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Design of an Information System Strategic Plan for PSU-Bayambang

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Abstract - *Information Systems Planning (ISSP) is an important activity for helping an organization to identify strategic applications and to align an organization's strategy with effective information systems to achieve the organization's objectives.*

This study focused on the design of ISSP for Pangasinan State University-Bayambang Campus (PSU-BC). It aims to develop and improve all of the university's strengths and opportunities, with the help of acquired funds, resources, strong manpower and workforce, basic units and areas of implementation, and highly innovative strategies for its effective management and utilization.

The study used the Government Information Systems Plan Framework: The Philippine Government Model adapted from the Information Systems Planning Manual of the National Computer Center, Quezon City, Philippines.

Recommendations and strategies were also identified to further develop and elevate the existence of PSU-BC as one of the premier institutions in education.

Keywords - *Information System, Strategic Planning, Information System Strategic Planning (ISSP)*

1. Introduction

As the ASEAN 2015 fast approaches, economic integration is fashioned by a new concept of co-opetition, blending regional cooperation and competition among member states; and in the 1996 Philippine hosting of Asia Pacific Economic Cooperation, education is one of the areas emphasized in eco-tech cooperation to pursue the ASEAN dream of a prosperous community where equitable growth is an avowed goal. Reaching regional harmonization in education is not very distant given the current significant developments. [1]

With this improvement, the Philippine Government perceives Information Systems (IS) and Information Technology (IT) increasingly play important role in the organization's activities to enhance its performance effectiveness.

Under the core mandates of the following agencies, through Joint Memorandum Circular No. 2012-01, dated November 28, 2012, the Department of Budget and Management (DBM), the Information and Communications Technology Office (ICTO) of the Department of Science and Technology (DOST), and the National Economic and Development Authority (NEDA) have instituted the Government-Wide Medium-Term Information and Communications Technology (ICT) Harmonization Initiative (MITHI). DBM-DOST-NEDA JMC 2012-01 created a MITHI Steering Committee composed of representatives from the aforementioned agencies, occupying at least third level positions, tasked and empowered to undertake the implementation of MITHI, including the budgetary aspect of approved ICT resource requirements and ICT programs and projects. A Joint Memorandum Circular No. 2014-01 was released on January 23, 2014, for All Heads of Departments, Bureaus, Offices, and Agencies of the National Government, including State

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Universities and Colleges, Government-Owned and/or - Controlled Corporations, Congress, the Judiciary and the Constitutional Commissions. This Joint Memorandum Circular (JMC) aims to guide the submission of departments/agencies concerning the formulation of their FY 2015 budget, particularly as regards ICT. [2]

With this memorandum, the Commission on Higher Education (CHED) requires all state universities to submit an ISSP or Information System Strategic Planning for approval by MITHI and funding by the aforementioned joint agencies.

1.1 Current Situation

At present, PSU Bayambang Campus is pillared by 3 Institutes that cater eight (8) undergraduate curricular programs.

In October 2006, Dr. Nilo Colinares confirmed the Level III Reaccredited Status for the Campus' Teacher Education Programs, namely, the Bachelor of Secondary Education (BSE) and Bachelor of Elementary Education (BEE).

To date, the campus continues to play the lead role in producing teachers in various disciplines and serves as the center for evolving and experimenting new trends in teacher education. It also offers the following degree programs: Bachelor of Science in Information Technology (BSIT), Bachelor of Early Childhood Education (BECE), Bachelor of Science in Nursing (BSN), Bachelor of Arts in Public Administration (BAPA), and the Bachelor of Arts in English Language (ABEL). Likewise, it caters to the needs of other baccalaureate degree holders who wish to shift to Education through its Teacher Credential Program under the Open University Systems (OUS). Moreover, effective first semester of the school year 2002-2003 evening classes have been held on a self-liquidating basis to accommodate working students and those beyond the quota for the regular day classes.

1.2 Problem

PSU-Bayambang occupies a twenty-six-hectare tree-shaded land area with more than one (1) hundred employees and almost three (3) thousand students enrolled in the different curricular programs. With this size and nature of the organization, almost all departments/units/offices haven't been enjoying fully computerized information systems in their day-to-day operations. Thus, the campus is clearly in need of an Information Systems Strategic Plan. Through the execution of this ISSP, it would possibly help the institution to ease the problem of the students and management who are using the traditional way of processing their transactions. This project would give assurance for quality services, good revenue monitoring, forecasting and analysis, management control and assessment of property, and real-time access of data.

2. Literature Review

2.1 Information System

Traditionally, an Information System (IS) is defined as an arrangement of people, data, processes, communications, and information technology that interact to support and improve day-to-day operations in a business, as well as to support the problem-solving and decision-making needs of management and users. Nowadays, an information system could be the lifeblood of an organization. [2]

2.2 Strategic Planning

Strategic planning is a means of establishing major directions for the university, college/school, or department. Through strategic planning, resources are concentrated in a limited number of major directions to maximize benefits to stakeholders--those we exist to serve and who are affected by the choices we make. In higher education, those stakeholders include students, employers of graduates, funding agencies, and society, as well as internal stakeholders such as faculty and staff. Strategic planning is a structured approach in anticipating the future and "exploiting the inevitable." The strategic plan

should chart the broad course for the entire institution for the next five years. It is a process for ensuring that the budget follows the plan rather than vice versa. Strategic planning is not just a plan for growth and expansion. A strategic plan can and often does guide retrenchment and reallocation. [4]

2.3 Information System Strategic Planning (ISSP)

IS strategic planning is a set of long-term goals that describe the proposed system and information technology architecture's focus to make the IS process strategic in achieving goals. It is considered as the best mechanism that supports organizations to ensure IT activities based on organization need to ensure technology activities that are appropriately applied in line with the development of organization's need and strategy. It is an effective way to develop and maintain IS/IT system that supports the operation [5]

3. Methodology

3.1 Framework

The study used the IS Planning Framework: The Philippine Government Model adapted from the Information Systems Planning Manual of the National Computer Center (NCC), Quezon City, Philippines. The NCC, an agency with the ICTO of DOST, has developed implementing guidelines for the formulation of Information Systems Plans (ISPs) by government agencies. All government agencies are expected to follow the NCC format for ISPs.

The purpose of the ISSP is to present the overall strategic plan for the development and implementation of information systems, the use of ICT, as well as the corresponding resource requirements over a fixed long-term period (planning horizon). Based on the ISSP Template Revised 2014 of ICTO [7] the ISSP framework has five (5) parts, each with the following content and advocacy:

Part I. Organizational Profile

Content	Advocacy
A. *Department/Agency Vision/Mission Statement*: Mission/Vision statement contains the goals of the agency based on a mandate. Strategic thrusts or programs of the agency stating its major undertakings to achieve goals *B. Department/Agency Profile:* Size of agency in terms of number of personnel and budget *C. Present ICT Situation (Strategic Challenges):* Business Systems that are pursued regularly for the implementation of the programs *D. Strategic Concerns for ICT Use:* Strategic concerns for IT showing how the agency intends to apply IT	• Re-engineer functions and processes

Part II. Information Systems Strategy

Content	Advocacy
A. Conceptual Framework for Information Systems *B. Detailed Description of Proposed Information Systems:* Description of identified information systems (ISs); Impact of the ISs on the agency's thrusts, business operations, and strategic areas of governance ; Strategy to be used in the development of the	• Application should be oriented to : ○ Mission ○ Development Administration ○ Bureaucratic Efficiency ○ Public Service

identified ISs; Information system linkages which show the functional usage of the IS to a workgroup C. *Databases Required:* Description of databases to be created D. *Network Layout*	

Part III. Detailed Description of ICT Projects

Content	Advocacy
A. *Internal ICT projects* B. *Cross-Agency ICT Projects* C. *Performance Measurement Framework*	• Adopt sustainable technology

Part III. Resource Requirements

Content	Advocacy
A. *Deployment of ICT Equipment and Services* B. *ICT Organizational Structure*	• Adopt sustainable technology

Part V. Development and Investment Program

Content	Advocacy
A. *ICT Projects Implementation Schedule* B. *Information systems (IS) Implementation Schedule* C. *Summary of Investments* D. *Year 1 Cost Breakdown*	• Schedule and Budget Allocation

4. Proposed Solutions

With this ISSP the following solutions were recommended:

4.1 Establishment of non-teaching ICT Department

To be able to achieve the division of labor between teaching and non-teaching positions in the campus but with the same objective which is to enhance services and products, the creation of separate Information and Communications Technology Department (ICTD) would surely minimize or better eradicate ICT related problems of the campus.

The ICTD to be established would be classified as a non-teaching department and divided into three sub-departments: (1) Information Systems Department (ISD), (2) Information Technology Department (ITD), and lastly (3) Multimedia Development Center (MDC).

The function of ISD is to provide an ISSP; develop, implement and maintain Information Systems needed by the campus into its day-to-day operations. While ITD would be responsible for all IT infrastructure concerns: (1) Determine hardware and software standards for all units within the campus and set up IT equipment according to these specifications. (2) Set up, configure and maintain the developed information systems and computer networks of the campus. (3) Provide technical assistance and staff training in terms of the use of hardware and software being utilized by the campus. (4) Repair and maintenance of both hardware and software. MDC would solely concentrate on producing and maintaining multimedia instructional materials that can be used in the teaching and learning system of every subject of each curricular program of the campus.

4.2 Conversion of Library Cataloging System into more complex Library Management System (LMS)

LMS would provide a Cataloging system with available information on library materials under its inventory system. It would monitor the students' borrowing and returning of books and other reading materials. It would provide a digitalized form of data for students. If all of these would be successfully implemented and

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maintained, then that was the time for putting it available on the web for wider dissemination. Thus, an Intranet-based Library Management System would be switched to Online Library Management System.

4.3 Deployment of Developed Integrated Student Information Systems

This system would provide the delivery and integration of admissions/registrations, student assessment, enrollment, student payment, and student accounts. ISIS should be a fully integrated system linked to the library and accounting systems. Support and provide the following functions and output respectively:

1. Manage the students' profile, course checking, courses enrolled, assessment of fees, payments, student account, and student academic records especially grades and units earned.
2. Provide scholastic reports like Official Transcript of Record, Certificate of Good Moral Character, Honorable Dismissal and the like, and also student account reports.

The Integrated Student Information System can be accessed through Intranet, Internet, and mobile platforms.

4.4 Development of Human Resource Management Information System

The system provides systematic tools to efficiently manage personnel information. Specifically features the following functions:

1. Facilitates employee training, recruitment, screening and selection, and job replacement.
2. Information tools for Personnel Development and Management, Service Records, Profile of Employees.
3. Payroll processing is based on a computerized daily time record.

Provide interactive online portals that can be useful in wider dissemination of recruitments that could gain higher chance to draft rooster of a highly competent and qualified employee.

4.5 Development of Learning Management System

Learning Management was a web-based application to plan, implement, assess learning processes or services developed to deliver, track, report, and establish learning content. The advantages of learning management to users were they can do self-learning at their own phase which saves time and cost, since the system could be accessed everywhere and every time as long as it was connected to the Internet.

4.6 Pursuance of Multimedia e-Class

The project is the development of a multimedia system for the real-time delivery of online courses. The system provides the instructor with a real-life environment to teach in a manner similar to a classroom setup. The instructor's video, audio, handwriting, drawing, and slide presentation are synchronized and streamed, at the same time, the students can view the lectures online for a simulated classroom environment. One of the main strengths of this system is that the instructor's lecture can be archived for future usage by the students.

To further discuss the project, Multimedia e-Class is an attempt to study the impact of ubiquitous computing on education. This will create a prototype classroom environment and the necessary software infrastructure to seamlessly capture much of the rich interaction that occurs in a typical university lecture, seminar, and workshop. By capturing the different streams of activity in the classroom and presenting an easily accessible interface that integrates those streams.

4.7 Build and Expand Reliable, Robust, and Secure Access to Information and Technology

The state-of-the-art network and systems infrastructure is comprehensive, robust, scalable, and secure, and is recognized for providing a premier information technology environment in higher education. Following are the imperatives for reaching this goal:

- *Network Infrastructure Support and Enhancement:* Preserve and enhance the network infrastructure through an ongoing commitment to upgrade, extend, and diversify its capabilities and support. Regularly refresh the network services, introducing newer versions of supported operating systems and key applications as they become available and following the university academic and administrative calendars.
- *Management and Distribution of Servers*: Develop a model for effective management of network file servers including a replacement cycle and the consolidation of distributed servers with more capable and reliable centrally managed server clusters.
- *Security:* Develop a model to ensure a strong foundation for information technology security coordinated with university continuous operations planning.

PSU submitted, to CHED, the ISSP 2014 – 2017 before the start of SY 2014-2015 and fortunately was approved by MITHI and the aforementioned agencies funded the *Deployment of Developed Integrated Student Information Systems*. Its operation started last SY 2014-2015 and both teaching and non-teaching staff, especially the students of the campus were benefited from its effectiveness and efficiency. Funds for other proposed information systems were expected in the succeeding school years.

5. Conclusion

ISSP can be said as not an important issue among state universities. But whether they realize it or not, ISSP has been proven for helping the university in increasing the efficiencies in terms of IT management and IT resources. And to ensure the success of ISSP depends on many factors that include the support and commitment by the top management, without it, ISSP would be a failure.

In this study, it observed that an ISSP is the key to implement re-engineering of the university's operations to further develop and elevate the existence of PSU-BC as one of the premier institutions in education

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[6] National Computer Center Memorandum Circular No.2003-02. National Administrative Register vol.14, No.3 p.1533. 2003

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