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Exchange Program Management System for De La Salle University Manila's External Relations and Internalization Office

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Abstract: A major obstacle for De La Salle University Manila's External Relations and Internalization Office (ERIO) was that they were unable to maximize the exchange opportunities listed within the memorandums of agreement (MOA). The paper serves as a case in providing an in-depth analysis of the significance of an exchange program management system with regards to upholding the globally competitive status and excellence of the University.

Key Words: External Relations and Internalization Office; Memorandums of Agreement; Exchange Students; Exchange Programs; Management Information System

1. INTRODUCTION

Today's modern world has already seen countless technological advances thus far, and the Information Technology industry has been a pioneer in ensuring the success of the various innovations that have since been brought about. As one of the top universities in Asia (The Manila Times Online, 2019) and a center of excellence in Information Technology, De La Salle University Manila is no stranger to adapting to the ever-evolving technological environment, thus helping to maintain its globally competitive status.

This paper talks about De La Salle University Manila's External Relations and Internalization Office, which is more commonly known around campus as ERIO. ERIO aims to provide Lasallians, and the University in general, to participate in global community engagements. This

may be done through strategic plans, world class programs, and support mechanisms. Moreover, ERIO plays a significant role in the University since they are responsible for broadening the ideas and perspectives of the academic community with regards to international affairs, providing a better understanding of cultural diversity, and encouraging the students to compete in the increasingly globalized world.

The system proposed is an exchange program management system that will be developed in such a way that it will be based on the concepts of a management information system. A management information system is the most appropriate type of information system in this case, due to the fact that it obtains raw data and turns it into useful information that helps in managerial decision making ("Management Information Systems (MIS)," n.d.) which could help to streamline the processes involved in the management of exchange programs.



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1.2 Challenges

Since ERIO is in charge of overseeing memorandums of agreement (MOA), partnerships, exchange students and the corresponding programs they are applying to or are currently enrolled in, they deal with a large volume of data and documents. The solution of merely outsourcing from off the shelf technology for the office's document handling may seem simple enough, however, some of those data and documents are the basis for uploading information on exchange programs within the official De La Salle University Manila website.

On that note, ERIO has encountered difficulties with regards to updating the information on exchange programs within the website, wherein they have to ask the Information Technology Services (ITS) office for access to edit the information; they receive late responses from ITS or no response at all regarding the matter.

That said, it would be more cost effective to develop the proposed exchange program management system, since several of ERIO's encountered difficulties would be addressed all in one system. These difficulties pertain to the lack of digitized storage for their documents and data, and the inability to freely edit the exchange program information as a reference for the students to help them stay updated with the latest global opportunities.

Both of the aforementioned difficulties are merely branches under the main problem encountered by the office, which is the fact that ERIO has been unable to maximize the exchange opportunities listed within MOAs, having been caused by some of the office's information gathering methods and materials that will be discussed in further detail within the following sections.

In order to assist ERIO with addressing and finding a solution to these problems, developing and hopefully implementing the proposed exchange program management system could ultimately be the key to unlocking a whole new realm of possibilities and potential for the office and its staff.

1.3 Significance and Aim

The objective of the study aimed to develop an exchange program management system that will help solve the issues surrounding the MOA monitoring and storage, inbound and outbound students management, and report generation.

The significance of the study lies in equipping ERIO with the technological capability to freely provide students with updated information on the exchange programs they may apply to. Doing so will help to broaden the ideas and perspectives of the academic community with regards to international affairs, provide a better understanding of cultural diversity, and encourage the students to compete in the increasingly globalized world.

1.4 Scope

This paper presents the development of an Exchange Program Management system (ExPM), which would incorporate concepts of a management information system. The ExPM will be covering the exchange programs of De La Salle University Manila's External Relations and Internalization Office (ERIO).

The extent of the system coverage would include the memorandums of agreement (MOAs) and the inbound and outbound exchanges themselves.

In detail, the inclusion of MOAs would cover its monitoring and digitization, whereas inclusion of inbound and outbound exchanges would cover the students' application, requirements fulfillment, and eventual deployment.

2. METHODOLOGY

The methodology chosen is known as Rapid Application Development (RAD) (Kindly see Fig. 1 below) which aims to help the researchers to develop and deliver a high quality system at a relatively fast development pace by attempting to separate the project into smaller segments and phases.

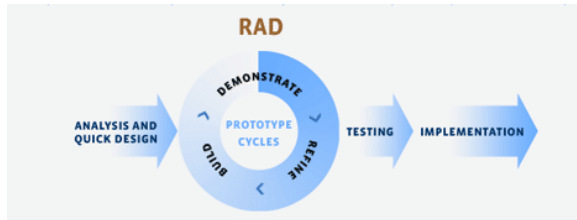


Fig. 1. Rapid Application Development (RAD)

Other methodologies were taken into consideration as well, such as the Waterfall, Agile, Prototyping, and Joint Application Development (JAD) methodologies. However, all four were ruled out for a number of reasons.

The Waterfall methodology does not allow room for adjustments nor flexibility in terms of switching from one phase to another, and the Agile methodology, on the other hand, confines team members into specific roles (Rosenblatt, 2016) whereas the researchers have found it more effective to take on different roles from time to time in order to increase efficiency.

Additionally, the Prototyping methodology is merely a small part of the greater RAD methodology. Lastly, JAD is more costly and dependent on constant client interaction and involvement (Rosenblatt, 2016), and based on the researchers' experience it has proven difficult to schedule interviews and meetings with ERIO staff members.

All of the aforementioned reasons contributed to the researchers' conclusion to utilize the RAD methodology, since it has proven to be the one that exhibited the most number of redeeming qualities and advantages that were appropriate for the project and its researchers. That much can be said due to the fact that, according to Rosenblatt (2016), RAD is a "complete methodology, with a four-phase life cycle that parallels the traditional SDLC phases." On that note, since RAD exhibits clear-cut objectives for each development phase, the proponents are given a much more comprehensive idea regarding the steps and actions to be taken in order to successfully develop, design, implement and maintain a fully functional and optimized system for the organization.

With thorough research, interviews, and the use of cause and effect analysis, the core problem identified by the researchers was the inability of ERIO to maximize the exchange opportunities listed within MOAs. Several causal factors were discovered: (1) lack of information dissemination to students; (2) irregular monitoring of memorandums; (3) slow report generation due to the irregular updating of records; (4) untimely responses to student inquiries; (5) and no central source of information for exchange students.

Due to the stated compounded problems, they have been unable to deploy the agreed upon number of exchange students to partner institutions abroad. In addressing these problems, the researchers did a review of several facilities from partner institutions to compare the best practices in terms of designing the system (with needed modules and features). After creating the prototype, the researchers conceptualised and conducted a variety of test case scenarios in order to anticipate possible errors that the system could encounter in the future.

3. RESULTS AND DISCUSSION

The Exchange Program Management System (ExPM) was developed as a type of management information system to specifically cater to ERIO in providing an avenue for them to properly manage exchange opportunities and programs, and for students to apply to them.

A conceptual framework was created to summarize that the system has 4 main modules: (1) Memorandum Monitoring and Storage Module, (2) Inbound Students Management Module, (3) Outbound Students Management Module, and (4) Reports Generation Module (Kindly see Fig. 2 for the conceptual framework).



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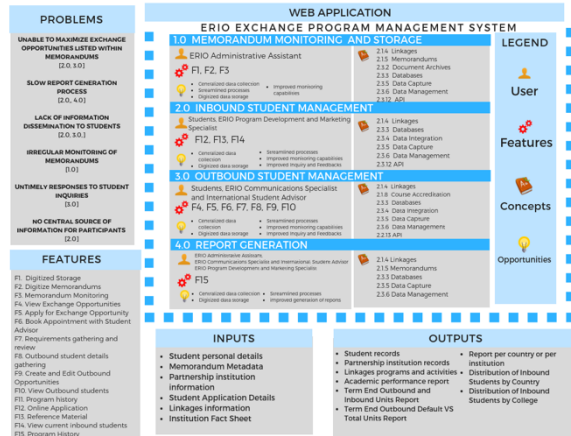


Fig. 2. Conceptual Framework

The first module focuses on the memorandum monitoring and storage, wherein ERIO will be able to create, view, edit, monitor and renew the memorandums of agreement with DLSU's partner institutions abroad. Doing so will help to avoid MOAs from becoming expired unnoticed and will give DLSU the opportunity to renew the MOAs. This module will utilize Optical Character Recognition (OCR) with the creation of memorandums, wherein an optical character recognition engine called Tesseract was used as basis. Moreover, this module is a vital part of the system as the data collected is also utilized in other modules.

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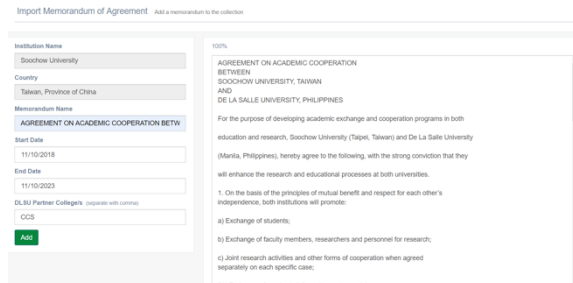


Fig. 3. Optical Character Recognition (OCR)

The second module focuses on the management of inbound students, with its users being ERIO and the inbound students themselves. Features of this module would enable ERIO to upload reference material, view the details and statuses of all inbound students, and set an interview with them to check up on their progress while in the country. On the other hand, features for inbound students would include the viewing of the reference material, online application forms, and setting an appointment with ERIO should they have any questions that they feel were unanswered by the reference material.

The third module focuses on the management of outbound students, with its users being ERIO and the outbound students themselves. This module addressed ERIO's difficulties with outbound student requirements gathering and review, adding of exchange opportunities (Kindly see Fig. 4 below), viewing the details of all outbound students, and setting interviews with them. For outbound students as users, this module provides them with a central resource to view all exchange opportunities, apply to them, keep track of their requirements and submissions, and also set an appointment with ERIO should they have any further questions.



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Fig. 4. Add Exchange Opportunity functionality

The fourth module pertains to the processing and generation of reports such as the Program History Report, Inbound vs. Outbound Report, and several other reports regarding MOAs. The major function is to present data in a way that can assist in decision-making with regards to which MOAs should be renewed or not. It is achieved with the use of charts and other data visualization, and even customized reports.

The system made the processes of ERIO more efficient in the sense that they now have a customized system that will help them to maximize the exchange opportunities listed within the memorandums. They now have a more advanced capability when it comes to storing and monitoring the MOAs, managing the inbound and outbound students, and generating accurate and timely reports.

3.1 User Acceptance Scores

Unit, system and integration testing have all been conducted on the developed ExPM, wherein the researchers met with several of the target users for screen and functional prototyping as well. All comments and suggestions from the target users were then taken into account during the revision and redesign of the system.

The UAT was performed with several target users from ERIO such as the Outbound Program Assistant and Inbound Program Assistant, whereas a few students were also asked to participate for the student-side modules of the ExPM, all of whom were asked to fill out a User Acceptance Test Form.

The form contained 4 major categories which pertained to (1) General Functionality, (2) User Interface, (3) User-friendliness, and (4) Overall Performance. Respondents answered from 1-5, with 1 as the lowest grade and 5 as the highest.

Question Category	R1	R2	R3	R4	R5	R6	Average
General	5	5	5	4	5	4	4.67
User Interface	4	4	5	5	5	4	4.5
User-friendliness	4	4	4	4	5	4	4.17
Overall performance	5	5	4	4	5	5	4.67
Total average							3.00

R = Respondent

Table 1. User Acceptance Test Results

The results of the conducted UAT garnered an overall average of 3.00, indicating that user requirements were met and that the target users were generally satisfied with how the system turned out. Most of the received comments referred to the user-friendliness of the ExPM, wherein some of the users needed extra instructions on how to navigate the system; other comments were more focused on the user interface, having stated that button placements and text colors and sizes could use more improvement.

4. CONCLUSIONS

The researchers optimistically anticipate that through the use of the ExPM, ERIO will be able to maximize the exchange opportunities listed within the MOAs. The identified problems such as the lack of information dissemination to students, irregular monitoring of memorandums, slow report generation due to the irregular updating of records, untimely responses to student inquiries and no central source of information for exchange students were all successfully addressed. Since several case scenarios were conceptualized and conducted, system errors would be minimal to none.



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5. ACKNOWLEDGMENTS

The research group would like to express its deepest gratitude to everyone who has helped conduct this study, from its days of inception until its fruition, contributing to the success of the system titled as DLSU ERIO's Exchange Program Management System.

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