UP DOCUTRAK: AN ASSESSMENT OF AN IN-HOUSE DEVELOPED DOCUMENT TRACKING SYSTEM (DTS)
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ABSTRACT

Shows the results of a BLIS undergraduate thesis on the assessment of the UP Docutrak. It used the Boloix and Robillard's system evaluation framework (BRSEF) and the criteria set by the ISO 15489 requirements as basis for evaluatoin of the system.

BACKGROUND

For the centennial year of the University of the Philippines (UP), the UP Centennial Commission has chosen "UP: Excellence, Service, and Leadership in the Next 100 Years" as its theme. The Commission has defined "service" as "… to include designing workable and effective action plans." Similarly, the core thrusts of current Vice Chancellor for Administration Prof. Mary Delia Tomacruz's Action Plan for the Diliman community prioritizing on the promotion of

> data sharing among units, stream-lining processes, standardizing forms, upgrading information technology capabilities of offices, training administrative officers on standard procedures, and the reviewing of current operating systems and procedures (The Diliman Blueprint, 2007).

The definition as well as the action plan go hand-in-hand with the noble aims of UP as the only national university to be a "pioneer in higher education" not only through excellence in academics and research but also in the most important areas of public service and modernized facilities (All About UP, 2007).

Despite budget problems, excellence through public service and modernized facilities has been initiated by the university through several computerization projects. The projects were all geared to address the information needs of the university constituency in a systematic and streamlined fashion. Making the most out of the university's available technological infrastructure particularly the Diliman Network (DILNET), and the local talent that is a university trademark asset, UP is now a proud home to several university-initiated computerization projects which include the Computerized Registration System (CRS), the Student Records System (SRS), the Faculty Information System (FIS), the Socialized Tuition and Financial Assistance Program (STFAP) Online, the Integrated Library System (iLib), and other web services such as the University Virtual Learning Environment (UVLE), the Student Portal, the UP Webmail, and DocuTrak.

Most of the University's computerization projects deal basically with records. Majority of them can be classified as recordkeeping systems since they fit the International Organization for Standardization's (ISO) definition for record systems with their inherent ability to capture, maintain, and provide access to information. As systems, these computerization projects also consist of all the necessary components of policies, processes, people, technologies, and tools. Considering the number of these projects and the common nature of their functions indicate the possible presence of a common standard development process or framework governing both systems and records such as a Records Management System (RMS).

Among the systems mentioned, the University's in-house developed document tracking system (DTS) stands out as an example of a record system. DocuTrak is a DTS that makes use of barcode labels to track documents as they make their way through the various unit offices of UP Diliman (UPD). Developed and maintained by the UP Computer Center (UPCC), it was officially launched in July of 2003 as an online DTS accessible to users thru UPD's campus network, DILNET, and via the Uniform Resource Locator (URL) http://docutrak.upd.edu.ph. To be able to use the system, unit representatives must first submit the required information to the administrator at the UP Computer Center (UPCC) where their application will be processed. As soon as these unit representatives are already added as systems users, the particular unit office can already create and monitor all in-process documents that are within their concern. Various types of documents such as correspondences and accounting forms can be monitored thru DocuTrak. To

create a document in DocuTrak, users must fill up the necessary fields asking for the properties of that document such as document title, author, document type, action needed and type of access, and its unique tracking number. The tracking number is a unique identifier that is attached to the document as a barcode label. The tracking number makes it possible for unit offices involved in processing documents to create, receive, act upon, release, and track these in-process documents by means of DocuTrak. The labels are created and administered solely by the system administrator from the UP Computer Center.

DocuTrak's basic capability is to monitor and identify bottlenecks. It supports service delivery by way of consistency, continuity, efficiency and productivity. So far, it is being used not just in Diliman. It was introduced in the UP Visayas in August 2006 after it was requested by their Data and Information Systems Program (DISP) Office under the Office of the Vice Chancellor for Administration (OVCA). However, it has not achieved as much popularity or full-scale support as the SRS and CRS. A year after its initial implementation, an article in the UP website cited a memorandum from former Diliman Chancellor, now University President Emerlinda Roman, calling for support to use the system so as to maximize the resources that UP has invested in it. This was after finding out that DocuTrak was the "least used system in UP" ("Use DocuTrak," 2004). A preliminary investigation into the project revealed that unlike other systems such as the CRS which leaves users no choice but to participate, the DocuTrak is deemed by target users as an optional service because there are no serious consequences for non-DocuTrak users. This defeats the core objective of DocuTrak to monitor the status of documents as they go through the various university offices. It is not possible to monitor a document sent to an office which is not enrolled in the system. There may be other issues to be considered as to why DocuTrak is not as popularly supported as other university-initiated computerization projects such as lack of resources, organizational issues, implementation procedures, system redundancy, and system competency. However, the optional use and the presence or lack of a unifying RMS that should govern all recordkeeping practices and activities throughout the university remains key factors that need careful investigation.

In 2001, two years before DocuTrak was implemented, Carmencita Loyola made the subject of a Diliman-wide computerized DTS the topic of her master's thesis. In this, she surveyed UPD's readiness to have a

common DTS which would serve the document-monitoring needs of all of UPD's constituent offices. She also looked into the recordkeeping practices of Diliman offices. She asked unit administrators and future DTS users general ideas of the features and benefits of a DTS, reasons why such a system is needed, and the features they would wish to see should a DTS is developed. Among the very important results of her work was the revelation that while most administrators (79%) thought that a common DTS in UP is highly needed, they however expressed doubts as to whether the project could be successfully implemented because issues regarding resources and competing needs exist. Also, in her discussion of the history of DTS in UP as well as in her review of applicable documents and university policies, she did not mention the existence of a University Records Management System or any such framework that is directly connected with the recordkeeping function of UP units, and all their ensuing business transactions.

Most of the literature regarding Information Systems (IS) emphasized the significance of taking a holistic approach in undertaking IS projects. Basically, it is to understand and treat systems as an integration of various components which cannot thrive or even exist without each other. In the context of information management and particularly, in records management, organizations have focused mostly on the technologies and not the records themselves (Barry, 1996). Most often, the information architecture of an organization is overlooked because of the importance given to Information Technology (IT). Organizations often fail to consider their business processes that correspond with the flow and function of information. It should be understood that an organization's information architecture should dictate its IT infrastructure. It is important that both should exist within a system that includes other equally important components such as a governing policy or framework, standards, and other support mechanisms. The existence and effective implementation of such a system is the basis of successful IS projects.

This study is mainly about the use of IT to serve the purposes of records management. It was done in the context of government organizations, with UP being the premier academic institution of the government, highlighting the significance of records management in the promotion and maintenance of transparency and accountability especially in public organizations. It emphasized a holistic approach in the development and implementation of information system projects where too often, as most literature reaffirmed, technology overshadows the organization's life-blood: records.

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In UP, document tracking began in 1976 when Memorandum Circular No. 13, dated May 17, 1976 was issued from the UP President's office announcing the pilot run of a manual DTS in the university. As mentioned in Loyola's study (2001), the said DTS featured an assignment of a unique 9-digit alphanumeric code to identify every document. It also utilized routing slips in the form of several stubs "representing the usual processing units for that type of document with the bottom-most stub representing the first destination". A central records-receiving office or a "centralized document tracking center" which collected information and answered follow-up queries from UP constituents and the general public was also available. There was no mention however, regarding the existence of a central records management policy, nor the fate of the central records receiving office.

According to Loyola, the said system "died a natural death". It was later followed by a computerized DTS employed in the Office of the Chancellor which was introduced around 1999. This DTS utilized UNESCO's CDS-ISIS software, and was launched in August of 1993. However, not much information is available on the said system since according to Loyola who was herself a part of that DTS team, the said project was not documented properly. The most recent reincarnation of the DTS is the present DocuTrak system.

FRAMEWORK

To meet the objectives of this study, it was necessary to understand the background from which the DocuTrak project emerged. The DocuTrack was an information system and a records system as well. To verify and understand the context of its conceptualization, actual project planning was looked into and included the identification of the original project objectives and features, the plan of implementation for the project, and the available support mechanisms at the time of the project's inception and development. The actual procedures taken during the implementation were also investigated in order to have an insight as to what other factors could have affected the project outcome. Assessment was done using the BRSEF and the ISO 15489. Recommendations were based on the results of the assessment.

The study used Boloix' and Robillard's 1995 System Evaluation Framework (SEF) as a tool. The framework looked into three major areas or dimensions of software system projects and these are the project development or the Project Dimension, the system which was developed

or the System Dimension, and the environment where the system is situated or the Organizational Environment Dimension. These dimensions were made up of specific components and these are discussed below. In Project Dimension, the software system is evaluated based on the software development process that it went through, the project and/ or software experience of the project development team, and their capabilities to use the technologies or tools used in creating the system. It uses the perspectives of software producers (system proponents and developers) and managers (operators or system administrators). The System Dimension on the other hand allows assessment based on the understandability of the software as a product, its performance, and the administrator's mastery of the implemented technology including the availability of developer support. It uses the perspective of system administrators, operators, and managers. The Organizational Environment Dimension uses the viewpoint of users and stakeholders to assess the level of satisfaction with the software system and the perceived contribution of the system to the organization. The resulting information used as basis for the assessment is presented below. The presentation reflects how information for each software dimension was dependent on a particular group of key informants. The Project and System dimensions used the perspectives of DocuTrak producers (Group 1-A) and managers (Group1-B) respectively. The Environment dimension, particularly in the compliance and usability factors, used information provided by DocuTrak users (Group 3). In the assessment of DocuTrak's contribution to the organization, each group of respondents was asked to give their perspective as different types of stakeholders. Contribution to organization was assessed based on the perspectives of DocuTrak producers and managers (Group 1), RM experts (Group 2), and DocuTrak users (Group 3). This is because as stakeholders, they have different points of view regarding DocuTrak.

It categorized systems based on the level of maturity - basic, intermediate, and advance, each category being equivalent to sub-standard, nominal or industry-standard, and excellent. It enabled the tracing of full project history and made it possible to pinpoint other factors, specifically organizational ones, which had a significant impact on the system itself and the success of its implementation. The SEF was extensive and flexible enough to enable the investigation of adherence to more specific standards such as the ISO 15489, particularly the RS characteristics and functions, and adherence to the DIRS methodology (see Table 1).

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While allowing certain measurements to be made, specifically the level of maturity of various system attributes, the paper on the framework itself did not actually discuss the "maturity" in statistical terms. Nevertheless, the expected output conformed to the requirements of the

Table 1

Boloix and Robillard's Systems Evaluation Framework and the ISO 15489 Requirements: A Comparative Table

Dimensions of the Systems Evaluation Framework	ISO 15489 Requirements
Environment System and Environment Project and Environment System Project	Records Systems Characteristics Reliability Integity Compliance Comprehensiveness Systematic (Formal Process and Methodologies)
System (Product Features)	Records Management Processes and Controls
Project	DIRS Methodology

design of this study which aimed to present an analytical discussion of the results of the assessment in narrative format.

The assessment based on the system's contribution to the organization made full use of the Environment Dimension (Part 3) of the SEF. It detailed the aspects of the system where product performances, requirement compliance, support availability, and contribution to organization was revealed. As already mentioned, an analytical discussion of the results was done from which recommendations were based.

METHODOLOGY

The research design was a combination of the historical and descriptive methods. Data collection procedures consisted of the perusal of relevant studies, DocuTrak documentation, available publications and Internet materials, and interviews with key informants. The interview schedule served as the main research instrument. Key informants for the DocuTrak project history and system details were chosen based on technical knowledge and experience, and on involvement with the DocuTrak project.

They were DocuTrak users in selected offices considered to be representatives of five general types of UP units namely the OVPD and OVPA (Administrative Office- System), OVCA and OC (Administrative Office - Diliman), the UPCWS (Research Institute), SLIS (Academic Unit), and the UP Main Library (Library). Content analysis was employed in dealing with the interview results, policy documents, and other literature concerning the DocuTrak including proposals, reports, manuals and etc. Interview results were analyzed and discussed following the outline provided by Boloix and Robillard's SEF components and the ISO 15489 guidelines on records system characteristics, DIRS Methodology, and records management processes.

RESULTS AND DISCUSSION

Using the BRSEF, DocuTrak was assessed on two levels: at the factor level (maturity), and at the dimension level (sophistication). A software system's levels of maturity and sophistication are determined through the BRSEF's given criteria. Maturity levels can be classified as basic, intermediate, or advanced. Sophistication levels, which are dependent on the aggregated maturity levels, can be rated as low, medium, or high. A table of ratings was used to determine in which level of sophistication the aggregated maturity level ratings fall.

DocuTrak was also assessed using the criteria set by the International Standard on Records Management or the ISO 15489. This study took into account the extent of DocuTrak's adherence to the said Standard in terms of records systems characteristics *(*ISO 15489-1 – Sec. 8.2), compliance with the DIRS Methodology (ISO 15489-1, Section 8.4 and ISO 15489-2, Section 3), and the ability to carry out records management processes and controls (ISO 15489-1, Section 9 and ISO 15489-2 – Section 4.3).

FINDINGS

DocuTrak was an IT tool created to facilitate records management in the University. However, its development process was not done in the context of records management. Also, as a records system project, it was not supported by a central RMS framework which reflects the organization's values, culture, business activities, accountabilities, records needs and records use. This severely limited the ability of the system's functionalities and features to conform to the requirements of intended users. The holistic approach to system projects was also not observed. The holistic approach requires that prior to the actual system development, all necessary system elements of people, processes, technology, and tools are already defined and rightly in place. This

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approach allows records systems to be successfully designed in support of the effective implementation of policies.

The following were the principal findings of the study:

The software system assessment using the BRSEF criteria revealed DocuTrak's quality to be at a medium-low level of sophistication, or below the acceptable standard. It was caused by the following reasons:

1) DocuTrak's maturity level in the project dimension was medium-low. Its software development was quite below standard.

- The software process was only in the basic maturity level because it did not follow a standard prescribing a formal process for software development, and criteria to base performance evaluations. The ideal software development process should consist of an organizational analysis, stakeholders consultation, formal project planning, user needs investigation, preliminary system design and testing, system design and development, implementation, performance evaluation, and system redesign.

- Maturity in the agent factor was at the intermediate level. The project team has either limited or no experience in conducting projects and developing systems which are similar in nature. Mentor availability and expert opinion was only limited to the UPCC.

- Maturity in the tool factor was at the intermediate level. The DocuTrak project team has low technology proficiency because of their limited experience. They also did not undergo formal training prior to development.

2) DocuTrak's maturity level in the system dimension was intermediate or at par with industry standards.

- As a software product, it is intermediate. The system requires a moderate effort for the system administrator to understand. Documentation is available to help facilitate system understanding and operation but it is not current.

- Its software performance is intermediate. Although it is stable and capable of simultaneous use, computer resource use is not maximized because of network problems experienced by both users and the administrator. System maintenance requires minimum effort. However, the system administrator's ability to improve the system

is limited by relative inexperience and lack of formal training in the system's programming languages.

- Maturity in terms of technology use is intermediate. The open-source nature of the system makes it easy to maintain and study. However, system use and implementation can not be maximized without sufficient technical documentation, the lack of system administrator training, and the unavailability of mentor/ expert support.

3) DocuTrak's maturity level in the environment dimension is medium-low. Its general contribution to users and to the organization is below the acceptable standards.

- It has an intermediate maturity level in terms of compliance to user requirements. It was able to provide document information that satisfies users. However, it has a certain bias towards the information needs of AOs. Personnel whose work entails more detailed correspondences do not find the system very useful since it is used mostly to track financial documents. Its strengths include its network capabilities and scanning features. Its limitations include lack of batch processing capabilities, unreadable barcodes, confusing system configurations, and constant unavailability due to an unreliable network.

- It has an intermediate maturity level in terms of usability. System use is easy to learn and to master. Both the GUI and the instructions are simple and easy to understand. However, some difficulties with the arbitrariness of certain input fields were observed. It required users to have certain skills to be able to describe documents in detail. Support for this was not addressed in the user manual.

- The aggregate maturity level based on perceived contribution to organization was medium-low, or basic. For producers and managers, and for users, it is in the intermediate level. It did not actually streamline the document workflow but it has increased user accountability and convenience in document follow-ups. Other noted impact to users was an increase in technology awareness, and the addition of computer knowledge and skills. It is also capable of providing sufficient document information regarding location and status. Users suggested several system improvements such as increased network stability and reliability, more specific choices instead of arbitrary fields for document description, capability to allow the user to know what is

being done to the document internally, capability to flag documents according to order of priority, configuration to operate in Linux environments, batch processing features, integration with other University records systems, feedback features, archiving features, and a user Help Desk. An intangible benefit observed was an increase in transparency of records processes. However, positive user and organization benefits are severely hindered by DocuTrak non-use. Network unreliability, the lack of sanctions for non-users, lack of facilities, and user-dependent issues such as aptitude, computer literacy, and attitude towards technology and change, were cited as the major reasons for the system's unpopularity. For RM experts, the system has no clear impact on users or their productivity. The service and information that it provides are limited both in content and reliability because of the lack of RM-specific features, and bias towards financial documents. There were also no clear benefits observed apart from imparting lessons in the conduct of similar projects.

4) The collective insights of the study's respondents on lessons imparted by the DocuTrak experience were as follows:

- A project similar to DocuTrak must be led by an action-oriented administrator who can deliver within a given time-frame. The administrator must have the authority and the willpower to implement the technology, and enforce system use through visible active support (own use) and the employment of sanctions. Such a leader must also be able to overcome the usual change management problems.

- System projects must be led by relevant professionals who are specialists in areas where the system is to be implemented. For example, a records system project such as DocuTrak should be spearheaded by an individual or a team of records professionals who has the necessary experience and expertise to design, develop, and implement the system, similar to the OC-DTS experience. The project head must be duly supported by IT professionals who also have expertise in the design, development, and implementation of said system.

- A mentor structure composed of experts across the organization can be valuable in providing support to system developers,

implementers, and administrators.

- Knowledge sharing between institutions regarding institutional service policies and common project experiences is also significant to promote best practices.
- Technical issues and insufficient resources must be addressed to promote system use.
- Proper project turn-over and administrator training is important to enable the optimization of system management and use.
- User feedback is important in making system improvements possible.
- Project follow-up and monitoring is important in the successful implementation of projects. It encourages system use, as well as communicates the administration's seriousness of purpose in making systems really work for the University constituency. It can be in the form of corrective action such as repetitive memoranda or a follow-up study.
- User-training must not only involve knowing how to operate the system, but also knowing the concepts and principles behind the workings of the system. This empowers users to communicate about their experience and give relevant feedback.
- User consultation prior to system design, development, and implementation results to a system that aptly addresses user requirements.
- An RMS framework in support of records systems promotes standardization and the sharing of best records management practices, make recordkeeping more systematic for everyone, make records management transitions easier since everyone more or less knows the standard way to do things, address the need for standardized terms when dealing with records, and provide provision for training administrative staff with RM-specific skills like document description and document searching

The records system assessment using the ISO 15489 criteria revealed that:

1) DocuTrak is systematic mainly because it is an automated system. It automatically logs user actions, organize information, and perform back-ups. However, it is unreliable because of related network problems, and the lack of error-check features. Its unreliability as a system adversely affects its capability to create and maintain records that are complete and comprehensive in scope. The limitations in system features also limit

the system's ability to fully comply with different user requirements. It has no supporting policy to formalize or systematize its physical management, as well as to define actors and responsibilities, and sanctions for non-compliance. The system's documentation needs to be updated.

2) The system's development and implementation process did not follow the prescribed steps in the DIRS Methodology. First, preliminary investigation was not done. Then, the analysis of business activity was limited to the UPCC. Also, UP's records requirements as an organization composed of diverse units was not identified. Furthermore, no investigation was conducted to check if similar records system existed. The identification of strategies for satisfying requirements was limited only to design and implementation strategies. In addition, system design did not make use of feedback from other UP units, or expert advice from other stakeholders such as records professionals. On another note, documentation of the design process is available yet not updated. The implementation process on the other hand was limited to the creation of UP Webmail accounts for users, user training, and distribution of barcodes. Follow-up was done through memoranda. The documentation by-products of the implementation process were limited to the user manual, and the follow-up memoranda. Moreover, no system post-implementation evaluation was done.

3) The system is capable of records capture, registration, classification, storage, access, and tracking. However, since no intensive analysis of UP's organizational hierarchies and business activities were done prior to system design, its functionalities tended to be more generalized and limited in scope. There was not much control over the accuracy and completeness of user-supplied information. The system's limited record classification features limits the information that it is able to provide to users. The major control element used is the document tracking number provided through the barcode stickers issued by the UPCC. Access is enabled and authenticated through individual user IDs and passwords. Access is also dependent upon user's job description. There is an option to make documents either publicly viewable or confidential. Database access is limited to certain UPCC employees only. Tracking information reflects both document location and document action but information is also limited to unit and

individual, and to approve, reject, receive, and release actions respectively. The system does not provide in-depth details. Tracking is also limited by network availability and DocuTrak-use or non-use of a processing office. It is not capable of records archiving and/or disposal because such capabilities were not part of the system design.

CONCLUSIONS

After considering the principal findings of this study, the following conclusions were made:

1. DocuTrak's quality as a software system is negatively affected by several factors that had to do with processes, people, tools, technologies, and organizational environment.

2. The lack of a standard to formally guide DocuTrak's development process and to provide criteria to evaluate product performance had an unfavorable impact on its quality as a software system regardless of having higher levels of tool proficiencies and agent expertise.

3. As a software product, a system must be easy to understand and must be able to perform according to user expectations. Thus, it is important to have sufficient and up-to-date technical and operational documentation available to facilitate understanding of the system. Likewise, administrator training, proper project turn-over, and mentor support to increase system understanding also contributes to optimum system management and use. To encourage maximum resource use and system performance, DocuTrak must always be available to users. Therefore, its network must be stable and reliable.

4. DocuTrak must be able to address the diverse document information needs of various UP units. Its document classification features must be comprehensive enough to capture more detailed information, yet controlled and specific enough to avoid arbitrary, vague, and incomplete information.

5. Perceived contribution to organization is adversely affected by the system's inability to address the different requirements and records needs of various stakeholders. It was also hard to assess because the system is unpopular in terms of use.

6. The collective insights of stakeholders regarding DocuTrak lessons emphasized the importance of organization-wide consultation prior to and during the design, development, and implementation of systems. When it comes to things that directly affect their work, stakeholders

have much to say because they know the business principles and processes through actual experience.

7. The extents to which DocuTrak exhibits the various characteristics of records systems are greatly undermined by its unreliability because of network problems.

8. DocuTrak's features and capabilities were severely limited because during system development, it did not follow a standard process such as the DIRS Methodology.

9. DocuTrak is capable of records management processes and controls but the extents to which it is able to exercise these capabilities are limited. The limitation is attributed to the lack of standard process when it was developed, particularly the lack of a user requirements investigation. Equally important is that in spite of it being a records system, no records professional was consulted regarding the project.

The recommendations of this study are as follows:

1) A holistic approach to system development must be used. Prior to system design, all the necessary system components of people, processes, technologies and tools must be identified. The organizational context of the system must also be considered.

2) A standard guideline for system projects reflecting best practices and standard criteria for quality should be made as drafted by experts in project management, IT systems development, and records management. It should be able to guide project development teams to rightfully contextualize the proposed system in the organizational environment where it is meant to be implemented. It should denote information systems as a means to support the effective implementation of general University goals and specific policies. Specific guidelines for formal needs investigation, project and system (technical) documentation, project management transitions, implementation procedures, administrator and user trainings, project follow-ups, and periodic system evaluations must be included. It should also include a standard product quality criteria derived from both local and international standards to serve as guide during project development, and as basis for post-implementation reviews. Adherence to this standard should be strictly enforced. It must be duly supported, formalized, and enforced by the UP System Administration at all levels.

3) Systems should be proposed and developed by implementing unitsthemselves as to directly benefit from the unit's expertise in the organization's processes, resources, and cultures which form part of the system's requirements. Implementing units have direct authority to actively encourage user involvement in all phases of the project. They have the expertise to design the system in a way that would meet the requirements of their organization, the authority to implement it, and the ability to maintain it, closely monitor it, and introduce necessary changes and/ or updates to the system if necessary based from the feedback of the users themselves. However, a supporting team of experts representing all organization stakeholders (e.g. management, IT, end-user) must be assembled to oversee the project during its life-cycle (see Figure 13).
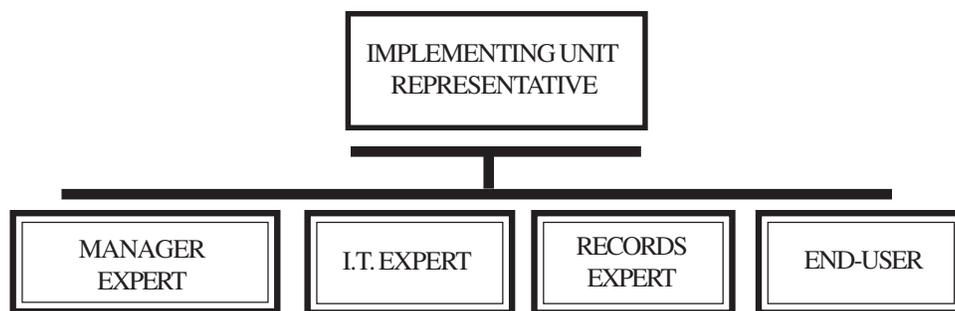

Figure 13. *Proposed composition of system project teams.*

4) As the backbone of system projects throughout UPD, the DILNET's stability should be maintained and strengthened by the UPCC.

5) DocuTrak is an IT tool that was designed for a records management purpose. Specifically, it was made to help facilitate the paper flow in the University. A supporting framework for such initiatives is very important. In light of the proliferation of records systems which are created in the general context of IT, the creation of a university-wide RMS which would ensure the availability of a support infrastructure for these records systems and guide their development and implementation is also recommended. Said policy must be based on best practices within and outside the University, and created in conjunction with local and international standards on records management. It must reflect the University's organizational hierarchy, business activities, accountabilities, records processes, records usage, and records needs. It must make use of the

holistic approach to records management by specifically identifying people, processes, technologies and tools which are included in its scope. It should be general enough to address the diversity of UP offices yet flexible enough to give room for the special recordkeeping needs of each UP unit and their succeeding departments. Furthermore, it must be stringent enough to include sanctions which would enforce strict adherence to recordkeeping standards.

Gibson and Roper (1997), who were part of the Association of Commonwealth Archivists and Records Managers (ACARM) once quoted:

> Records managers in the public sector, who have responsibility for ensuring the preservation of the institutional memory, need to be computer literate and equipped with the knowledge and skills required to build precision into the handling of information in support of business functions, to define the linkages between paper-based and electronic systems and to integrate record-keeping functions into electronic document management systems, thereby ensuring that authentic records of continuing utility can be preserved over time irrespective of their medium and format. Archivists and records managers must be key actors in the governance process if that process is to be more transparent and accountable.

With records management as one of the cornerstones of organizational efficiency especially in the context of public governance, a university-wide RMS should be advocated as a priority by a collaboration of information professionals and technology experts. The SLIS, the University Library, and the University Archives in coordination with the UPCC and relevant Engineering departments should initiate such efforts. Support by expert institutions communicates the RMS's importance and level of priority that should be accorded to it by the UP administration. Experts must not only have the need recognized, but also see to it that the program is effectively implemented to the extent that it has become fully absorbed by University units and the actual application of the policy becomes integrated with their everyday routines. The ISO 15489 identifies records management professionals to be "responsible for all aspects of records management, including the design, implementation and maintenance of records system and their operations, and for training users on records management and

records systems operations as they affect individual practices" (ISO, 2001). In this light, the collaborative team of experts should not only lobby for the creation of the RMS but also become the watchdogs of its implementation. Most importantly, they must also serve as the models of best practices.

6) According to the lessons of the DocuTrak experience, the following are steps which can be used to guide the conduct of system projects similar to DocuTrak:

    • A project team composed of experts from areas of project management, IT, records management, and relevant fields must be assembled. Ideally, it should be led by someone who is closely associated with, and who holds a significant influence over the institution or institutions where the systems are planned to be implemented.
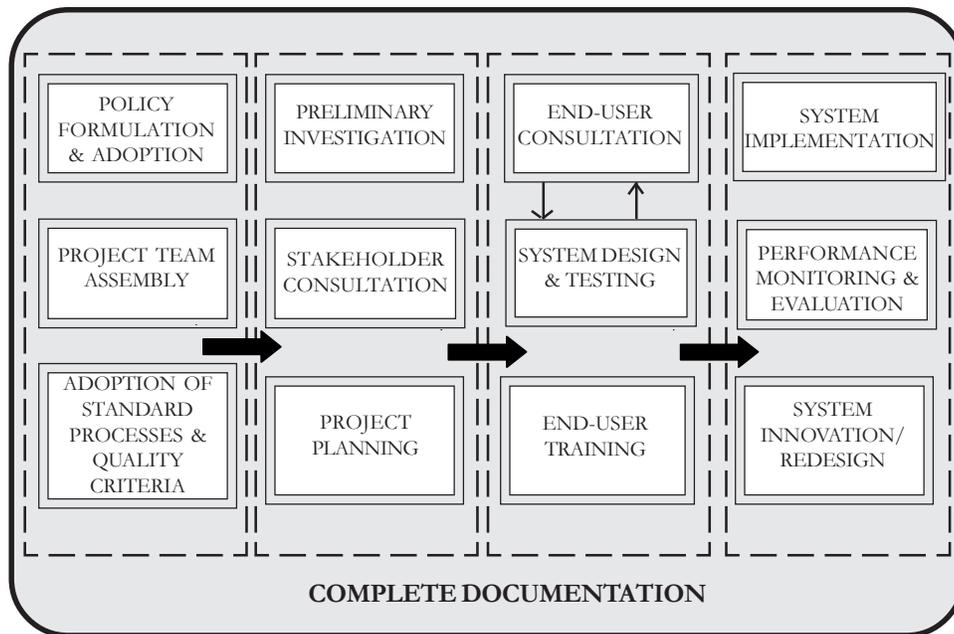

POLICY FORMULATION & ADOPTION	PRELIMINARY INVESTIGATION	END-USER CONSULTATION	SYSTEM IMPLEMENTATION
PROJECT TEAM ASSEMBLY	STAKEHOLDER CONSULTATION	SYSTEM DESIGN & TESTING	PERFORMANCE MONITORING & EVALUATION
ADOPTION OF STANDARD PROCESSES & QUALITY CRITERIA	PROJECT PLANNING	END-USER TRAINING	SYSTEM INNOVATION/ REDESIGN

COMPLETE DOCUMENTATION

Figure 2. *Proposed Steps in Systems Development and Implementation*

    • A standard must be adopted to guide the project process and provide quality criteria. Said standard can be an adoption of local or international standards customized to the goals of the project and of the University. One can also be created with the help of various experts based on best practices.

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- Preliminary investigation must be done prior to any system project. The investigation must be accomplished using a holistic approach, taking into account the goals, accountabilities, and values of the organization and how it can be addressed by the proposed system by employing the right combination of processes, people, tools, technology. The investigation should be conducted university-wide and must include the opinions of relevant stakeholders, and most importantly, of representatives of various types of end-users.

- There must be constant dialogue between the project team and the system's intended end-users regarding the system features which would work best according to their requirements. Increasing constituent participation in the decision-making processes which directly affects them makes them aware that they need to contribute their knowledge and to own the solution and implementation (*Re-engineering Success Factors*, 2002).

- Users must be trained not just in the skills needed to operate the system, but should also be made to understand the principles and concepts behind the system. The important tangible and intangible benefits that the system can bring to them and to the organization in general should also be stressed. Just as important, they should be made to understand how the system increases the organization's capability to conform to audit requirements and industry-standards. Since this could only be possible through system use, credit is attributed to users. It encourages them to feel a sense of solution ownership and achievement.

- Users must be provided with all the necessary resources that will enable them to use the system to its full potential. This does not only include the necessary hardware, software, and skills requirements but also a support system that will be able to effectively dispense technical help whenever needed.

- Projects must have a supporting policy to vest authority to experts to enable them to not only come up with strategies to encourage compliance but also create sanctions which would really enforce it. UP's System administration must commit itself to actively use, and promote the use of system projects that it approves in all levels of the organization.

- Projects should be closely followed and monitored during implementation. Corrective action should be done in cases when the system is not utilized as planned.
- Project evaluations must be done after a considerable time of system use has elapsed. It should make use of the quality criteria used during system development, and also of the identified user requirements. This step will help identify areas where the system can be improved. It will also help identify implementation strategies that were successful and that were not. It will be an informative source of project management lessons.
- Complete and extensive documentation is important in all phases of the system project. It should be able to reflect the project's rationale, the project elements, the processes undertaken, the decisions made, the evaluations performed, and the project results. It will be basis for future evaluations and can also serve as guidelines for future similar projects.

7) Regarding future studies, the following are recommended:
- An evaluative study of all University RS systems such as the CRS, the SRS, and DocuTrak, with a comprehensive survey of system users. A comparative analysis between the project processes and project outcomes can be made to find out what worked and what not, and how improvements can be introduced. This would serve as solid basis for the creation of a standard process or guidelines for future projects.
- A feasibility study for a University RMS which would take into account the diverse needs of the different offices in UP, and various technological trends which can affect the future of Records Management. It should give due consideration to the prevalence of electronic media and of future trends in the use of IT in the creation of recordkeeping tools.

UP's Centennial Year is not just about its existence as a National University for 100 years. Instead it should rightly be about its role in leading the country in the excellent education of young minds not just with theories but also through example. As the premier university in the country, it is but right that it practice what it teaches. The best way to do that is to be able to prove that the University has what it takes to effectively implement it's own bright ideas; that it has more than the brains but just as important, the talent

and the will to bring about positive change right in its own backyard. Indeed, as Diokno's (2008) vision paper pointed out, it is no longer enough to profess UP's commitment to excellence and service. Rather it is high time that the University itself becomes self-aware, relearn about itself as an organization and identify which among the current University rules, processes and structures, and cultures needs to be discarded or maintained. Strategies for continuous improvement should be identified. It should support expertise sharing and innovative thinking, and make open dialogue possible to encourage a sense of shared responsibility and promote participation at all organizational levels.

The University of the Philippines has had 100 years and a history of great achievements. A great way to move forward would be to continuously lead through example and to actively advocate the empowering virtues of an open attitude to change and to shared learning.

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