to the highest profitability of information technology investments. This is a way to insure that the university's goals are to support the strategic planning of information.

Yii Teang Tan, 2004, conducted a study on Barriers to Strategy Implementation: A Case Study of Air New Zealand, with the primary objective of identifying barriers to implementation. Using the Air New Zealand case study as a unit for analysis by means of group interviews. And related research found that participation at different levels of personnel in the organization was perceived in the process of bringing the strategy into action. It was found that the variables of leadership and organizational power became Barriers to the implementation of strategies to action.

Boyce, 2007: 1-8. Utilizing intellectual capital and organizational competencies to promote strategic implementation for pharmaceutical companies. The research found that Today's competition forces organizations to be more creative in their strategies while businesses are learning to develop customer service. 21st Century organizations need to increase their operations and promote activities. Continuous Products and services that have never looked like before. Now being imitated, strategic partners are increasing. The technological process is developing hugely. And the company is increasingly investing in tangible assets. For this reason, it can be competitive. Organizations must maintain their organization's competency and reinforce the implementation of the strategy. Having the core competencies and competencies of the organization is the key to effective implementation of the strategy.

Crittenden and Crittenden, 2008: 301-309. Creating a Competitive Organization of Strategic Performance Research has found that the impacts on performance is cross-functional and collaborative, creating a continuous learning organization and practice, installation of strategic support system, policy strategy support development, using strategic leadership, time understanding, resources allocation, reward on success, organizing organizational culture

Arnoud A. Van Der Maas (2008) studied the implementation of the Small Island Community: An Integrative Framework, which aims to develop a conceptual framework for analyzing the phenomenon of policy implementation. The findings are the factors influencing the implementation of policies and strategies, such as the performance of the organization members, management focused on the relationship system, political context, and implementation of the plan, organization structure and organizational culture

Yaser Hasan Al-Mamary et al. (2014) have studied the implications of the term information management system and the important role of telecommunication companies in Yemen. That information management system is an important tool for the organization. It can make the work out is continuous. Helps to bring benefits such as reduced working time. Save budget and it also reduces the number of staffs employed in the organization. Make the organization effective and productive. The result of increased customer satisfaction. Information management systems can be collected and storage including easy to get the information that need immediately. In summary, the management information system cannot be withdraw from the organization.

Mohamed Eslam Hassan and Ping Wang (2015) studied the literature on the impact and importance of information systems for management, found that information was essential for modern organizations. The need to take into account the acquisition of high-quality information to lead to good management and effective decision-making. This paper also presented the relationship between information systems and decision-making.

From the research of Thailand and foreign countries related to the implementation of information management strategies, which have been combined with theoretical concepts, to see more clearly the link between the information system works, especially the process of implementing information technology management

strategies in higher education institutions It is evident that the structure and process of modern information-based organizations are helping to work more effectively. In particular, important factors will be the opportunity to implement information management strategies successfully, such as assigning strategies to the responsible person, review the strategy before implementation resource allocation and budgeting, appropriate human resources, internal communication, rewards and incentives, leadership, security of information systems, continuous database system development, Create a network of information systems, organizational Competency and organizational culture. Most importantly is the readiness to accept the changes that will happen in the future.

2.7 Research Framework

There are social, economic and political conditions that change the government governance in the information era. It has a tremendous impact on the management of government organizations. Government agencies need to change the way they manage to be more modern. The government has introduced new public management concepts, focusing on strategic management to perform various tasks. In particular, the use of information systems to manage to support the changing world of today in term of strategic management. The process of implementing a strategy into performance is more difficult than strategic planning. Because it involves a variety of activities. The components of the implementation of information management strategies in government organizations were studied based on the synthesis of ideas from the textbook and the related research in the components of assignment of information management strategies to the responsible person, reviewing and understanding before Information Systems Management Strategy implementation, Human resources , budget allocation in organization, leadership, internal communications, rewards and incentives, the security of information systems, database development, information networking, organizational Competency and organizational culture.

This can be used as a research conceptual framework as follow;

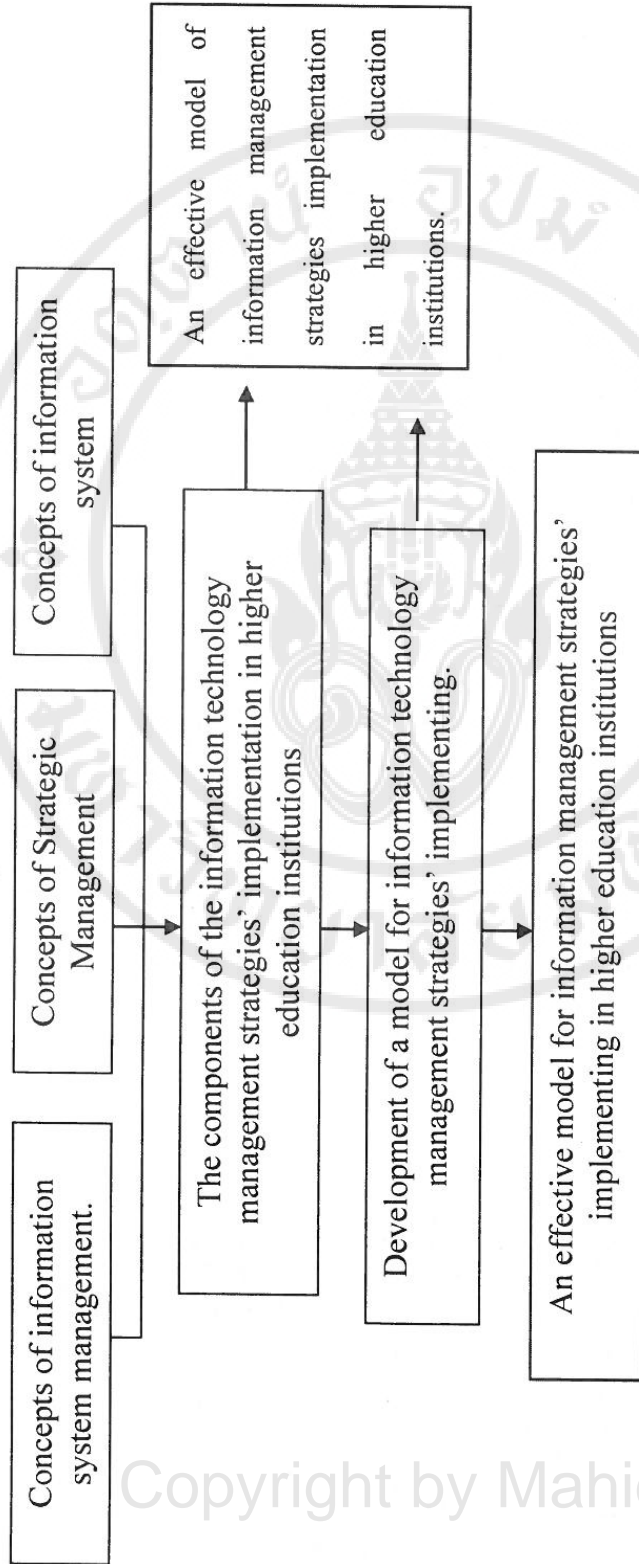


Figure 2.13 Research conceptual framework

CHAPTER III

RESEARCH METHODOLOGY

Research of the development of an effective model for information management strategies implementation in higher education institutions was a quantitative and qualitative research. The qualitative research aimed to: 1) Identify the components of information management strategies implementation in the university. 2) Develop an effective model for information management strategies implementation in higher education institutions. The researcher was defined the research process and research methodology as follows.

3.1 Research population and sample

The population in this study is the public and private universities under the Office of the Higher Education Commission which have good score of management assessment in above of 4.51 and has been ranked in the site <http://www.webometrics.info/en/Asia/Thailand>, in the top 100. There were 25 universities.

Sample in this research was the organization but need to collect information from representatives from the public and private universities under the Office of the Higher Education Commission which have good score of management assessment in above of 4.51 and had been ranked in the site <http://www.webometrics.info/en/Asia/Thailand>, in the top 100. There were 25 universities. The sampling was selected by using a specific sampling method. The appropriate sample should be the person who was involved in the information system management in order to obtain the components of the information management strategy implementation in the university. By the size of the sample, the researcher considered the data used in the analysis in line with principles of Factor Analysis. The basic agreement was the sample size should be larger and more than 5 - 10 times

greater than the number of variables (Stevens, 1992; Tabachnick & Fidell, 2001: 309) referred in Petchnoi Singchangchai 2006). In this study, there was 70 observation variables. The sample size was about 700 samples. Considering the distribution of samples in each of the faculties of the universities from the above, the sample consisted of 879 persons, which was divided into two groups as follow.

3.1.1 University level

3.1.1.1 Vice President of Information Technology and Planning

3.1.1.2 Director of Information Technology Center

3.1.1.3 Information System Officer

3.1.2 Faculty level

3.1.2.1 Associate Dean of Information Technology and Planning

3.1.2.2 Manager of Information Technology

3.1.2.3 Information System Officer

3.2 Data sources

Quantitative data was conducted from 25 universities such as Chulalongkorn University, Suranaree University of Technology, Mahidol University, Chiang Mai University, King Mongkut's University of Technology Thonburi, King Mongkut's University of Technology North Bangkok, King Mongkut's Institute of Technology Latkrabang, Thammasat University, National Institute of Development Administration, Srinakharinwirot University, Prince of Songkla University, Khonkaen University, Mahasarakrm university, Kasetsart University, Rachbaj Somdej Chao Phraya university, Nakhon Pathom Rajabhat University, Phuket Rajabhat University, Rajamangala University of Technology Thanyaburi, Stamford International University, Mahanakorn University of Technology, Shinawatra University, Sriprathum University, Rangsit University, Siam University, and Krirk University.

Qualitative data was conducted from 8 universities such as Kasetsart University, Rajamangala University of Technology Thanyaburi, Burapa University, Ramkhamhaeng University, Naresuan University Mahachulalongkornrajavidyalaya

University, Nakhon Ratchasima Rajabhat University, and Suan Sunandha Rajabhat University.

3.3 Research Methodology

3.3.1 prior to conducting the research

The researcher provided systematic research in accordance with research methodology. Start by studying the state of problem through document and research related review on strategic management, information management strategies implementation from various sources such as books, academic articles, journals and internet both in domestic and international. After that, the researcher summarized the data obtained from the study of relevant documents and research as a research framework and research design to present the advisors to provide suggestions and recommendation. Then submitted the research proposal to the department for approval of thesis topics. The final step was to modify the research framework accordance to the recommend of the examination committees and thesis proposal was approved by the Faculty of graduate Studies for further research.

3.3.2 Research Implementation

In order to answer the questions and objectives of the research, the researcher defined the procedures and methods of conducting research as follows:

3.3.2.1 Research Framework and Design as follows:

1. Document and research related review on strategic management, information management strategies implementation from various sources such as books, academic articles, journals and internet both in domestic and international

2. Summarized the conclusion from content analysis and knowledge about information management strategies implementation to be as the study variables to develop the questionnaire for research.

3.3.2.2 Composition Analysis; the researcher analyzed the components of the information management strategies implementation in higher

education institutions through using the questionnaire that cover all the components of the information management strategies implementation. The details of each step were as follows.

1. Use the component variables of the information management strategies implementation in the universities from above to develop a research a questionnaire.

2. Quality test for research tools through content validity using the IOC index (Index of Item-Objective Congruence) in a score more than 0.80 by 5 experts including: 1) Assistant Professor Dr. Anuwat Krasang 2) Assistant Professor Dr. Rewat Sangsuriyong 3) Assistant Professor Dr. Jomchai Lertamornrat 4) Assistant Professor Channawut Chairaksa and 5) Assistant Professor Narathip Sriram

3. Revise the research tool accordance to the comments of the experts and try out with non-informants of the this research in the number of 30 informants from Kamphaengphet Rajabhat University, Naresuan University, Mahachulalongkornrajavidyalaya University, 10 sets for each and in total was 30 sets. Then a questionnaire was analyzed the reliability by using the Cronbach coefficient (Cronbach 1984: 126).

4. The final questionnaire was used as a research tool to collect data.

5. Collect data and analyze data from the questionnaire using the computer program to analyze an exploratory factor analysis to find the important components of the information system management strategy implementation in higher education institutions.

3.3.2.3 Create and develop a model of the information system management strategy implementation of in higher education institutions. Path analysis method was conducted using the program to study the consistency of empirical data and the model from the study.

3.4 Research tools

In this study used a questionnaire and key interview question as a tool for data collection. Tool development described as follow;

3.4.1 Develop a questionnaire

The researcher constructed the questionnaire as follow:

3.4.1.1 Summarize the findings from the study of concepts, theories, and research related of the information management strategies implementation in the university to develop research variable

3.4.1.2 Create a question by using the variables. The questionnaire was divided into 2 sections.

Part 1 demographic of respondents was in checklist format

Part 2 Information for the information management strategies implementation in the university was a 5 level of Likert rating scale format;

Level 5 refers to very high practical implementation

Level 4 refers to high practical implementation

Level 3 refers to moderate practical implementation

Level 2 refers to low practical implementation

Level 1 refers to very low practical implementation

3.4.2 In-depth interview

In- depth interview of experts of the information management strategies implementation to get the most reliable answer. The reason for using this method was since the effective of the information management strategy implementation will take time to implement therefore, choosing the expert who understanding context in the organization could possible to predict the patterns of implementation of information management strategies. The analysis was made by processing the comments of the experts to confirm or adjust the answers to complete a more effective model including make it more compatible with reality and practical. 10 experts were interviewed and provided critical comments and suggestions to modify the model of the information management strategy implementation.

3.5 Data collection

3.5.1 The researcher requested the Faculty of Social Sciences and Humanities, Mahidol University to issue an official letter for 5 experts to review research tools

3.5.2 Send out a questionnaire to the respondents by post and wait for 2 weeks. If the questionnaire was not returned, the research used the phone call for follow up.

3.5.3 The researcher requested the Department of Public Policy and Public Management, Mahidol University to issue an official letter for 10 experts for in-depth interview to provide critical comments and suggestions to modify the model of the information management strategy implementation.

3.6 Statistics for research

This research was conducted in accordance with the research methodology. The data were analyzed by using the following statistics:

3.6.1 Descriptive Statistics were the statistics used to describe the characteristics of the data from the sample.

3.6.1.1 Frequency and Percentage used to analyze the characteristics of the respondents: gender, age, education background, position, responsibility, work experience and the type of higher education institution

3.6.1.2 Arithmetic Meaning used to analyze data on the components of the information system management strategies implementation in higher education institutions.

3.6.1.3 Standard Deviation used to analyze and interpret data together with Arithmetic Meaning to describe a distribution curve of data.

3.6.2 Inferential Statistics were the statistics used to summarize the opinions on the factors that influence the development of effective models of the information system management strategies implementation in higher education institutions.

3.6.2.1. Factor Analysis was a statistical technique that converging or grouping including combining the variables which there was a relationship in both of positive and negative. The variable which was in the same component will have high correlation. The variable which in different components will have low correlation or no correlation. This could be used both for develop new theories and to test or confirm previous theories.

The factor analysis consists of Principal component analysis and Orthogonal rotation by the Varimax method.

1. Verify relationship between variables using Kaiser-Meyer-Olkin measure of sampling adequacy (KMO) and Bartlett's test of sphericity

Describe the KMO value as follow.

More than 0.91 refer to very high appropriate

0.81-0.90 refer to high appropriate.

0.71-0.80 refer to moderate appropriate

0.61-0.70 refer to appropriate

0.51-0.60 refer to low appropriate

Under 0.50 refer to unacceptable

2. Factor extraction to find the number of components which capable to explain the relationship between the variables. Principal components analysis was used to determine the number of components. Components selection through analysis of variable values by Eigen value method and Common Factor method to separate the variables from the other components as much as possible.

3. Orthogonal factor rotation through Varimax method to obtain the independent factors.

4. Select the factor loading value to identify which variable was contained in which components. Factor loading values showed in Table 3.1 (Hair, 1995: 385)

Table 3.1 Present a factor Loading value in appropriate number of sample

Factor Loading	0.30	0.35	0.40	0.45	0.50	0.55	0.60	0.65	0.70	0.75
number of sample	350	250	200	150	120	100	85	70	60	50

5. Verify component through the average variance extracted was considered based on a value of 0.5 or higher and the construct reliability was more than 0.70.

6. Interpret the results of factor analysis and determine meaningful name which relevant to the construct of the component by considering the similarity between the variables in the component.

CHAPTER IV

RESEARCH RESULTS

To answer the research's questions and present of research results on the development of effective models for implementing information management strategies in higher education institutions. The researcher has analyzed and presented the results through narrative table which divided into 2 parts as follow;

4.1 The analysis of the components for implementing information management strategies.

4.1.1 The analysis of respondents' characteristic.

The respondents is information management system administrators in higher education institutions in university and faculty level from the government university, national university, rajabhat university, rajamangala university of technology and private university which are selected by Webometrics and office for national education standards and quality assessment (public organization) in the number of 25 universities. The respondents represent of a unit of analysis when classified by gender, age, education background, responsibility, experiences and typ of university through frequency and percentage as describe in Table 4.1.

Table 4.1 Respondents' characteristic

Characteristic	Amount(person)	percentage
Gender		
- Male	750	85.3
- Female	129	14.7
Total	879	100.0

Table 4.1 Respondents' characteristic. (cont.)

Characteristic	Amount(person)	percentage
Age		
- under 30 years	92	10.5
- 30 – 35 years	195	22.2
- 36 – 40 years	157	17.9
- 41 – 45 years	102	11.6
- 46 – 50 years	252	28.7
- Over 51 years	81	9.2
Total	879	100.0
Education background		
- Bachelor or equivalent.	360	41.0
- Master degree	453	51.5
- Doctoral degree	66	7.5
Total	879	100.0
Position and responsibility		
1. University level		
- Vice President of Information Technology and Planning	25	2.8
- Director of Information Technology Center / others director	25	2.8
- Information System Officer	25	2.8
2. Faculty level		
- Associate Dean of Information Technology and Planning	268	30.5
- Manager of Information Technology	268	30.5
- Information System Officer	268	30.5
Total	879	100.0

Table 4.1 Respondents' characteristic. (cont.)

Characteristic	Amount(person)	percentage
Working experience		
- under 5 years	122	13.9
- 5 – 10 years	246	28.0
- 11 – 20 years	292	33.2
- More than 20 years	219	24.9
Total	879	100.0
Type of University		
- government university	360	41.0
- national university	294	33.4
- Rajabhat University	51	5.8
- Rajamangala University of Technology	33	3.8
- Private University	141	16.0
Total	879	100.0

Table 4.1 shows that 879 respondents in this study were 750 males, which calculated as 85.3% and 369 females, as 14.7%. The majority of the respondents were between 46 and 50 years old which about 252 respondents at 28.7% but under the age of 30 was only 92 respondents which calculated as 10.5%. The highest level of education background was master degree in 453 (51.5%) respondents and the lowest was doctoral degree was 66 (7.5%) respondents. Working positions in university level was responsible for information systems in amount of 75 persons (8.5%) and 804 (91.5%) persons were faculty-level information systems management. 292 respondents (33.2%) had experiences around 11-20 years but working experiences which under 5 years was only 122 persons or 13.9%. Most of them was from government universities which was 360 (41.0 %) respondents but only 33 respondents or 3.8% from Rajamangala University of Technology.

4.1.2 Data analysis on the components of the information technology management strategies' implementation in higher education institutions.

An analysis of the feedback on the components of the information technology management strategies' implementation in higher education institutions through the mean (\bar{x}) and standard deviation (S.D.) were given in Table 4.2.

Table 4.2 The mean (\bar{x}), standard deviation (S.D.) and level of performance for the information technology management strategies' implementation.

Variable	Mean (\bar{x})	Standard Deviation	Level of Performance
1. Meeting to share information management system.	4.37	0.50	High
2. Appointment of working group and co-responsible for each information management strategy.	4.26	0.44	High
3. Assignment in writing document of information management strategy to the responsible person in writing.	4.25	0.44	High
4. Assignment of information management strategies to responsible persons based on their ability and experience.	4.24	0.42	High
5. Coordination among primary responsible and the responsible person about the management of information systems.	4.23	0.43	High
6. Monitoring and reporting of work performance after assignments on information management in the organization.	4.22	0.45	High
7. Continuous review of information technology management strategies plan.	4.23	0.44	High

Table 4.2 The mean (\bar{x}), standard deviation (S.D.) and level of performance for the information technology management strategies' implementation. (cont.)

Variable	Mean (\bar{x})	Standard Deviation	Level of Performance
8. Review of work processes on the information management strategies implementation	4.21	0.45	High
9. Create understanding in information management objectives before implementation	4.24	0.44	High
10. Promote understanding in information management direction and strategy	4.26	0.44	High
11. Create ownership of information management systems.	4.49	0.50	High
12. Study of additional information management strategies to guide the operation	4.47	0.50	High
13. Budget allocation for information systems that link and relevant to strategies and action plan	4.06	0.35	High
14. Management Information System for organization's budgeting	4.05	0.35	High
15. Procurement of IT equipment as needed and appropriate.	4.08	0.38	High
16. Available of information systems facilities	4.06	0.35	High
17. Appropriate budget allocation for information system development.	4.07	0.36	High
18. Human resources planning that relevant to information management strategy	4.06	0.35	High

Table 4.2 The mean (\bar{x}), standard deviation (S.D.) and level of performance for the information technology management strategies' implementation. (cont.)

Variable	Mean (\bar{x})	Standard Deviation	Level of Performance
19. Sufficient staff for information management strategy implementation.	4.08	0.37	High
20. staff selection based on knowledge, ability and skills that necessary for information management strategy implementation	4.07	0.37	High
21. Staff have a good attitude towards the information management strategy implementation	4.07	0.35	High
22. Staff can switch or replace the information management work	4.05	0.36	High
23. Staff can apply the information system to their work.	4.07	0.36	High
24. Meeting to finding solutions when problem arise which related to information management strategies implementation.	4.33	0.47	High
25. A variety of communication systems for managing information systems, both internal and external, such as telephone, internet etc.	4.28	0.45	High
26. Information resources to assist staff in information management strategies implementation	4.12	0.33	High
27. Quick transmission system among staff who implement the information management strategy.	4.09	0.29	High

Table 4.2 The mean (\bar{x}), standard deviation (S.D.) and level of performance for the information technology management strategies' implementation. (cont.)

Variable	Mean (\bar{x})	Standard Deviation	Level of Performance
28. Two-way communication among staff who implement the information management strategy	4.14	0.35	High
29. The incentive system to provide extra bonuses to those who use the information system in their work to achieve higher productivity.	4.11	0.75	High
30. The incentive system to raise salaries according to performance to achieve the goals	3.77	0.41	High
31. Honorable mentions in case of effective use of information systems	4.20	0.66	High
32. Motivation system by promote to higher position to those who achieve a goal or who use the information system to their work.	3.91	0.30	High
33. The incentive system to award a team that performs the success task in information system implementation.	3.90	0.30	High
34. Increase responsibility for the task of managing information systems to meet the needs of the staff.	4.19	0.40	High
35. The faculty administrators have a clear vision of the information systems management.	4.18	0.40	High
36. University administrators able to create trust and encourage staff to work in information management.	4.19	0.41	High

Table 4.2 The mean (\bar{x}), standard deviation (S.D.) and level of performance for the information technology management strategies' implementation. (cont.)

Variable	Mean (\bar{x})	Standard Deviation	Level of Performance
37. Executives provide staff an opportunity to express their opinions in the process of information systems management.	4.18	0.41	High
38. Set the common beliefs or practices of information systems management.	4.17	0.41	High
39. Executives have responsible for the results of the information system management implementation.	4.19	0.40	High
40. Executives participate in ongoing information system management implementation.	4.18	0.41	High
41. Checking the readiness of the information system development project or activities	3.35	0.51	Moderate
42. Secure storage of information systems database.	4.04	0.25	High
43. An effectively data backup	4.23	0.64	High
44. Monitor and control of technological changes during the transition period.	4.04	0.26	High
45. Protection system (Hacker) throughout the system	4.06	0.30	High
46. Set up individual passwords which can timely check and track of.	4.08	0.32	High
47. A modern information management Innovations	4.03	0.25	High

Table 4.2 The mean (\bar{x}), standard deviation (S.D.) and level of performance for the information technology management strategies' implementation. (cont.)

Variable	Mean (\bar{x})	Standard Deviation	Level of Performance
48. Increase internet storage space for central database and faculty level database.	4.02	0.25	High
49. Develop a new database which easily and faster access.	4.05	0.29	High
50. Revise the information database to be more active.	4.03	0.26	High
51. Create a network of information systems to easily communicate between faculties.	4.07	0.27	High
52. Create a network of information systems management to connect all services.	4.03	0.26	High
53. Networking with other government agencies to exchange information systems.	4.05	0.26	High
54. Networking with private sector to exchange information systems.	4.02	0.23	High
55. Exchange of staff and administrative resources between networks for information systems.	4.11	0.38	High
56. A field study of information system networking learning and sharing	4.04	0.26	High
57. All dimensions of Information system Management.	4.10	0.38	High
58. Flexible of organizational structure that aligns with information management strategy.	4.11	0.38	High

Table 4.2 The mean (\bar{x}), standard deviation (S.D.) and level of performance for the information technology management strategies' implementation. (cont.)

Variable	Mean (\bar{x})	Standard Deviation	Level of Performance
59. The organization is capable to response to the needs of the information system's use.	4.11	0.37	High
60. The organization has the capacity to adapt itself to new information management strategies	4.10	0.38	High
61. Applied Balanced Scorecard Management which covers the perspective of customers, financial and operations including innovation and learning on information systems	4.11	0.38	High
62. Establish a center or information technology center for system management and development.	3.95	0.33	High
63. Independent management of a center or information technology center.	3.96	0.34	High
64. Set up Knowledge Management (KM) to support knowledge to various subordinate institutions.	3.95	0.33	High
65. Performance Assessment of a center or information technology center through the staff participation method.	3.96	0.32	High
66. Create an atmosphere of academic development through using Information technology as a learning media.	4.11	0.51	High
67. Create of clearly common values in information management system.	4.08	0.47	High

Table 4.2 The mean (\bar{x}), standard deviation (S.D.) and level of performance for the information technology management strategies' implementation. (cont.)

Variable	Mean (\bar{x})	Standard Deviation	Level of Performance
68. Promote of staff awareness on accepting of the changes in information system management which will occur in the future.	4.06	0.48	High
69. Encourage staff to work as team members in information management systems planning for organization.	4.09	0.48	High
70. Setting social measures for organizations' staff to apply information systems in management such as announcing that there isn't any implementing of the information system.	4.07	0.44	High
Total	4.10	0.15	High

From Table 4.2, found that 70 variables had average (\bar{x}) 3.35 - 4.49. The standard deviation (SD) ranged from 0.23 to 0.75, indicating that the respondents had opinions about the level of variables between moderate to high level. The variable with the highest mean value was 11th variable, which created a sense of ownership for all staff in the management of information systems. The average score was 4.29, followed by the 12th which was additional information management strategies were used to guide the implementation and the mean score was 4.47, and the first one; had a meeting to share information management system at 4.37 of mean score. However, the variable which presented the lowest means was 41st; checking the readiness of the information system development project or activities which only 3.35 of mean score.

4.1.3 An Analysis of the coefficient of skewness of the components of the information technology management strategies implementation in higher education institutions.

Table 4.3 Presenting of Skewness, Krutosis, Range and Maximum and Minimum

	data	resource	strategy	leader	culture	competency	communication	reward
N Valid	879	879	879	879	879	879	879	879
Missing	0	0	0	0	0	0	0	0
Mean	4.06	4.06	4.24	4.18	4.08	4.11	4.16	3.86
Mode	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00
Std. Deviation	.257	.349	.428	.404	.439	.368	.313	.287
Skewness	1.980	.626	1.095	1.334	.078	1.217	1.815	-1.859
Kurtosis	8.209	4.365	-.487	.624	1.622	2.912	2.008	2.349
Range	2.00	2.00	1.75	2.00	2.00	2.00	2.00	1.33
Minimum	3.00	3.00	3.25	3.00	3.00	3.00	3.00	3.00
Maximum	5.00	5.00	5.00	5.00	5.00	5.00	5.00	4.33

From table4.3 that showed the skewness value and Krutosis value indicated that the database development and security of the information system was found to have a skewness value of 1.980, a Kurtosis value of 8.209, a maximum value of 5.00, a minimum value of 3.00, and a range value of 2.00, which presented that this data set had a skewness value at the level of more than 0, which indicated that most respondents had a very high attitude compared to the means. And data distribution curve was overblown indicated that the data was less than normal distribution.

The budget allocation for the information resource system was 0.626. The Kurtosis value was 4.365. The maximum value was 5.00, the minimum was 3.00, and the range value was 2.00. It indicated that this data set had a skewness value at the level of less than 0, mean that most respondents had a low attitude compared to the means. And data distribution curve was overblown indicated that the data was less than normal distribution.

The strategic assignment and revision before implementation showed that the Skewness value was 1.095, the Kurtosis value was -0.487, the Maximum value was 5.00, the Minimum was 3.25, and the range was 1.75. This data set had a

skewness value at the level of more than 0, mean that most respondents had a high attitude compared to the means. And a data distribution curve was flat, showed that the data was distributed more than usual.

The leadership showed that the Skewness value was 1.334, the Kurtosis value was 0.624, the Maximum value was 5.00, the Minimum was 3.00, and the range was 2.00. This data set had a skewness value at the level of more than 0, mean that most respondents had a high attitude compared to the means. And a data distribution curve was flat, showed that the data was distributed more than usual.

The organizational culture showed that the Skewness value was 0.078, the Kurtosis value was 1.622, the Maximum value was 5.00, the Minimum was 3.00, and the range was 2.00. This data set had a skewness value at the level of less than 0, mean that most respondents had a low attitude compared to the means. And data distribution curve was overblown indicated that the data was less than normal distribution.

The organizational competency showed that the Skewness value was 1.217, the Kurtosis value was 2.912, the Maximum value was 5.00, the Minimum was 3.00, and the range was 2.00. This data set had a skewness value at the level of more than 0, mean that most respondents had a high attitude compared to the means. And data distribution curve was overblown indicated that the data was less than normal distribution.

The internal communication showed that the Skewness value was 1.815, the Kurtosis value was 2.008, the Maximum value was 5.00, the Minimum was 3.00, and the range was 2.00. This data set had a skewness value at the level of more than 0, mean that most respondents had a high attitude compared to the means. And data distribution curve was overblown indicated that the data was less than normal distribution.

The rewards and incentive showed that the Skewness value was -1.859, the Kurtosis value was 2.349, the Maximum value was 4.33, the Minimum was 3.00, and the range was 1.33. This data set had a skewness value at the level of less than 0, mean that most respondents had a low attitude compared to the means. And data distribution curve was overblown indicated that the data was less than normal distribution.

4.1.4 An analysis of components for information systems management strategies implementation in higher education institutions

Exploratory Factor Analysis by computer program based on the key conditions of the variables were related by KMO and Bartlett's Test. The Kaiser-Meyer-Olkin Measure of Sampling Adequacy (MSA) was between 0 and 1, and the second test was Bartlett's Test of Sphericity to test the related of variable. The results were as follows in Table 4.3.

Table 4.4 Present of Bartlett's Test of Sphericity and KMO-Meyer-Olkin Measure of Sampling Adequacy include all components

Bartlett's Test of Sphericity	Approx. Chi-Square	115758.836
	df	2415
	Sig.	0.000
Kaiser-Meyer-Olkin Measure of Sampling Adequacy.		0.850

Table 4.4 showed Bartlett's Test of Sphericity include all components at Chi-Square statistically significant at the 0.05 indicates that there was correlation matrix of the variables therefore data could be analyzed individual its component. In addition, the KMO (Kaiser-Meyer-Olkin Measure of Sampling Adequacy (KMO)) of all components, was 0.850, represented a high level of data availability which able to use analyze in each components at a very good level.

Bartlett's Test of Sphericity was used to find the correlation matrix of the variables and test of the Kaiser-Meyer-Olkin Measurement Sampling Adequacy (KMO) to proof of sufficient suitability in each components

Table 4.5 Present of Bartlett's Test of Sphericity and KMO-Meyer-Olkin Measure of Sampling Adequacy for component 1

Bartlett's Test of Sphericity	Approx. Chi-Square	4160.440
	df	6
	Sig.	0.000
Kaiser-Meyer-Olkin Measure of Sampling Adequacy.		0.806

Table 4.5 showed Bartlett's Test of Sphericity of component 1 at Chi-Square statistically significant at the 0.05 indicates that there was correlation matrix of the variables therefore data could be analyzed individual its component. The KMO (Kaiser-Meyer-Olkin Measure of Sampling Adequacy (KMO)) of all components, was 0.806, represented a moderate level of data availability (according to KMO standard table in chapter 3).

Table 4.6 Present of Bartlett's Test of Sphericity and KMO-Meyer-Olkin Measure of Sampling Adequacy for component 2

Bartlett's Test of Sphericity	Approx. Chi-Square	3477.212
	df	3
	Sig.	0.000
Kaiser-Meyer-Olkin Measure of Sampling Adequacy.		0.721

Table 4.6 showed Bartlett's Test of Sphericity of component 2 at Chi-Square statistically significant at the 0.05 indicates that there was correlation matrix of the variables therefore data could be analyzed individual its component. The KMO (Kaiser-Meyer-Olkin Measure of Sampling Adequacy (KMO)) of all components, was 0.721, represented a moderate level of data availability (according to KMO standard table in chapter 3).

Table 4.7 Present of Bartlett's Test of Sphericity and KMO-Meyer-Olkin Measure of Sampling Adequacy for component 3

Bartlett's Test of Sphericity	Approx. Chi-Square	6649.266
	df	6
	Sig.	0.000
Kaiser-Meyer-Olkin Measure of Sampling Adequacy.		0.838

Table 4.7 showed Bartlett's Test of Sphericity of component 3 at Chi-Square statistically significant at the 0.05 indicates that there was correlation matrix of the variables therefore data could be analyzed individual its component. The KMO (Kaiser-Meyer-Olkin Measure of Sampling Adequacy (KMO)) of all components, was 0.838, represented a high level of data availability (according to KMO standard table in chapter 3).

Table 4.8 Present of Bartlett's Test of Sphericity and KMO-Meyer-Olkin Measure of Sampling Adequacy for component 4

Bartlett's Test of Sphericity	Approx. Chi-Square	5873.124
	df	3
	Sig.	0.000
Kaiser-Meyer-Olkin Measure of Sampling Adequacy.		0.743

Table 4.8 showed Bartlett's Test of Sphericity of component 4 at Chi-Square statistically significant at the 0.05 indicates that there was correlation matrix of the variables therefore data could be analyzed individual its component. The KMO (Kaiser-Meyer-Olkin Measure of Sampling Adequacy (KMO)) of all components, was 0.743, represented a moderate level of data availability (according to KMO standard table in chapter 3).

Table 4.9 Present of Bartlett's Test of Sphericity and KMO-Meyer-Olkin Measure of Sampling Adequacy for component 5

Bartlett's Test of Sphericity	Approx. Chi-Square	1815.981
	df	3
	Sig.	0.000
Kaiser-Meyer-Olkin Measure of Sampling Adequacy.		0.740

Table 4.9 showed Bartlett's Test of Sphericity of component 5 at Chi-Square statistically significant at the 0.05 indicates that there was correlation matrix of the variables therefore data could be analyzed individual its component. The KMO (Kaiser-Meyer-Olkin Measure of Sampling Adequacy (KMO)) of all components, was 0.740, represented a moderate level of data availability (according to KMO standard table in chapter 3).

Table 4.10 Present of Bartlett's Test of Sphericity and KMO-Meyer-Olkin Measure of Sampling Adequacy for component 6

Bartlett's Test of Sphericity	Approx. Chi-Square	3661.582
	df	3
	Sig.	0.000
Kaiser-Meyer-Olkin Measure of Sampling Adequacy.		0.718

Table 4.10 showed Bartlett's Test of Sphericity of component 6 at Chi-Square statistically significant at the 0.05 indicates that there was correlation matrix of the variables therefore data could be analyzed individual its component. The KMO (Kaiser-Meyer-Olkin Measure of Sampling Adequacy (KMO)) of all components, was 0.718, represented a moderate level of data availability (according to KMO standard table in chapter 3).

Table 4.11 Present of Bartlett's Test of Sphericity and KMO-Meyer-Olkin Measure of Sampling Adequacy for component 7

Bartlett's Test of Sphericity	Approx. Chi-Square	1558.518
	df	3
	Sig.	0.000
Kaiser-Meyer-Olkin Measure of Sampling Adequacy.		0.637

Table 4.11 showed Bartlett's Test of Sphericity of component 7 at Chi-Square statistically significant at the 0.05 indicates that there was correlation matrix of the variables therefore data could be analyzed individual its component. The KMO (Kaiser-Meyer-Olkin Measure of Sampling Adequacy (KMO)) of all components, was 0.637, represented a basic level of data availability (according to KMO standard table in chapter 3).

Table 4.12 Present of Bartlett's Test of Sphericity and KMO-Meyer-Olkin Measure of Sampling Adequacy for component 8

Bartlett's Test of Sphericity	Approx. Chi-Square	787.654
	df	3
	Sig.	0.000
Kaiser-Meyer-Olkin Measure of Sampling Adequacy.		0.684

Table 4.12 showed Bartlett's Test of Sphericity of component 8 at Chi-Square statistically significant at the 0.05 indicates that there was correlation matrix of the variables therefore data could be analyzed individual its component. The KMO (Kaiser-Meyer-Olkin Measure of Sampling Adequacy (KMO)) of all components, was 0.684, represented a basic level of data availability (according to KMO standard table in chapter 3).

Table4.13 Display of Initial Eigenvalues, percentage of Variance, percentage of Cumulative Variance of components for information systems management strategies implementation in higher education institutions (n = 879)

Component	Initial Eigenvalues			Rotation Sums of Squared Loadings		
	Variance	percentage of		Variance	percentage of	
		Variance	Cumulative		Variance	Cumulative
1	15.026	21.466	21.466	10.404	14.863	14.863
2	9.739	13.913	35.379	9.333	13.333	28.196
3	9.001	12.858	48.237	9.273	13.248	41.444
4	7.035	10.051	58.288	7.682	10.974	52.418
5	5.501	7.858	66.146	6.309	9.013	61.431
6	4.572	6.531	72.677	5.537	7.910	69.340
7	3.596	5.137	77.815	4.301	6.145	75.485
8	1.812	2.589	80.403	3.443	4.918	80.403

From Table4.13, found that there were 8 components with Eigenvalue more than 1.00. The variance of the components was 82.018 %.

Considering the variance of 70 variables, at the condition of the Eigenvalue was more than 1.00 according to the Kaiser method and the components selection at least 3 components. And the factor loading was more than 0.50 (Viyada Tanwatanakul, referred in Yutt Kaiwan, 2008). The variable which had high factor loading in which components, it considered as that component. According to Varimax with Kaiser Normalization found that the variables for information systems management strategies implementation in higher education institutions could be grouped into 8 components which met the criteria. A total of 26 variables were excluded from the 44 variables described in Table4.5.

Table4.14 Show of Factor Loading and components

Variable	Factor Loading							
	Group 1	Group 2	Group 3	Group 4	Group 5	Group 6	Group 7	Group 8
X42	0.869							
X49	0.858							
X45	0.854							
X46	0.783							
X15		0.898						
X13		0.837						
X14		0.833						
X4			0.958					
X9			0.943					
X7			0.934					
X5			0.918					
X35				0.971				
X34				0.966				
X37				0.948				
X70					0.814			
X67					0.784			
X66					0.768			
X59						0.943		
X57						0.926		
X61						0.923		
X26							0.886	
X27							0.815	
X25							0.670	
X30								0.845
X33								0.762
X32								0.744
รวมตัวแปร	4	3	4	3	3	3	3	3

From Table4.14, found that the components of information system management in the higher education institution were 8 components, namely component1: 4 variables, component2: 3 variables, component3: 3 variables, component4: 3 variables, component5: 3 variables, component6: 3 variables, component7: 3 variables, and component8: 3 variables.

The results of the Exploratory Factor Analysis were used to extract the most important variables through Maximum Likelihood Analysis. The key components consisted of 8 components which relevant to documents review including concepts and theories and related research. As the researcher set those components as a component for information system management in the higher education institution as detailed in Table4.15 - 4.22.

Table 4.15 Factor loading for component 1

Variables	Description	Factor loading
42	Secure storage of information systems database.	0.869
49	Develop a new database which easily and faster access.	0.858
45	Protection system (Hacker) throughout the system	0.854
46	Set up individual passwords which can timely check and track of.	0.783
Eigenvalues		10.404
Percent of variance		14.863

From Table4.15, found that the first component was described by four variables, which a factor loading was 0.783 - 0.869. The Eigenvalues was 10.404 and the percent of variance was 14.863 and this component could explain the variance of behavior at 14.863 % when compared to variables in other component which indicated that this component was a 1st key component.

Table 4.16 Factor loading for component 2

Variables	Description	Factor loading
15	Procurement of IT equipment as needed and appropriate.	0.898
13	Budget allocation for information systems that link and relevant to strategies and action plan	0.837
14	Management Information System for organization's budgeting	0.833
Eigenvalues		9.333
Percent of variance		13.333

From Table 4.16, found that the component 2 was described by three variables, which a factor loading was 0.833 – 0.898. The Eigenvalues was 9.333 and the percent of variance was 13.333 and this component could explain the variance of behavior at 13.333 % when compared to variables in other component which indicated that this component was a 2nd key component.

Table 4.17 Factor loading for component 3

Variables	Description	Factor loading
4	Assignment of information management strategies to responsible persons based on their ability and experience.	0.958
9	Create understanding in information management objectives before implementation	0.943
7	Continuous review of information technology management strategies plan.	0.934
5	Coordination among primary responsible and the responsible person about the management of information systems.	0.918
Eigenvalues		9.273
Percent of variance		13.248

From Table4.17, found that the component 3 was described by four variables, which a factor loading was 0.918 – 0.958. The Eigenvalues was 9.273 and the percent of variance was 13.248 and this component could explain the variance of behavior at 13.248 % when compared to variables in other component which indicated that this component was a 3rd key component.

Table 4.18 Factor loading for component 4

Variables	Description	Factor loading
35	The faculty administrators have a clear vision of the information systems management.	0.971
34	Increase responsibility for the task of managing information systems to meet the needs of the staff.	0.966
37	Executives provide staff an opportunity to express their opinions in the process of information systems management.	0.948
Eigenvalues		7.682
Percent of variance		10.974

From Table4.18, found that the component 4 was described by three variables, which a factor loading was 0.948 – 0.971. The Eigenvalues was 7.682 and the percent of variance was 10.974 and this component could explain the variance of behavior at 10.974 % when compared to variables in other component which indicated that this component was a 4th key component.

Table 4.19 Factor loading for component 5

Variables	Description	Factor loading
70	Setting social measures for organizations' staff to apply information systems in management such as announcing that there isn't any implementing of the information system.	0.814
67	Create of clearly common values in information management system.	0.784
66	Create an atmosphere of academic development through using Information technology as a learning media.	0.768
Eigenvalues		6.309
Percent of variance		9.013

From Table 4.19, found that the component 5 was described by three variables, which a factor loading was 0.768 – 0.814. The Eigenvalues was 6.309 and the percent of variance was 9.013 and this component could explain the variance of behavior at 9.013 % when compared to variables in other component which indicated that this component was a 5th key component.

Table 4.20 Factor loading for component 6

Variables	Description	Factor loading
59	The organization is capable to response to the needs of the information system's use.	0.943
57	All dimensions of Information system Management.	0.926
61	Applied Balanced Scorecard Management which covers the perspective of customers, financial and operations including innovation and learning on information systems	0.923
Eigenvalues		5.537
Percent of variance		7.910

From Table4.20, found that the component 6 was described by three variables, which a factor loading was 0.923 – 0.943. The Eigenvalues was 5.537 and the percent of variance was 7.910 and this component could explain the variance of behavior at 7.910 % when compared to variables in other component which indicated that this component was a 6th key component.

Table 4.21 Factor loading for component 7

Variables	Description	Factor loading
26	Information resources to assist staff in information management strategies implementation	0.886
27	Quick transmission system among staff who implement the information management strategy.	0.815
25	A variety of communication systems for managing information systems, both internal and external, such as telephone, internet etc.	0.670
Eigenvalues		4.301
Percent of variance		6.145

From Table4.21, found that the component 7 was described by three variables, which a factor loading was 0.670 – 0.886. The Eigenvalues was 4.301 and the percent of variance was 6.145 and this component could explain the variance of behavior at 6.145 % when compared to variables in other component which indicated that this component was a 7th key component.

Table 4.22 Factor loading for component 8

Variables	Description	Factor loading
30	The incentive system to raise salaries according to performance to achieve the goals	0.845
33	The incentive system to award a team that performs the success task in information system implementation.	0.762
32	Motivation system by promote to higher position to those who achieve a goal or who use the information system to their work.	0.744
Eigenvalues		3.443
Percent of variance		4.918

From Table 4.22, found that the component 8 was described by three variables, which a factor loading was 0.744 – 0.845. The Eigenvalues was 3.443 and the percent of variance was 4.918 and this component could explain the variance of behavior at 4.918 % when compared to variables in other component which indicated that this component was a 8th key component.

The results of the Exploratory Factor Analysis were used to extract the most important variables through Maximum Likelihood Analysis. The key components for information system management in the higher education institution consisted of 8 as follow;

1. Component 1 was described by four key variables when considered found that those variables related to the development of databases and the security of information systems. Therefore the researcher defines the names of component 1 as database development and security of information systems.

2. Component 2 was described by three key variables when considered found that those variables related to information systems budget allocation. Therefore the researcher defines the names of component 2 as information systems budget allocation.

3. Component 3 was described by four key variables when considered found that those variables related to strategic assignment and review before

implementation. Therefore the researcher defines the names of component 3 as information systems strategic assignment and review before implementation.

4. Component 4 was described by three key variables when considered found that those variables related to leadership. Therefore the researcher defines the names of component 4 as leadership.

5. Component 5 was described by three key variables when considered found that those variables related to organizational culture. Therefore the researcher defines the names of component 5 as organizational culture.

6. Component 6 was described by three key variables when considered found that those variables related to organizational competency. Therefore the researcher defines the names of component 6 as organizational competency.

7. Component 7 was described by three key variables when considered found that those variables related to internal communication. Therefore the researcher defines the names of component 7 as internal communication.

8. Component 8 was described by three key variables when considered found that those variables related to reward and incentives. Therefore the researcher defines the names of component 8 as reward and incentives.

The key components for information system management implementation in the higher education institution consisted of 8 could be draw in a model as follow

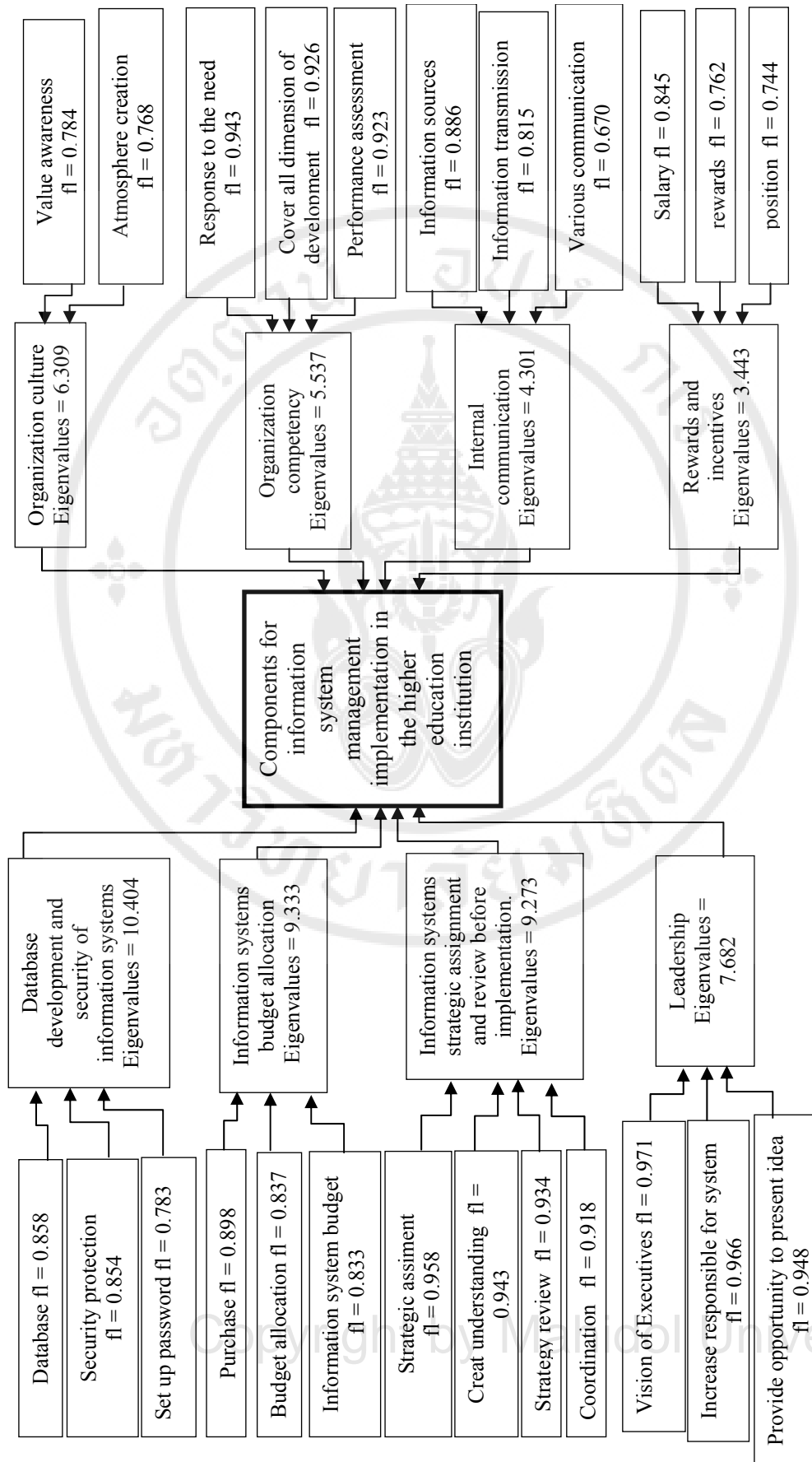


Figure 4.1 key components for information system management implementation in the higher education institution

From Figure 4.1, the results of the analysis of key components for information system management implementation in the higher education institution consisted of eight components: database development and information system security, Budget allocation for information systems, Strategic assignment and review before implementation, Leadership, Organizational competency, Organizational culture, Internal Communication and Rewards and Incentives. The key components for information system management implementation in the higher education institution was follow the set of research assumptions.

4.2 The Development of an effective model for information management strategies implementation in higher education institutions.

4.2.1 An analysis of the relationships of factors for an effective model for information management strategies implementation in higher education institutions in accordance with empirical data.

To obtain an effective model for information management strategies implementation in higher education institutions in accordance with empirical data under the analysis of these value;

4.2.1.1 Chi – Square: Check the consistency of the model.

4.2.1.2 Root Mean Square Error of Approximation (RMSEA)

4.2.1.3 Goodness – of – Fit Index (GFI) และ (AGFI):

consistency index

4.2.1.4 Root Mean Squared Residual (RMR): Root index of the mean square of residual

4.2.1.5 Comparative Fit: Comparison of basic models with theoretical models in accordance of research assumptions

Moreover analysis of reliability and confident

4.2.1.1 Construct Reliability (CR): Overall Reliability

4.2.1.2 Average Variance Extracted (AVE): Extracted Average variance

4.2.1.3 Maximum Shared Variance (MSV)

4.2.1.4 Average Shared Variance (ASV)

Table 4.23 Present statistic of the consistency of the model with empirical data

Statistic	Value	consistency of the model with empirical data criteria
Chi – Square (X^2)	432.25 (P=0.00014)	The statistically significant difference meaning accept the assumption on the theoretical model was consistent with the empirical data.
Chi – Square /df	1.71	Not exceed 2.00, meaning the model was consistent with empirical data.
Root Mean Square Error of Approximation (RMSEA)	0.045	Value of 0 – 0.05 meaning the model was consistent with empirical data.
Goodness of Fit Index (GFI)	0.92	Value of 0.90 – 1.00 meaning the model was consistent with empirical data.
Adjusted Goodness of Fit Index (AGFI)	0.91	Value of 0.90 – 1.00 meaning the model was consistent with empirical data.
Relative Fit Index (RFI)	0.88	Value near 1 meaning the model was consistent with empirical data.
Root Mean Squared Residual (RMR)	0.058	Value of 0 – 1 meaning the model was consistent with empirical data.
Critical N (CN)	232.40	Value equal or more than 200 of samples meaning the model was consistent with empirical data.

From Table 4.23 showed that the chi-squared (χ^2) value was 432.25 ($P = 0.00014$) represented no statistical significant difference which interpreted an effective model for information management strategies implementation in higher education institutions was reliable to empirical data. In addition, to confirm the relevance, other good fit indexes such as the Goodness Fit Index (GFI) and the Adjusted Goodness of Fit Index (AGFI) had been analyzed. The results showed that $GFI = 0.92$ and $AGFI = 0.91$, which was more than 0.90, indicated that information management strategies implementation in higher education institutions was consistent with empirical data. The Root Mean Squared Residual (RMR) value was 0.058 indicated that model was consistent with empirical data, the Index Root Mean Square Error of Approximation (RMSEA) was equal to 0.045, which ranged from 1 to 0.05, showed that the model was consistent with the empirical data in a high level.

From the results of the analysis with the Factor Analysis presented above, it was found that the components of the implementation of information system management strategy in higher education institutions consisted of 8 components, 26 variables as follows.

- data database development and security of information systems
- resource budget allocation for information systems
- strategy strategic assignment, and review before implementation
- leader leadership
- culture organizational culture
- competen organizational competency
- communic Internal communication
- reward reward and incentives

A factor relationship analysis of effective components of information system management strategy implementation in higher education institutions in accordance with the empirical data as follow;

Table 4.24 Show the correlation coefficient between the components of information system management strategy implementation

components	data	resource	strategy	leader	competen	culture	communic	reward
data	1.000	.184*	.130**	.170*	-.135*	.182**	.103**	.310**
resource		1.000	-.112**	.163**	.132**	.172**	-.220**	.233**
strategy			1.000	-.249**	-.263**	-.146**	-.303**	.252**
leader				1.000	.181**	.204**	.129**	.126**
competen					1.000	.284**	.419**	-.203**
culture						1.000	.297**	.255**
communic							1.000	.359**
reward								1.000

Table 4.24 presented that the correlation coefficient between the components of the information system management strategy in the higher education institution of 8 components was statistically significant at 0.05 and 0.01.

The variables in the model were reliable. Reliability was measured by the total confidence (Composite Reliability (CR) value) of 0.70 and above. (1) Convergent Validity was determined by Average Variance Extract (AVE) with a value of 0.50 or higher, and (2) Discriminant Validity was determined by the value of Maximum Shared Variance (ASV) and Average Shared Variance (ASV), which was less than AVE (Hair et al., 2010). And the reliability of the model in this research met the criteria as showed in table 4.25

Table 4.25 Presented of the confidence and reliability of the measurement.

Components	Factor Loading	CR	AVE	MSV	ASV
Database development and security of information systems.		0.907	0.708	0.570	0.666
Secure storage of information systems database	0.869				
Develop a new database which easily and faster access	0.858				
Protection system (Hacker) throughout the system	0.854				
Set up individual passwords which can timely check and track of.	0.783				
information systems budget allocation		0.892	0.734	0.650	0.541
Procurement of IT equipment as needed and appropriate	0.898				
Budget allocation for information systems that link and relevant to strategies and action plan	0.837				
Management Information System for organization's budgeting	0.833				
information systems strategic assignment and review before implementation		0.967	0.881	0.843	0.598
Assignment of information management strategies to responsible persons based on their ability and experience.	0.958				
Create understanding in information management objectives before implementation	0.943				
Continuous review of information technology management strategies plan.	0.934				
Coordination among primary responsible and the responsible person about the management of information systems.	0.918				
leadership		0.974	0.925	0.889	0.598
The faculty administrators have a clear vision of the information systems management.	0.971				
Increase responsibility for the task of managing information systems to meet the needs of the staff.	0.966				
Executives provide staff an opportunity to express their opinions in the process of information systems management.	0.948				

Table 4.25 Presented of the confidence and reliability of the measurement. (cont.)

Components	Factor Loading	CR	AVE	MSV	ASV
organizational culture		0.832	0.622	0.440	0.389
Setting social measures for organizations' staff to apply information systems in management such as announcing that there isn't any implementing of the information system.	0.814				
Create of clearly common values in information management system.	0.784				
Create an atmosphere of academic development through using Information technology as a learning media.	0.768				
organizational competency		0.951	0.866	0.790	0.750
The organization is capable to response to the needs of the information system's use.	0.814				
All dimensions of Information system Management.	0.784				
Applied Balanced Scorecard Management which covers the perspective of customers, financial and operations including innovation and learning on information systems	0.768				
internal communication		0.836	0.633	0.616	0.420
Information resources to assist staff in information management strategies implementation	0.886				
Quick transmission system among staff who implement the information management strategy.	0.815				
A variety of communication systems for managing information systems, both internal and external, such as telephone, internet etc.	0.670				
reward and incentives		0.828	0.616	0.510	0.385
The incentive system to raise salaries according to performance to achieve the goals	0.845				
The incentive system to award a team that performs the success task in information system implementation.	0.762				
Motivation system by promote to higher position to those who achieve a goal or who use the information system to their work.	0.744				

An analysis of the relationships of factors for an effective model for information management strategies implementation in higher education institutions in accordance with empirical data as showed in picture below;

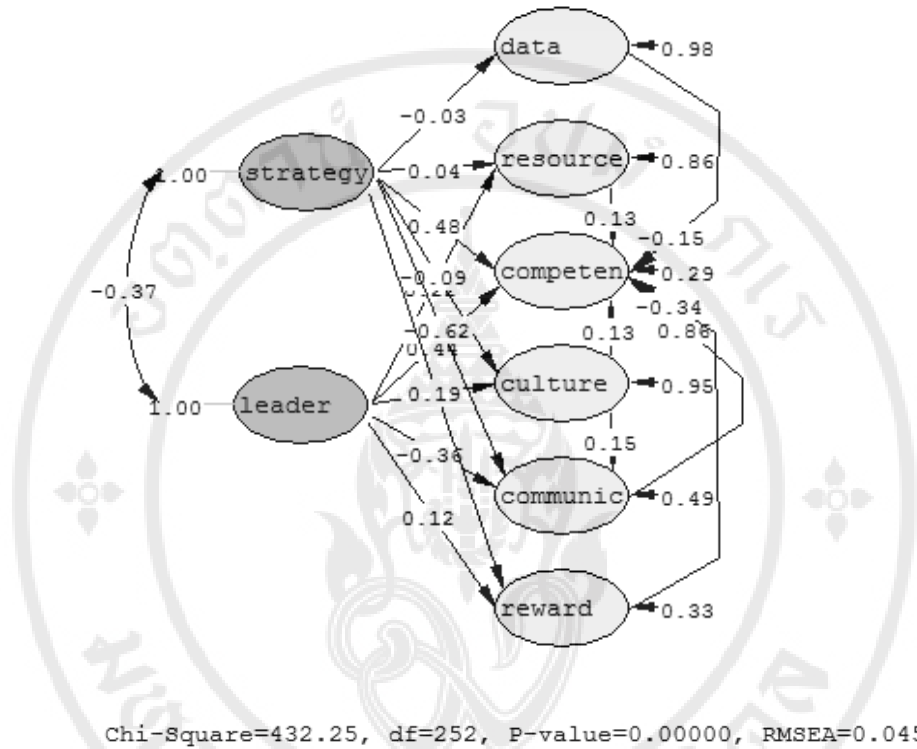


Figure 4.2 the relationships of factors for an effective model for information management strategies implementation in higher education institutions.

Picture 4.2 presented the relationships of factors for an effective model for information management strategies implementation in higher education institutions in accordance with empirical data which was written in equation as follow;

$$\begin{aligned} \text{data} &= -0.031 * \text{strategy}, \\ \text{Errorvar.} &= 0.28, \quad R_y^2 = 0.19 \\ (0.029) & \quad (0.031) \\ -1.07 & \quad 10.71 \end{aligned}$$

From equation above indicated that the strategic assignment and review before implementation had direct influence on the database development and the security of the information system component. The coefficient of influence (B) = -

0.03, Standard Error. SE = 0.029 and t-test t = - 1.07. And able to explain the variance (R2) at 19%

$$\text{resource} = 0.051 * \text{strategy} + 0.25 * \text{leader}, \text{ Errorvar.} = 0.25, R_y' = 0.26$$

(0.033)	(0.048)	(0.041)
1.55	5.18	9.41

From equation above indicated that the strategic assignment and review before implementation and leadership had direct influence on resource and budget allocation for information system. The coefficient of influence (B) = 0.051 0.25, Standard Error. SE = 0.033 0.048 and t-test t = 1.55 5.18 in order. And able to explain the variance (R2) at 26%

$$\text{competen} = -0.15 * \text{data} + 0.12 * \text{resource} + 0.14 * \text{culture} + 0.86 * \text{communic} - 0.34 * \text{reward} + 0.48 * \text{strategy} + 0.44 * \text{leader},$$

(0.032)	(0.036)	(0.040)	(0.044)	(0.050)	(0.034)	(0.050)
-4.54	3.22	3.45	10.26	-6.07	7.52	7.65

Errorvar. = 0.29, R_y' = 0.66

(0.044)	6.58
---------	------

From equation above indicated the database development and the security of the information system, resource and budget allocation for information system, organizational culture, internal communication, reward and incentives, the strategic assignment and review before implementation and leadership had direct influence on organizational competency. The coefficient of influence (B) = -0.15, 0.12, 0.14, 0.86, -0.34, 0.48, 0.44, Standard Error. SE = 0.032, 0.036, 0.040, 0.044, 0.050, 0.034, 0.050 and t-test t = -4.54, 3.22, 3.45, 10.26, -6.07, 7.52, 7.65, in order. And able to explain the variance (R2) at 66%

$$\text{culture} = -0.084 * \text{strategy} + 0.31 * \text{leader}, \text{ Errorvar.} = 0.34, R_y' = 0.22$$

(0.037)	(0.043)	(0.021)
-2.25	5.93	8.79

From equation above indicated the strategic assignment and review before implementation and leadership had direct influence on organizational culture. The coefficient of influence (B) = -0.084, 0.31, Standard Error. SE = 0.037, 0.043, and t-test t = -2.25, 5.93, in order. And able to explain the variance (R²) at 22%

$$\text{communic} = 0.15*\text{culture} - 0.62*\text{strategy} - 0.37*\text{leader}, \text{Errorvar.} = 0.28, R_y' = 0.44$$

(0.038)	(0.050)	(0.044)	(0.050)
3.93	-12.51	-8.28	7.95

From equation above indicated the organizational culture, the strategic assignment and review before implementation and leadership had direct influence on internal communication. The coefficient of influence (B) = 0.15, -0.62, -0.37, Standard Error. SE = 0.038, 0.050, 0.044, and t-test t = 3.93, -12.51, -8.28, in order. And able to explain the variance (R²) at 44%

$$\text{reward} = 0.19*\text{strategy} + 0.12*\text{leader}, \text{Errorvar.} = 0.23, R_y' = 0.36$$

(0.033)	(0.030)	(0.048)
5.65	4.03	5.63

From equation above indicated the strategic assignment and review before implementation and leadership had direct influence on reward and incentives. The coefficient of influence (B) = 0.19, 0.12, Standard Error. SE = 0.033, 0.030, and t-test t = 5.65, 4.03, in order. And able to explain the variance (R²) at 36%

Analysis of linear relationship and influence of correlation components on the implementation of information management strategies; database development and security of information systems, information systems budget allocation, information systems strategic assignment and review before implementation, leadership, organizational culture, organizational competency, internal communication, and reward and incentives in higher education institutions. Results shown in Table 4.17 and Picture 4.3.

Table 4.26 Influence of correlation components on the implementation of information management strategies in higher education institutions.

Cause variable	Result variable							Total influence
	Direct influence	In-direct influence						
		data	resource	culture	communication	reward	อื่นๆ	
data	0.15	-	-	-	-	-	-	0.15
resource	0.12	-	-	-	-	-	-	0.12
strategy	0.48	0.004	0.006	0.011	0.41	0.06	0.49	0.97
leader	0.44	-	0.03	0.04	0.31	0.04	0.42	0.86
culture	0.14	-	-	-	0.12	-	0.12	0.26
communic	0.86	-	-	-	-	-	-	0.86
reward	0.34	-	-	-	-	-	-	0.34
$X^2 = 432.25, df=252 ; CN = 232.40$				$P = 0.0000$			$X^2 / df = 1.71$	
GFI = 0.92 ; AGFI = 0.91				RMSEA = 0.045			RMR = 0.058	

Table4.26 summarizes hypothesis testing results as below;

Factors which influenced to the organizational ability to implement information management strategies in higher education institutions through considering the direct influence could be organized from the high to low as follow; internal communication, information systems strategic assignment and review before implementation, leadership, reward and incentives, database development and security of information systems, organizational culture and information systems budget allocation and in-direct influence components which organized from the high to low was information systems strategic assignment and review before implementation, leadership, and organizational culture. The structural relationships of the competency of organizations in higher education institutions as Picture 4.3

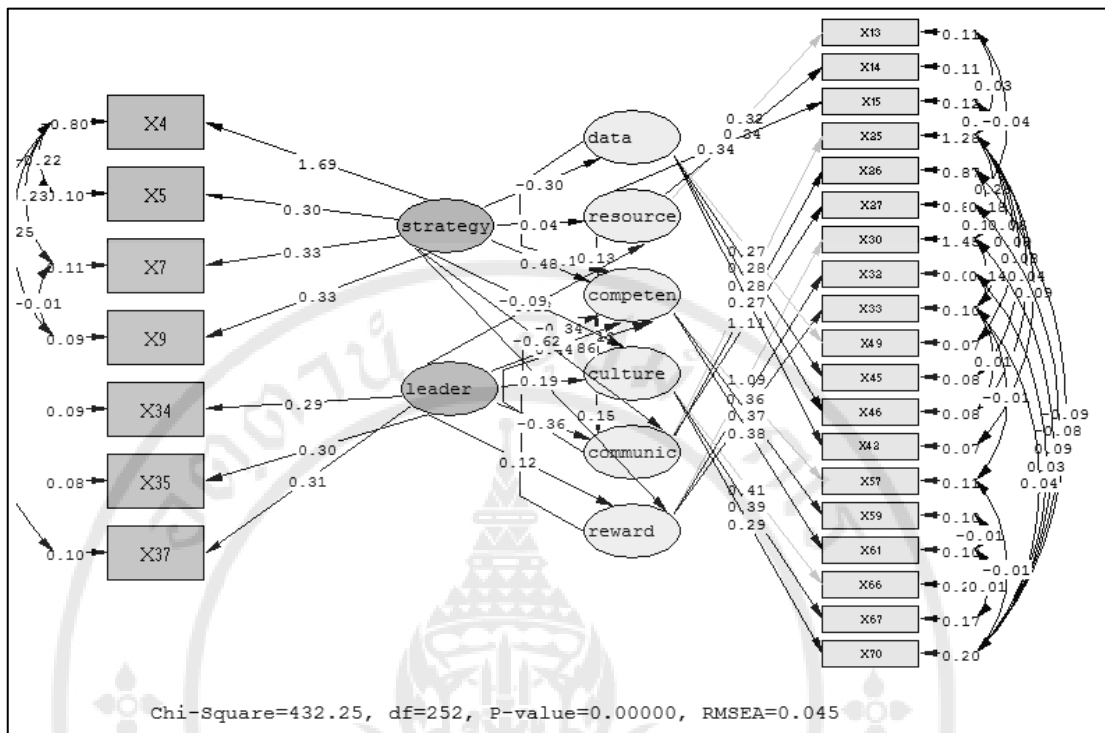


Figure 4.3 Model of structural relationship in organizational competency in higher education institutions

4.2.2 Analysis of interview data to verify the appropriateness of effective models of information management strategies implementation in higher education institutions.

To achieve an effective model of information management strategies implementation in higher education institutions through verify and increase reliability in creating the model. The researcher presented the draft model which drawn from the analysis of structural relationships to 10 experts in information management strategies implementation to examined the feasibility of research model. The results of the data analysis were as follows.

4.2.2.1 The component of database development and security of information systems found that the experts agreed that, this component could improve the effectiveness of information management strategies implementation in higher education institutions which was consistent with the interview Sorat Hongdarom (interview, 15 June 2017) stated that information systems development and use in the organization should focus on system security and promote database

development because information was a valuable resource. And it was like a compass to the decision makers. In line with modern world, without a good security system, it easily harmed the organization. Reka Srisomboon (Interview, June 19, 2017) said it should focus on system security and should study the sources that are in the country or outside. For example, data access was divided into levels of access, protection against hacking, screening for excessive system overlaps, continuous evaluation and monitoring and reducing unused system to save investment budget. Watcharapon Puttaraksa (Interview, June 30, 2017) and Pitoon Srifah (Interview, June 22, 2017) stated that using of new innovation in information systems in organization management since information systems were important to the management in every part. In the team, we agreed that data security was a priority because the information system was a tool to facilitate the user and managers could make better decisions. Virapong Jansanam (Interview, June 25, 2017) mentioned that the security of information system was important. As we all know, access to the internet was more public. Therefore information system security made personal information to be safe and people was able to access. If this was the strategy to develop the database to be safe, then it will give it more privacy to user.

4.2.2.2 The component of information systems budget allocation found that the experts agreed that, this component could improve the effectiveness of information management strategies implementation in higher education institutions which was consistent with the interview of Chalermpon Sritong (Interview, June 11, 2017) said that there were several ways in which information systems could be used in organizations. Whether it was hardware procurement, outsourcing and building a system to use. Purchase planning or strategic information system need to take into account in term of the value and the long-term impact. Therefore the component that made information systems effective was the budget allocation plan. Vittaya Mekkam (Interview, June 22, 2017) stated that the budget allocation to the information system, we had a staff responsible for our own software programming, but I thought that depends on the management of each organization. Nowadays, many free information systems were available, such as Google Drive, Google Form, Facebook, Line, etc. The benefits of these systems were very powerful for organizations. Pitoon Srifah (Interview, June 22, 2017) stated that for a budget

management system, the faculty office used the same system as the University since budget disbursement was made quarterly including annual financial statements therefore, the overall budget management system was very important as it required a database and many servers including need a good maintenance. Virapong Jansanam (Interview, June 25, 2017) mentioned if we want to use the information system strategy in terms of security and database, the important thing was a hardware device, People Ware and software. It had their own cost therefore it required budget to invest the management principal 4M which Man was people and equipment. Thus, budgeting on information systems was as important as other matters.

4.2.2.3 The component of information systems strategic assignment and review before implementation found that the experts agreed that, this component could improve the effectiveness of information management strategies implementation in higher education institutions which was consistent with the interview of Virat Ponsiri (Interview, June 25, 2017) said that the process of strategic planning was, develop plan then communicated the strategy to the staff after that review plan. I agreed to those processes therefore we developed a strategic plan first, then draft a strategic communication plan and then communicated to create the understanding to the staff and then revising. Strategic had to review every year. Watcharapon Puttaraksa (Interview, June 30, 2017) said that the first thing we needed to understand was a characteristics and the ability of our staff, because we understood the human nature, if we worked with love or had competency, then we will obtain the good results. Therefore, executives needed to make decisions and talk to each other to understand all members of the organization. The plan had to be reviewed continuously.

4.2.2.4 The component of leadership found that the experts agreed that, this component could improve the effectiveness of information management strategies implementation in higher education institutions which was consistent with the interview of Chalermpon Sritong (Interview, June 11, 2017) said that leaders needed to understand the process of all information systems. And keep learning about technology changes. Due to the need of people, there was a need for lean management which reduce work process and provide more flexible including reduce human resource therefore IT was the best way to support the work.

Executives should be the first in the organization to realize this advantage and should be proactive management rather than passive management. Thitiwut Manmee (Interview, June 17, 2017) and Watcharapon Puttaraksa (Interview, June 30, 2017) agreed that it was very important for driving organization since the direction of organization information system depended on the vision of leader. Our organization were fortunate to have a visionary leader in information systems. For example the leader had vision about online content delivery system which was our highlight. Information systems supported all the work in the organization, even car and meeting room reservations. Virapong Jansanam (Interview, June 25, 2017) mentioned information systems management required a person who had leadership to able to make the implementation of information management strategies will be successful including building trust to staff to follow and implement the system.

4.2.2.5 The component of organizational culture found that the experts agreed that, this component could improve the effectiveness of information management strategies implementation in higher education institutions which was consistent with the interview of Watcharapon Puttaraksa (Interview, June 30, 2017) said that as i was one of executive, found that organizational culture was one important thing to drive the management of information systems which based on organizational values. The Dean had a working principle that "Walk with me Talk to me" mean that we had to walk together and had any problem, we talk immediate but do not talk later. Therefore the atmosphere in the workplace was friendly, so the organizational culture was the link between the strategic plan and leadership including the organizational competency. Chalermpon Sritong (Interview, June 11, 2017) said that working in an organization, there were two groups, old and new, and both were familiar with the traditional organizational culture. And the governmental attitude was a solid, it was difficult to change. Therefore, organizational culture will create a workflow for information systems. Supawan Tarapokakun (Interview, June 19, 2017) said that the organizational culture was important for the organization to see the importance of using information systems. There was a discussion on the cost of human resource and time including the benefit for organization. This will make the system most effective.

4.2.2.6 The component of organizational competency found that the experts agreed that, this component could improve the effectiveness of information management strategies implementation in higher education institutions which was consistent with the interview of Virat Pongsiri (Interview, June 25, 2017) said that The competency of organizations to develop the potential of IT staffs because staffs will contribute to the organization. Virapong Jansanam (Interview, June 25, 2017) mentioned in a modern times, information was important. Who had information had power. Therefore, the information system will improve the competitiveness or competitive advantage of the organization or the performance of the organization both in people and equipment.

4.2.2.7 The component of internal communication found that the experts agreed that, this component could improve the effectiveness of information management strategies implementation in higher education institutions which was consistent with the interview of Sorat Hongdarom (interview, 15 June 2017) said that the limitation in the development of information systems was lack of communication between system programmers and users. As the nature of the programmer or system administrator, they weren't communicate much therefore it should create friendly atmosphere before start or finish the work to ensure staff relationship in organizations. Virat Pongsiri (Interview, June 25, 2017) said that he highly agreed to this component and organization should be more focused on communication. Having worked in the information system for 30 years, I saw that the staff in the various faculties didn't understand enough about the use of information systems.

4.2.2.8 The component of reward and incentives found that the experts agreed that, this component could improve the effectiveness of information management strategies implementation in higher education institutions which was consistent with the interview of Virat Pongsiri (Interview, June 25, 2017) said that it was important to define new patterns and ways of working such as meetings such as a meeting without paper but use the file system only. Therefore, it should be more policy-oriented in management but to get more involve, it required rewarding which met the need of staff. Chalermpon Sritong (Interview, June 11, 2017) and Watcharapon Puttaraksa (Interview, June 30, 2017) said that rewards and incentives was important factors for staff to have the organization's loyalty . it was the

motivation for the staff to draw the potential of each person to fully use. But our limitations was a power to select awards and incentives for anyone since it depended on the budget allocated from above. So reward and incentives are not the main consideration but we focused on the success of the work and reward and incentives was a by-product of work. Reka Srisomboon (Interview, June 19, 2017) mentioned that it was difficult for government agencies to spend money for incentives because the limitation of budget. Therefore we used compliment in the manner of using the technology to benefit such as reducing the use of paper than to make the information system was widely used.

The components and relationships could be displayed as a picture below.

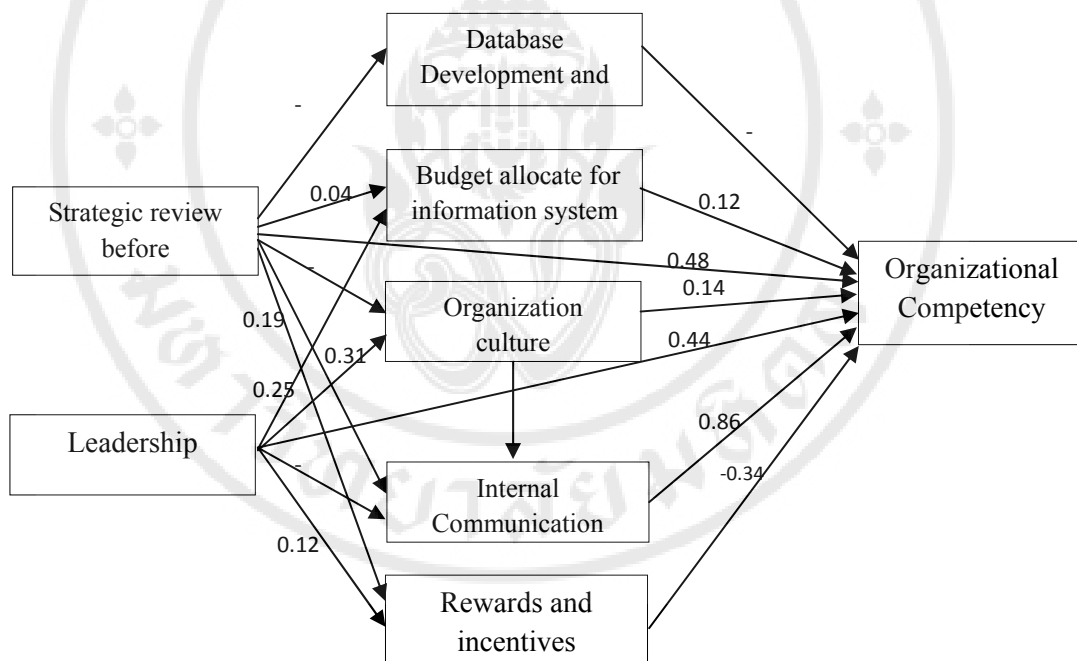


Figure 4.4 An effective model of information management strategies implementation in higher education institutions.

CHAPTER V

RESEARCH CONCLUSION, DISCUSSION AND RECOMMENDATION

Research of the development of an effective model for information management strategies implementation in higher education institutions aimed to: 1) Identify the components of information management strategies implementation in the university. 2) Develop an effective model for information management strategies implementation in higher education institutions. The research was a quantitative and qualitative research. Each objective had the following methods:

Objective 1 to study the components of information system management strategy implementation in higher education institutions using the quantitative research methods. Data were collected by questionnaires with the target population and the sample in this research was the organization but need to collect information from representatives from the public and private universities under the Office of the Higher Education Commission which have good score of management assessment in 25 universities. The sampling were a vice president of Planning and Information Technology office, Planning and Information Technology Director, Planning and Information Technology Division Associate Dean who responsible for Information and Communication Technology and operational staff of plans and information technology both in the university and the faculty level in total of 879 participants who were selected by using a specific sampling method. Data were analyzed by mean and standard deviation including exploratory factor analysis.

Objective 2 to develop effective models of implementing information management strategies in higher education institutions through using quantitative and qualitative research methods. Quantitative research Data were collected by questionnaires with university staff in the target areas. The data were analyzed by using statistics including path analysis. The qualitative research data were collected by

using interviews with experts of the information management strategies implementation in the number of 10 and then using inductive data analysis.

5.1 Research Conclusion

5.1.1 Summary of Components Analysis of Information Systems Management Strategy Implementation

An analysis of the components of information management strategies implementation in higher education institutions on mean (\bar{x}) and standard deviation (SD), found that 70 variables had average (\bar{x}) 3.35 - 4.49. The standard deviation (SD) ranged from 0.23 to 0.75, indicating that the respondents had opinions about the level of variables between moderate to high level. The variable with the highest mean value was 11th variable, which created a sense of ownership for all staff in the management of information systems. The average score was 4.29, followed by the 12th which was additional information management strategies were used to guide the implementation and the mean score was 4.47, and the first one; had a meeting to share information management system at 4.37 of mean score. However, the variable which presented the lowest means was 41st; checking the readiness of the information system development project or activities which only 3.35 of mean score.

Exploratory Factor Analysis and Bartlett's Test of Sphericity include all components at Chi-Square statistically significant at the 0.05 indicates that there was correlation matrix of the variables therefore data could be analyzed individual its component. In addition, the KMO (Kaiser-Meyer-Olkin Measure of Sampling Adequacy (KMO)) of all components, was 0.850, represented a high level of data availability which able to use analyze in each components at a very good level.

There were 8 components with Eigenvalue more than 1.00. The variance of the components was 82.018 %. When considering the variance of 70 variables, a total of 26 variables in 8 components were excluded from the 44 variables and the components of information system management in the higher education institution were 8 components, namely component1: 4 variables, component2: 3 variables,

component3: 3 variables, component4: 3 variables, component5: 3 variables, component6: 3 variables, component7: 3 variables, and component8: 3 variables.

The results of the Exploratory Factor Analysis were used to extract the most important variables through Maximum Likelihood Analysis. The key components consisted of 8 components which relevant to documents review including concepts and theories and related research as follow;

1. Component 1 was database development and security of information systems.
2. Component 2 was information systems budget allocation.
3. Component 3 was information systems strategic assignment and review before implementation.
4. Component 4 was as leadership.
5. Component 5 was organizational culture.
6. Component 6 organizational competency.
7. Component 7 internal communication.
8. Component 8 was reward and incentives.

5.1.2 The Development of an effective model for information management strategies implementation in higher education institutions in accordance with empirical data.

An analysis of the relationships of factors for an effective model for information management strategies implementation in higher education institutions in accordance with empirical data.

The correlation between the model and the empirical data showed that the chi-squared (X^2) value was 432.25 ($P = 0.00014$) represented no statistical significant difference which interpreted an effective model for information management strategies implementation in higher education institutions was reliable to empirical data. In addition, to confirm the relevance, other good fit indexes such as the Goodness Fit Index (GFI) and the Adjusted Goodness of Fit Index (AGFI) had been analyzed. The results showed that $GFI = 0.92$ and $AGFI = 0.91$, which was more than 0.90, indicated that information management strategies implementation in higher education institutions was consistent with empirical data. The Root Mean Squared Residual

(RMR) value was 0.058 indicated that model was consistent with empirical data, the Index Root Mean Square Error of Approximation (RMSEA) was equal to 0.045, which ranged from 1 to 0.05, showed that the model was consistent with the empirical data in a high level.

A factor relationship analysis of effective components of information system management strategy implementation in higher education institutions in accordance with the empirical data found that the correlation coefficient between the components of the information system management strategy in the higher education institution of 8 components was statistically significant at 0.05 and 0.01.

The variables in the model were reliable. Reliability was measured by the total confidence (Composite Reliability (CR) value) of 0.70 and above. (1) Convergent Validity was determined by Average Variance Extract (AVE) with a value of 0.50 or higher, and (2) Discriminant Validity was determined by the value of Maximum Shared Variance (ASV) and Average Shared Variance (ASV), which was less than AVE (Hair et al., 2010). And the reliability of the model in this research met the criteria

In addition, a form of factor relationship analysis of effective components of information system management strategy implementation in higher education institutions as follow.

The strategic assignment and review before implementation had direct influence on the database development and the security of the information system component. The coefficient of influence (B) = -0.03, Standard Error. SE = 0.029 and t-test $t = -1.07$. And able to explain the variance (R²) at 19%

The strategic assignment and review before implementation and leadership had direct influence on resource and budget allocation for information system. The coefficient of influence (B) = 0.051 0.25, Standard Error. SE = 0.033 0.048 and t-test $t = 1.55$ 5.18 in order. And able to explain the variance (R²) at 26%

The database development and the security of the information system, resource and budget allocation for information system, organizational culture, internal communication, reward and incentives, the strategic assignment and review before implementation and leadership had direct influence on organizational competency. The coefficient of influence (B) = -0.15, 0.12, 0.14, 0.86, -0.34, 0.48, 0.44, Standard

Error. SE = 0.032, 0.036, 0.040, 0.044, 0.050, 0.034, 0.050 and t-test $t = -4.54, 3.22, 3.45, 10.26, -6.07, 7.52, 7.65$, in order. And able to explain the variance (R²) at 66%

The strategic assignment and review before implementation and leadership had direct influence on organizational culture. The coefficient of influence (B) = -0.084, 0.31, Standard Error. SE = 0.037, 0.043, and t-test $t = -2.25, 5.93$, in order. And able to explain the variance (R²) at 22%

Organizational culture, the strategic assignment and review before implementation and leadership had direct influence on internal communication. The coefficient of influence (B) = 0.15, -0.62, -0.37, Standard Error. SE = 0.038, 0.050, 0.044, and t-test $t = 3.93, -12.51, -8.28$, in order. And able to explain the variance (R²) at 44%

The strategic assignment and review before implementation and leadership had direct influence on reward and incentives. The coefficient of influence (B) = 0.19, 0.12, Standard Error. SE = 0.033, 0.030, and t-test $t = 5.65, 4.03$, in order. And able to explain the variance (R²) at 36%

5.1.3 Conclusions of the interview results to determine the appropriateness of the effective model of the information management strategies implementation in higher education institutions.

Based on the interviews with experts on the information management strategies implementation, found that all of them agreed that all 8 components, namely database development and information system security budget allocation for information systems, strategic assignment and review before implementation, Leadership, organizational culture, organizational competency, internal communication and rewards and incentives was important for the organization to achieve in the development.

5.2 Research Discussion

Information technology is a process to analyze, storage and dissemination of information to improve the effectiveness and beneficiary of the organization. Information technology is important to the organization development such as distance

education and internet Search and information distribution through computer. Turban et al. (2001: 17) mentioned that the information management system was a system that collects, stores, maintains, analyzes and disseminates information for specific purposes. Jirakarn TempornSin (2006) stated that the Management Information System (MIS) was a system that collects and storage information both internal and external sources to processed and formatted to support the work and decisions making for organization executives, especially in higher education institutions.

Higher education institutions in Thailand have adopted information management strategies to improve their organization based on the study of key components in the implementation of information management system through exploratory factor analysis from 25 universities such as Chulalongkorn University, Suranaree University of Technology, Mahidol University, Chiang Mai University, King Mongkut's University of Technology Thonburi, King Mongkut's University of Technology North Bangkok, King Mongkut's Institute of Technology Latkrabang, Thammasat University, National Institute of Development Administration, Srinakharinwirot University, Prince of Songkla University, Khonkaen University, Mahasarakrm university, Kasetsart University, Rachbaj Somdej Chao Phraya university, Nakhon Pathom Rajabhat University, Phuket Rajabhat University, Rajamangala University of Technology Thanyaburi, Stamford International University, Mahanakorn University of Technology, Shinawatra University, Sriprathum University, Rangsit University, Siam University, and Krirk University. The results of the Exploratory Factor Analysis were used to extract the most important variables through Maximum Likelihood Analysis. The key components consisted of 8 components which consist of Component 1 was database development and security of information systems, Component 2 was information systems budget allocation, Component 3 was information systems strategic assignment and review before implementation, Component 4 was as leadership, Component 5 was organizational culture, Component 6 organizational competency, Component 7 internal communication and Component 8 was reward and incentives which relevant to documents review including concepts and theories and related research as follow;

Component 1: Database Development and Security of Information Systems was an important component in the implementation of information

management strategy. According to the concept of Sakchai Tangwannawit (2014: 57), the database was the heart of information management system. Since quality information was based on good, reliable, up-to-date information and user can access and use it quickly and easily. Therefore, the database was an important component to ensure the effectiveness of the system. And effective. Damrong Wattana (1996: 18-19) mentioned that in modern government management, information systems required to demonstrate the existence of life, people demands and problems including the problem of government administration as well as information systems. The government management information system was a system that will assist the achievement of the service. Therefore the management executives must understand and willing to develop management information system or MIS. As the results of the research by Somchai Kongnoo (2005) on Management of information system in schools in Chai Nat Provincial Municipality, found that the management of information system played as key component for in schools management. One important components was database which created modernization, accuracy and speed of information data.

According to a research by Nattavee Utgrit (2007) on The Development of Storage Management Information System of King Mongkut's Institute of Technology North Bangkok, found that Development and management of information systems required a research database. This was relevant to Mohamed Eslam Hassan and Ping (Mohamed Eslam Hassan and Ping Wang: 2015) which mentioned that information management systems was important for modern organizations to lead to good management and effective decision-making. The research also presented the relationship between information systems and decision-making process.

Component 2: Budget allocation for information systems was important component in the implementation of information management strategy. It was relevant to Thomson and Strickland concept (Thompson and Strickland, 2003: 271) which mentioned that the implementation of information management strategy must focus on the core tasks that managers need to do in any time even in situation of crisis in the organization. However, there were eight main tasks. One of the important task was resources allocation and budgeting. The fact that educational institutions have budgeted for information systems will result in greater efficiency in driving the work. According to the research by Nawarat Darunsri (1998) on the Information System

Management for Burapha University. The research found that the information that managers received in order to be used in the administration was budget information. Sakchai Tangwannawit (2014) presented article on Information Systems Strategy and Information System Development plan, mentioned that the use of information management required high budget for equipment such as computer software and network system including hiring an expert including planning, developing systems, and applying materials carefully to achieve the goal.

Component 3: Strategic assignment and review before implementation. An important component in the implementation of information management strategy. According to Pitts and Lei (2000: 301) mentioned that the understanding strategic implementation was important since the success of any organization depends on how well the people in the organization work together. To translate the strategic plan into action, managers and employees were the most important to gaining competitive advantage. Boonkiat Chiwatrakoonkit (2005: 172-177) stated that strategic tasks which assigned to multiple units to share responsibility will emphasize each agency to realize the vision and mission they have in common (Shared vision).

Component 4 leadership was an important component in the implementation of information management strategy. Somyot Naveekan (2003: 930-933) stated that one of the key factors of strategy implementation was leadership which referred to the ability to influence individuals to adopt the strategy. Leadership was related to communication, motivation and cultural change. Executives who try to implement a new strategy may need to clarify the purpose to the staff or create a partner to encourage middle managers to accept vision. If the leader allowed other executives to participate in strategy establishment, strategy implementation will easier because those executives will understand and engage with new strategies. Leadership is used to motivate people to adopt new behaviors and cultivating new values and attitudes.

In addition, Wilson's research (Wilson, 1996) studies on the use of information systems for management in public organizations: a case study of Richmond, Virginia which to study the attitudes of top executives in City of Richmond on the use of information system in a public organization. The research found that Management executives had a positive attitude toward adopting information systems

to manage within an organization. It was an important tool of management. It was relevant to J.Y.L. Thong and C.S. Yap ((J.Y.L. Thong and C.S. Yap, 2000) study on the adoption of information technology in small businesses based on the characteristics of the management. There was 3 factors involved: innovation, attitude and knowledge. Even small businesses, the attitude of management executives still were important in term of accepting information technology. When executives had a positive attitude and innovation idea toward the use of information technology this created an IT learning organizations.

Component 5, organizational culture was an important component in the implementation of information management strategy. It was relevant to research result of Brenes and others (Brenes and others, 2008: 590-598) on the key success factors for strategy implementation in Central America. The result presented that organizational culture was a critical success factor for implementing strategies. Wheelen and Hunger (Wheelen and Hunger, 2006: 248-249) stated that organizational culture influenced the behavior of all employees. It affected a company's ability to change its strategic direction.

It also was in line with the research of Clott and Fjortoft (Clott and Fjortoft ,1998) which studied a strategic management of the effectiveness of the Faculty of Business Administration at the University of the United States found that organizational culture based on the framework of Cameron and Ettington in the dimension of clan culture had influence to organizational effectiveness. Organizational culture was the main factor for the conflict. The caring culture was an important characteristic of organizations with low conflict. While the culture of self-defense was a high conflicting organizations. In addition, the subculture within the organization had caused conflict regarding on this research, indicated that good organizational culture will assist the organization development. Especially in the part of the use of information should focus on the culture of the organization which ready to learn new things to increase the efficiency of work.

Component 6 Organizational Competency is important component in the information management strategy implementation. This is relevant to the ideas of Pakpajong Wattanasin and Pasu Decharin (1999: 285-304). The ability of organizations to apply their strategies effectively depends on the quality of their staffs

in term of skills and abilities as required by the organization as well as the effective internal management and operation of the organization. Before adopting a strategy, the organization's executives must build their own organization to be competent and effective, start with qualified staffs' selection for appropriate position then build the skills and competencies. And lastly systematic work process to ensure the effectiveness of the strategy implementation and able to strengthening organizations. Through the good human resources within the organization who can perform any activity better than the competition

Component 7 Internal Communication is an important component in the implementation of information management strategy. This is in line with the concept of Anivat Kaewjamnong (2008: 9-10) which stated that implementation referred to the work of individuals at all levels in the organization which have each of the executives applied and understood the strategy, so they clearly communicated to the people in the organization to understand and follow the strategy. If there is unclear understanding it may result in the implementation of the strategy but it can be amended by changing the strategy to be appropriate and able to handle in all circumstances. Management team must be able to analyze the business environment factors. Since the decision to implement each level of strategy may have an impact on each other therefore it require integration of decide making. It is relevant to Lawrence G. Herbiniak concepts (Lawrence G. Herbiniak, 2008: 276, 359) which stated that responsibility and supervision in all functions must be clear. If all staffs know who to contact as well as understanding of other responsibility, the strategy will adopt successful. The exchange of information between each other and the transfer of knowledge, impact to the organizational competency. Defining responsibilities or monitoring includeing the distribution of duties and responsibilities to ensure that those involved in the change are aware of it will lead to the effectiveness in management. Graham Hubbard (Graham Hubbard, 2004: 244-245) emphasized that the competency of the organization is an important link between the analysis and the implementation of the strategy. Good organizational competency can make existing strategies. This also relevant to the concept of ward and Daniel (Ward and Daniel, 2006) regarding on building the capacity of the organization in realizing of the potential of information technology is a ways to address the gap between theory and

practice along with to achieve wildly acceptance. To success in organization management is require an effectively human resources management.

Component 8 Rewards and incentives is an important component in bringing Information Systems Strategy to implement which in line with the concept of Sakorn Suksriwong (2008: 2001-248) stated that motivation means that to motivate the person to be willing to perform the task. Motivation is very important when the organization adopt new strategy and bring new strategies to practice. A new strategy may causes the change and the change may be offensive to some people in the organization or not be met with the expectations of some of the people in the organization. Therefore Management must be able to motivate staff to follow the strategy in accordance with Lawrence G. Herbiniak concept (Lawrence G. Herbiniak, 2008: 346). Reward and incentive can be a stimulus for performance-oriented behavior, which is consistent with the desirable result of strategies implementation. While the controls allow for feedback from the performance to push forward the implementation of strategies to strong practice. It is also a mechanism to help evaluate and correct the process including support for learning and the change within the organization. Reward and incentives and control are important factors in driving the strategy to be concrete.

5.3 Recommendations

5.3.1 General recommendation

5.3.1.1 The database development and the security of the information system

1. Higher education institutions should have a database system to store information in a secure environment and always monitor.
2. Higher education institutions should create new information databases which faster and easy accessible. The data for each section has to update in every month.
3. Higher education institutions should have a system to prevent information system theft (Hacker) throughout the system.

4. Higher education institutions should set a password for the users of the information system in the organization which can be monitored throughout the period. Staff must be able to change their password in every 6 months.

5. Higher education institutions should set up their systems from the foundations which called architectural computer method to avoid duplication or inconsistent with the use in the organization.

5.3.1.2 Budget allocation for information systems.

1. Higher education institutions should have a plan to purchase IT equipment which meet the needs and appropriate through conduct purchase survey in each academic year.

2. Higher education institutions should allocate budgets for information systems that consistency and linkage between strategies and action plan.

3. Higher education institutions should have information systems on organizational budget management. This can be used as a budget management information for each department.

4. Higher education institutions should analyze or study free program information available on the Internet to save money.

5. Higher education institutions should evaluate their return on investment (ROI)

5.3.1.3 Strategies assignment and Review before Implementation

1. Higher education institutions should assigned information management strategies to the responsible persons based on their ability and experience.

2. Higher education institutions should create understanding of the purpose of managing information systems for all staff before implementation.

3. Higher education institutions should continually review information strategy plans.

4. Higher education institutions should coordinate among the key responsible and the responsible person about the management of information systems.

5. Higher education institutes should develop parallel systems between the old system and the new system to manage the serious risks that may occur in the organization.

5.3.1.4 Leadership

1. The management team should clearly display the vision in the operation of information management system.

2. Management team should increase the responsibility for the management of the information system to meet the needs of the staff.

3. Management team should provide opportunities for the staff to express their views on the changes in the management of information systems independently.

5.3.1.5 Organizational culture

1. Higher education institutes should set up social measures to allow staff in the organization to use information systems to manage the work including announcing those who refuse to use information systems for their work.

2. Higher education institutes should create a shared value in the management of information systems.

3. Higher education institutions should have an atmosphere to develop academic by using information technology as a learning media.

5.3.1.6 Organizational competency

1. Higher education institutions should respond to the need of staff who use the information systems at all levels.

2. Higher education institutions should have a management system that cover all aspects of information management.

3. Higher education institutions should have balanced management that covers the financial, customer and operations aspect including innovation and learning information systems.

5.3.1.7 Internal communication

1. Higher education institutions should have sources of information to assist their staff in the information management strategies implementation.

2. Higher education institutions should have a quick system of information transmission between the staffs to implement information management strategies.

3. Higher education institutions should have a variety of communication systems for managing information systems, both inside and outside the organization, such as internet and telephone.

5.3.1.8 Reward and incentives

1. Higher education institutions should have incentive systems. The payroll is based on the performance achievement.

2. Higher education institutions should have a motivational system by rewarding the staff who achieve the work in the management of the ad hoc information system

3. Higher education institutions should have an incentive system that promotes position according to the achievement. Or those who use the information system to increase their effective work.

5.3.2 Recommendations for the next research

5.3.2.1 The problems and limitations of implementing information management strategies implementation in higher education institutions should be studied for effective developing of the information system development in higher education institutions.

5.3.2.2 Study on the development of information system management strategies in higher education institutions to be a long-term development plan for managing information systems in the organization.

5.3.2.3 In-depth study of the potential of staff to drive development of information systems in higher education institutions to develop human resources for advanced IT.

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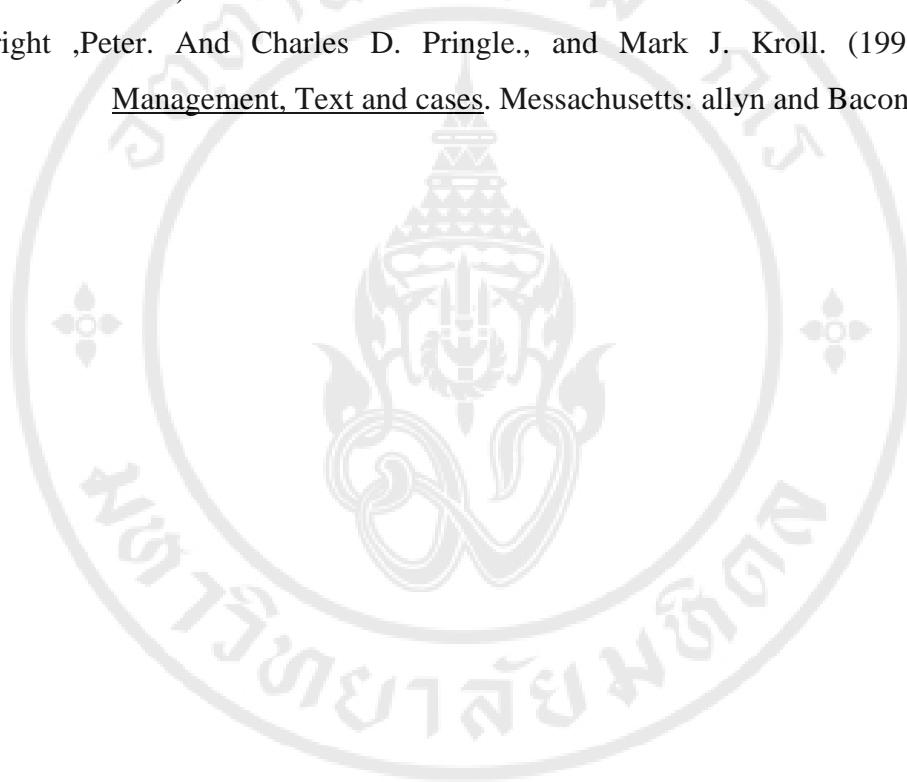
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