

## **Management information systems development for the Office of the President of Nakhon Phanom University**

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### **ABSTRACT**

This research designed to study the development of the information systems for the administration of the Office of the President in higher education institutions, develop the information systems, and study the efficiency of the administration of the Office of the President, Nakhon Phanom University. The conduct of the research was divided into 3 phases. The instruments for collecting data comprised questionnaires, an interview form and the minutes of meetings. The statistics used included frequency, percentage, mean, standard deviation and descriptive statistics.

The results of the research revealed that 1) the Office of the President of higher education institutions was composed of divisions. The methods the divisions used to develop the information systems included preparation of people ware by encouraging the personnel to have further education, have training, and have programs ready for use by purchasing, renting, sharing, and developing indigenous programs. In terms of the network system, they set up LAN and WIFI. The administrators used the information to help them make decisions with more efficiency. The problems and obstacles were: inadequacy of personnel, personnel often resigned, and data were dispersed. 2) The development of the information systems for the administration of the Office of the President, Nakhon Phanom University yielded an information systems program which comprised general data and information for administration. There were 49 data bases and 69 graphic presentations. The efficiency of the information systems program, on the whole, was in the highest level. 3) The efficiency of the administration of the Office of the President, Nakhon Phanom University, on the whole, was in the highest level.

In summary, the information systems for the administration of the Office of the President, Nakhon Phanom University that was developed changed the data collecting system to a classified one, and that helps save time and labor and it can respond to the needs of the administrators.

Keywords : Information systems for administration, Office of the President, Efficiency of the administration of the Office of the President

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## **BACKGROUND**

The information technology system could be compared to a bridge that links between those who have information and others who do not. It is eradication of limits of time, distance and place. It shapes up a form of administration that decisions can be made on the correct data base and services can be given rapidly. This is called information systems for administration (Kenneth C. Laudon and Jane P. Laudon. 2007 : 367-400). Besides, to administer an organization and gear it to the goals needs appropriate information systems (Suwit Piwpankham, 1999). There are indicators that using information systems helps add more efficiency to work. For example, a study by Hathaichanok Phaha (2005 : 117-138) found that the Office of the President, Khon Kaen University, had a strategic plan to pave the way for management of information. That brought about more efficient administrative work.

Nakhon Phanom University was founded when 7 educational institutions merged into one university, having the Office of the President established according to a ministerial order of the Ministry of Education in order to do the administrative work and coordinate the work of internal organizations of the university, contact and coordinate the work with external organizations. The Office of the President is divided into 4 divisions. They are: the General Affairs Division, the Policy and Planning Division, the Student Development Division, and the Academic Promotion and Registration Division (The Royal Gazette, 2008 : 25).

As a newly established university, there were problems of information systems in the Office of the President (Policy and Planning Division, 2010 : 2-12). They were: the efficiency of the operation of the Office of the President was low. The administrator could not know and follow up the work. There were problems in the management process and planning of the information systems and problems of communication among different organizations.

The problems that have been pointed out brought about an inefficient information systems. There was a lack of bringing in technology for development and thus the administration was affected. Therefore, the information systems should be developed in order that it can help make the administration of the Office of the President, Nakhon Phanom University be more efficient.

## **PURPOSES**

1. To study the development of the information systems for the administration of the Office of the President of higher education institutions.
2. To develop an efficient information systems for the administration of the Office of the President, Nakhon Phanom University.
3. To study the efficiency of the administration of the Office of the President, Nakhon Phanom University after using the information systems that was developed.

## **PROCEDURE**

The research procedure was divided into 3 phases:  
Phase 1 Study of the information systems for the administration of the Office of the President of the higher education institutions. The activities were as follows.

The researcher studied documents and research works and studied methods of development, the present state, problems, obstacles and ways to solve the problems relating to the information systems for administration of higher education institutions by using the questionnaire to get the data from the population in the higher education institutions that had been sampled in 5 zones, namely: the northern region, the northeastern region, the central region, the southern region, and Bangkok. The higher education institutions were classified

into 3 sizes: large, medium, and small. The sample comprised the administrators and officers in the Office of the President of the higher education institutions. They were obtained through multi-stage sampling. The 330 persons from 15 institutions were composed of 15 presidents, 30 vice presidents, 30 president assistants, 15 directors of the Office of the President, 60 division directors, 150 officers, and 30 information systems officers.

Phase 2. Developing the information systems for the administration of the Office of the President, Nakhon Phanom University. The activities were as follows:

2.1 The researcher studied the needs and problems relating to the information systems in Nakhon Phanom University by interviewing 4 division directors and 1 information systems officer who were chosen through purposive sampling.

2.2 The researcher examined and analyzed the system, made a conclusion upon which the draft of the information systems was to be based.

2.3 The draft of the information systems was examined by 5 experts who were purposively sampled. They were 4 division directors and 1 information systems officer.

2.4 A workshop in which 7 program experts participated was organized for the purpose of constructing the information systems program.

2.5 Organized a meeting for a critical discussion on and evaluation of the efficiency of the program. The information systems program then was brought under examination of 20 persons who were chosen through purposive sampling. They were 4 division directors, 12 officers and 4 information systems officers.

Phase 3 Study of the efficiency of the administration of the Office of the President, Nakhon Phanom University after the information systems that had been developed was used. The activities were as follows: installing the system; studying the efficiency of the administration of the Office of the President; maintaining and reviewing the system in order to make it suitable and up to date. The sample involved were 64 personnel in the Office of the President, Nakhon Phanom University who were chosen through purposive sampling. They were 4 division directors and 60 officers.

## THE INSTRUMENT

The instruments for data collection were of 3 types:

1. Questionnaires Four questionnaires were used. They were:

1.1 Questionnaire No. 1 was for the present state, problems, guidelines and methods of developing the information systems for the administration of the Office of the President of the higher education institutions.

1.2 Questionnaire No. 2 was for drafting the information systems for the administration of the Office of the President, Nakhon Phanom University.

1.3 Questionnaire No. 3 was for evaluation of the efficiency of the information systems program for the administration of the Office of the President, Nakhon Phanom University.

1.4 Questionnaire No. 4 was for evaluation of the efficiency of the administration of the Office of the President when the information systems for the administration of the Office of the President, Nakhon Phanom University had been used.

2. A structured interview form

3. The minutes of meetings

## THE ANALYSIS OF DATA

1. The general data of the questionnaire respondents were analyzed to find the frequency and percentage and the presentation was in the form of tables with description.

2. The data from the rating scale questionnaire that had the highest efficiency was given 5 points while the data that had the lowest efficiency was given 1 point. The data were analyzed to find the mean and standard deviation. The scores from the analysis were interpreted as follows: the mean of 4.51 - 5.00 means the efficiency was in the highest level, the mean of 1.00 – 1.50 means the efficiency was in the lowest level (Boonchom Srisa-ard, 2002: 103)

3. The recommendations which were qualitative data were analyzed by making a summary of points that could respond to the purposes of study and were in the conceptual framework, while keeping in mind the multi-dimension examination and how the data groups were related. The results were presented in a descriptive analysis.

4. The statistics for finding the quality of the instruments were as follows: to find the discrimination power of the individual item, Pearson's coefficient was used with the score of that item and the total score; and Cronbach's alpha coefficient was used to find the reliability of the questionnaire (Boonchom Srisa-ard, 2002: 94-99).

## THE RESULTS

1. From the study of the information systems for the administration of the Office of the President of higher education institutions, it was found that:

1.1 The Office of the President of the higher education institutions were composed of divisions or sections with different names. The number of divisions or sections was different. The methods of developing the information systems are as follows:

1.1.1 In the preparation of people ware, the personnel were encouraged to have further education; training was organized for the personnel; a data base of personnel was created, and there was planning of man power.

1.1.2 In the preparation of hardware, budget was allocated, the Office of the President shared the University's network, there was procurement or renting.

1.1.3 In the preparation of software, there was procurement, renting, sharing the software with another institution, or the Office itself developed part of the software.

1.1.4 In terms of procedure, there was policy setting, writing the operation plan, training process, and there was testing and developing the information systems.

1.1.5 In terms of network, LAN and WIFI systems were set up. Data linkage among concerned personnel and administrators was created.

1.1.6 In planning and obtaining the information systems program, there was a meeting to jointly set the objectives and to write the plan; and the expense came from both the state budget and the university's income.

1.1.7 In terms of the use of information by the administrators in the Office of the President, it was found that the student data base, the registration and statistics data base, and the personnel data base were used. This helped make directing, controlling, and follow-up more convenient and helped make decision making more efficient.

1.1.8 Problems, obstacles, ways to prevent and solve the problems, and recommendations are as follows: there was inadequacy of personnel; personnel often resigned; well-secured positions should be allotted to personnel; there was resistance in the beginning; there should be a campaign to create understanding that the system must be compulsory; advice of techniques and methods and advantages of the system should be given; the anti-virus system was not up to date and rather not stable; there should be a person directly in charge; there should be a clear-cut policy of introducing information technology into the administration; there should be a continuous follow-up and evaluation; there should be a joint analysis of the work among all concerned persons; the administrators and personnel should learn and try to understand information technology to the level that they can support the strategy of

organizational administration.

2. The results of the development of the information system for the administration of the Office of the President, Nakhon Phanom University revealed that :

2.1 The results of the study of methods of development, present state, and problems relating to the information system for the administration of the Office of the President, Nakhon Phanom University are as follows:

2.1.1 The information systems was inadequate; most data were in documents and kept in folders in filing cabinets; they were not systematized and took time to find; they were not up to date; personnel were inadequate; there was a lack of continuous evaluation of the information.

2.1.2 What was expected from the information systems was to use the technology to build a data base that can be rapidly used. It should be right for the needs, reliable, and up to date. The information systems that each division needed was as follows: the General Affairs Division needed an information systems of general administrative work, personnel affairs, discipline and legal affairs, foreign affairs, and possessions; the Policy and Planning Division needed an information systems of general administrative work, policy and planning, budget, educational assurance, and finance and accounting; the Student Development Division needed an information systems of general administrative work, student activities, educational guidance and placement, student service and welfare, and culture, arts, community, and alumni; the Academic Promotion and Registration Division needed an information systems of general administrative work, academic development and curriculum, registration, academic service, and cooperative education.

2.2 The drafting and development of the information systems for the administration of the Office of the President, Nakhon Phanom University brought about an information systems program for the 4 divisions. The program was divided into 2 sections: Section 1 General Data, Section 2 Data for Administration of the Office of the President. The details are given below.

2.2.1 General Data comprised details of background of personnel in each division, activities in each division, and links to other concerned organizations.

2.2.2 Data for Administration comprised data according to workloads, stored in the data base and the information systems. Reports were issued in graphic forms. When there was a change in the data, the graph would also change. The details are as follows: the General Affairs Division had data base 1 to 15 in the information systems and had the information systems in 26 graphic forms; the Policy and Planning Division had data base 1 to 11 in the information systems and had the information systems in 12 graphic forms; the Student Development Division had data base 1 to 12 in the information systems and had the information systems in 17 graphic forms; and the Academic Promotion and Registration had data base 1 to 11 in the information systems and had the information systems in 14 graphic forms. On the whole, the efficiency of the program was in the highest level ( $\bar{X} = 4.54$ ,  $SD. = 0.43$ ). The aspect that had the highest average was “the language used is correct and clear-cut” ( $\bar{X} = 4.89$ ,  $SD. = 0.65$ ).

3. The results of the study of the efficiency of the administration of the Office of the President, Nakhon Phanom University after using the information systems that had been developed are as follows:

3.1 The efficiency of the administration of the Office of the President after using the information systems that had been developed was in the highest level ( $\bar{X} = 4.57$ ,  $SD. = 0.25$ ). The aspect that had the highest average was: “It helps find good strategy for administration, the Office can improve and develop plans and utilization of resources in order to respond to the situation that has changed” ( $\bar{X} = 4.85$ ,  $SD. = 0.69$ ).

3.2 In terms of the efficiency of administration of the Office of the President, Nakhon Phanom University, after using the information systems that had been developed, by informal

interviewing, the administrators saw that the information systems helped them to know and follow up the work. They could develop plans and utilization of resources. It helped them solve the problem of low efficiency in the operation of the Office of the President, the problem of the management process and planning of the information systems, and the problem of communication among different organizations. On the part of the officers, the system program was seen as easy and convenient to use. It helped save time, property and labor.

## DISCUSSION

From the results of the study, the findings are as follows :

1. The Office of the President of the higher education institutions were composed of divisions. The names and the number of divisions in one institution might differ from those in other institutions because each institution was established according to the ministerial promulgation, published in the Royal Gazette, of the ministry of original affiliation. The director of the Office of the President reports directly to the President or Vice President who has been authorized. The methods of developing the information systems were: the preparation of people ware in which personnel were encourage to have further education and training; the preparation of equipment and materials in which plans were made and budget was allocated; the preparation of software in which software was bought, rented, shared with another institution, or developed partially by the institution. There were various programs according to the workloads; in terms of process, policy and plans were set up; in terms of network systems, LAN and WIFI systems were set up; the administrators used the information to help make efficient decisions. The administrators could follow up and evaluate the work conveniently; the information systems helped save time and budget and enhanced the service; there were problems and obstacles which were inadequacy of personnel, frequent resignation of personnel; personnel were overloaded; the network systems was slow and unstable; the anti-virus systems was not up to date; there was no distinctive system; it was not complete and not up to date; the access of data was slow; the data were dispersed and were not right for the needs; there was lack of continuous control and evaluation; some administrators did not pay attention to it and when an administrator was replaced, the policy was also changed. This is congruent with a study by Clemmons, Susan Yvonne (2005 : 3361-3363) which found that the characteristics of ERP system creates changes in support of organization culture in the aspect of behavior and characteristics of work. The cause of this might have come from the problem that the budget of that organization had to be spent on too many matters, or the policy of the administrator might not have emphasized this aspect of work, or the organization might not have readiness for development of the information systems which required several factors such as personnel's knowledge and ability and suitability of building and the grounds.

2. The results of the development of the information systems for the administration of the Office of the President, Nakhon Phanom University revealed that the Office of the President, Nakhon Phanom University was composed of 4 divisions, namely; the Division of General Affairs, the Division of Policy and Planning, the Division of Student Development, and the Division of Academic Promotion and Registration. This is because Nakhon Phanom University organized its internal structure in accordance with the ministerial promulgation of the Ministry of Education on Organization of the Administrative Structure of Nakhon Phanom University B.E. 2551. The results also revealed that the problems relating to the information systems that existed then were inadequacy of personnel, personnel were overloaded with work, there was no distinctive system of information, the data collection system was inadequate, incomplete, and not up to date, making use of data was slow, the data

were dispersed and were not right for the needs, internal organizations lacked planning and continuous evaluation. In terms of needs, it was found that the administrators needed efficient information. They needed to bring in more technology to be used in the information systems. They needed persons with knowledge and ability to organize the information technology system, and they needed to be supported with adequate budget. The reason for this might be that Nakhon Phanom University is a new university. It was founded by many educational institutions being merged into one university. The organizations had to expand themselves to serve the work which was more than before. This caused a lack of personnel and system program to be used in the work. In addition, the data collecting system was not systematized and not up to date. This is congruent with the research findings by Hathaichanok Phaha (2005 : 117-138) who studied management of information in the Office of the President, Khon Kaen University. It was found that the organizations at the level of division lacked planning, controlling, and evaluation of information. The master plan of technology was not put to practice. There was a lack of single standard and it brought about communication gaps between the administrator and the workers. Equipment and materials were not sufficient and the administrator's needs could not be completely fulfilled.

3. The results of the evaluation of the efficiency of the administration of the Office of the President, Nakhon Phanom University after using the information systems that had been developed by using an evaluation form, it was found that, on the whole, the efficiency of the administration was in the highest level. This might have been because the researcher joined the planning in which every concerned person took part. There was a workshop for everyone to participate before the tryout of the system. That helped the personnel to understand it better. Also, during the tryout there was a continuous informal follow-up, and there was a meeting to reflect the results every month. Thus, problems were solved immediately. As a result, an effective information systems was produced. This is congruent with Wilertwat Nusang's idea (2010 : 52-111) from a study of opinions and satisfaction with the use of information systems through the Internet network by undergraduate students of King Mongkut's University of Technology Thonburi. It was found that the opinions and the satisfaction with the use of the Internet network, on the whole, were in the moderate level. Meanwhile, the satisfaction with the registration through the Internet/Telebank was in the highest level and it had the highest frequency of being used by the students in the student information systems.

4. The results of the evaluation of the efficiency of the administration of the Office of the President, Nakhon Phanom University after using the information systems that had been developed by informal interview revealed that most administrators saw that the information systems that had been developed helped them to know and follow up the work well. They could improve and develop their plans and utilization of resources, plan man power usage and distribution of work appropriately. It helped them solve problems in the process of information management, problems in planning of the information systems, and problems in communication among organizations. On the part of the officers, they reflected that the system program was easy and convenient to use. It helped save time, property and labor. This is congruent with a study by Wu, Ming-Chuan. (2004 : 2569-A ) which concluded that organizing an information system is an operation on information. The system must be designed properly and must be congruent with needs, preferences, and the characteristics of the organization. Organizations in other countries emphasize using computers because they yield correct results, they are compact and fast.

## **RECOMMENDATIONS**

1. Recommendations for application of the research results

- 1.1 Application of the research results needs a prior study of the context of organizations that have similar missions and size.
- 1.2 Organizations or offices that want to develop information systems to get better efficiency should take the following steps:
  - 1.2.1 Study the work in the organization thoroughly to see its components. Clearly define the work in sections or department to avoid duplication of work.
  - 1.1.2 Appoint personnel to specifically take charge of the information systems.
  - 1.2.3 Technology should be brought into the work for work development. A workshop should be organized for concerned personnel to participate before the tryout of the system in the organization.
  - 1.2.4 Formal and informal follow-ups, evaluation and supervision should be carried out continuously.
  - 1.2.5 There should be meetings of personnel in order to reflect the results of work. When deficiency is found, correction must be carried out immediately.
2. Recommendations for further research
  - 2.1 Research on development of information systems should be conducted in all of the faculties, offices, and institutes in the university.
  - 2.2 Research on factors affecting development of information systems should be conducted.
  - 2.3 Research on factors affecting the efficiency of information systems should be conducted.
  - 2.4 Research on evaluation of information systems for efficient and effective administration should be conducted.

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