Challenges to Digital Services in Philippine Academic Libraries

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Abstract

This paper seeks to characterize the maturity of digital initiatives in Philippine academic libraries, focusing on the sustainability of digitization activities. For its literature review, this paper presents local digitization initiatives, guidelines, standards, and good practices on digitization as presented in research, and prevailing digital library services during the COVID-19 pandemic. It employed a descriptive-comparative research design to obtain information on digitization programs implemented in higher education and research-producing institutions. Five of the 12 verified institutions with digitization programs were engaged for further interviews. The respondents cited the lack of staff, dedicated physical space, and inadequate equipment and funding as barriers to implementing a digitization program. Most of the respondents' digitization initiatives began in response to external triggers rather than as a part of a comprehensive strategy to provide digital library services. The project-based approach to these activities affects the sustainability of digitization programs. The study recommends organizing more consultancy programs in digitization, teaching digitization ICT applications in LIS schools, information companies offering digitization services, digitization communities of practice, and consortia for sharing facilities and expertise. With the requirements of a more robust digital framework to provide flexible access, Philippine academic libraries must review their short- and long-term goals and figure out where digitization can be integrated within said goals.

Keywords: Digitalization, Digitization, Library services, Collections management, Virtual library services

INTRODUCTION

Digital information plays a pivotal role in the academic setting. Apart from providing much-needed access to information for teaching, learning, and research, it also allows for ease of access to said information as it can be viewed conveniently from a patron's own device (Chen & Chen, 2010). Chen and Granitz (2012) note an evident shift of preference from analog to digital formats primarily due to increasing access to technology and sheer convenience.

Academic libraries often turn to digital library services to address the demand for digital information. Digital library services assist library staff members with organizing collections of materials or making them more widely available (Sarker et al., 2010). Khan (2013) lists a few of these services, including—but not limited to — access to web-based resources, e-journals, e-books, electronic theses and dissertations, digital archives, and institutional repositories.

Preference for digital formats aside, digitized information has become a necessity now more than ever. With the COVID-19 pandemic prompting a drastic shift in the educational sector, most classes, if not all, have adopted distance learning/e-learning, whether in part or whole, as a valid mode of delivery in lieu of face-to-face classes. It is estimated that over 28 million Filipino students across all academic levels were affected by the transition to remote online

learning adopted in early 2020. Of these, 3.5 million students from 2,400 higher education institutions (HEI) are from the tertiary level (Jeremiah et al., 2020).

However, the Philippine education system is not well-equipped for e-learning since it has been dependent on personal, face-to-face classes for so long (Cuaton, 2020). Given this, students have found it particularly hard to adjust to this relatively new learning set-up. In a study about online learning barriers, Baticulon et al. (2021) lists "poor quality of learning materials" (p. 10) among the many institutional barriers to learning that medical students have been dealing with amidst the pandemic.

Even before the pandemic, Philippine libraries have struggled to meet the demands for accessible digital information. Macapagal (2019), in her report on Philippine public libraries, states that only 18% of 433 public libraries nationwide have access to e-books/e-journals. This occurs even though most public library clients are either college (30%) or high school (36%) students. It does not help that these digital services are often either behind a paywall or are not readily available for access by the library due to other reasons. Libraries often have to pay a premium for database subscriptions to provide access to e-journals and e-books. Similarly, digital archives and institutional repositories require considerable funding and staffing to function properly.

This paper seeks to characterize the maturity of digital initiatives in Philippine academic libraries, focusing on the sustainability of digitization activities. The study adapts Mugoya's (2014) framework in which he details the considerations for library technical services. Figure 1 demonstrates how outsourcing is typically undertaken when in-house digitization is more expensive and requires technical skills, professional skills, and managerial expertise that may not be available to an institution.

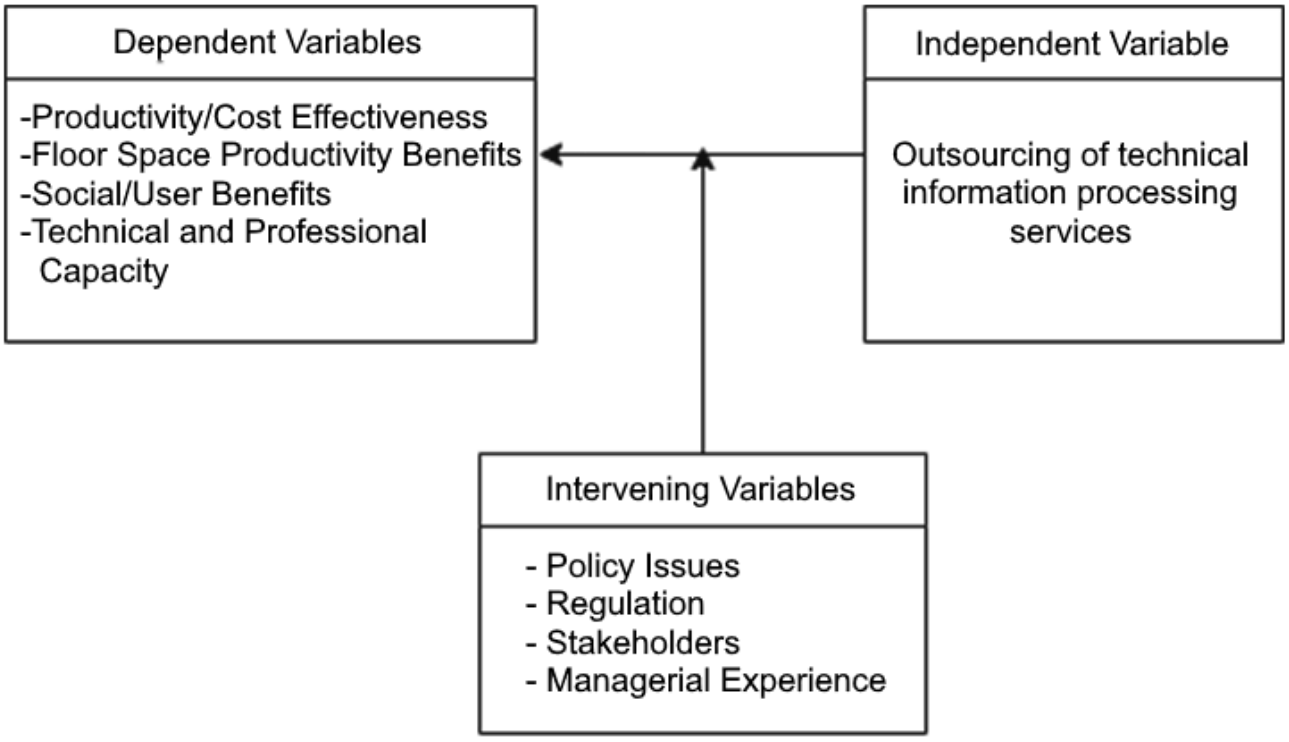
LITERATURE REVIEW

Digitization in the Philippines

Efforts concerning digitization in the Philippines can be traced back to the late 1990s when the National Archives of the Philippines (NAP) set out to digitize 13 million historical documents to improve access to its holdings (Darlucio, 2009). Shortly after this, Verzosa (2005) notes that several other institutions

Figure 1

Technical services framework adapted from Mugoya (2014)



Note: Adapted from "Exploring Outsourcing Options for Technical Services in University Libraries: Case of University of Nairobi Library System," by J. N. Mugoya, 2014, p. 21 (http://hdl.handle.net/11295/76998). Copyright © 2014.

immediately followed suit and began digitizing their collections. The institutions mentioned were the University of the Philippines (UP) Libraries, the De La Salle University Archives, the Supreme Court Library, and the Inter-Institutional Consortium Project. Much like the NAP, the institutions mentioned above had digitization to improve access to their collections, with some also implementing it as a preservation measure.

For so long, "digitization" has been viewed as the solution to address several library issues, most notably in terms of access and storage. In the same paper, Verzosa (2005) posits that digitization greatly enhances access and is cheaper than photocopying in terms of low-cost distribution. She also mentions other benefits, such as reduced long-term storage costs and preservation of fragile and archival materials using digitized information as document surrogates.

However, these digitization efforts were not without their flaws. Early attempts to incorporate digitization practices within an institution's workflow were, more often than not, plagued with a lack of finesse in its implementation. Although successful in its pioneer effort, the NAP has yet to make available the 13 million historical documents it has digitized to the Web (David & Alayon, 2016). This defeats the purpose of digitization, as it is supposed to provide convenient access to information.

Quiros (2008) also mentions that, at the time, libraries had an output-centric mindset, which led to inconsistencies in quality. He cites as a prime example The Philippine eLibrary Project, which processed approximately 24 million documents under the supervision of the National Library of the Philippines (NLP). Impressive as it may seem, he notes that a considerable number of these digitized documents had issues in quality (e.g., unreadable pages, oversized output files, and damaged original documents, to name a few), thus rendering most outputs inaccessible and prompting NLP to revamp the entire digitization program altogether.

Local Standards and Good Practice

While no preset authority implements formal standards on library digitization in the country, several public institutions, such as the NLP and the NAP, offer support in implementing digitization programs in the country.

Several notable librarians who have been digitizing their library's collections have also taken the time to share their own best practices in their institutions. Kipaan (2012) provides a prime example of how to integrate digitization processes in a library with barely adequate funds. He emphasizes the creative use of available library resources, listing several alternatives to traditional in-house activities. Among said alternatives were (1) delegating menial tasks (e.g., scanning and encoding of documents) to LIS students and interns as opposed to hiring full-time personnel, (2) having the ICT division sponsor the training of existing staff rather than getting a dedicated specialist, and (3) adopting a homegrown, inter-university sub-database to host the digitized materials as opposed to commissioning the creation of a new database from scratch. He posits that such efforts allow the university library to operate at a reasonably low cost, allowing more resources to be allocated to the maintenance of the system and enabling longer access to digitized materials.

David and Alayon (2016) also mentioned a few "best practices" in response to the problems often encountered within LAMs that carry out their digitization programs. Among these were the principle of "doing it right the first time" to prevent wasting resources, identifying reasonable timeframes and targets via collaboration with other departments, delegating trained staff to implement digitization to ensure the quality of output, looking ahead and allocating the necessary physical space needed to conduct digitization, and complying with the standards set by the Open Archives Initiative to ensure continued access and interoperability.

A significant consideration when implementing a digitization program for a library was whether to do it in-house or have it outsourced. Major universities in Metro Manila, such as UP, the Ateneo de Manila University (AdMU), and the University of Santo Tomas, can implement their digitization programs in-house. These universities can do so because they have the funding, human resources, and equipment (Verzosa, 2005). Digitizing in-house affords a library more control over its processes and, thus, is better able to monitor output and ensure consistency of quality. However, it also requires a considerable amount of funding to cover front operational and start-up costs like equipment, staffing, and training (David & Alayon, 2016). As such, only a select few opt to digitize in-house due to budget constraints.

For those who want to digitize but do not have the budget to do so in-house, an often-consulted alternative is technical services outsourcing. Outsourcing a library's technical services is nothing new. It has been ongoing since the late 1990s when

technological developments allowed for faster and more efficient output for a fraction of the cost (Wilson & Colver, 1997). Outsourcing digitization processes to a service provider can benefit a library. Apart from a decrease in workload, service providers offer streamlined workflows that can be tailor-fitted to an organization's needs. Moreover, such offerings are available without hefty start-up costs (Norton-Wisla, 2020).

Foreign Implementation and International Standards

The first integration of digitization within libraries can be attributed to the Manuscript Digitization Demonstration Project carried out by the Library of Congress (LOC) in cooperation with the National Digital Library Program. In their report, Sharpe and Ott (1998) outline the techniques utilized in carrying out the digitization project. A preliminary survey of existing imaging practices was conducted directly, followed by the appraisal of the materials to be digitized. A total of 10,000 images of manuscripts were digitized and made available online. As the pioneer of digitization within libraries, the LOC is one of the primary authorities on matters concerning digitization within libraries worldwide. The LOC has established several standards for implementing digitization processes within libraries, such as the *Technical Standards for Digital Conversion of Text and Graphic Materials* (Library of Congress, 2006) and *Preservation Guidelines for Digitizing Library Materials* (2011). Similarly, the Preservation and Reformatting Section of the Association for Library Collections and Technical Services (ALCTS; Bogus et al., 2013) under the American Library Association also recommends digitizing a library's collection. These standards and guidelines provide librarians and archivists with the benchmark needed to ensure the efficient implementation of digitization practices.

The Digital Preservation Coalition (DPC) takes it a step further by providing guidelines on effectively digitizing one's collection and facilitating continued access to the created digital materials through digital preservation. The DPC's *Digital Preservation Handbook* (2015) is a peer-reviewed, open-source reference that "provides an internationally authoritative and practical guide to the subject of managing digital resources over time and the issues in sustaining access to them" (Home page). The DPC defines digital preservation as "a series of managed activities necessary to ensure continued access to digital materials for as long as necessary" (Glossary).

On an individual level, Hillen (2019) documents how libraries can effectively outsource some of their technical processes through the lens of the librarian-vendor perspective. He posits that libraries often outsource technical work to save time, money, and effort, further noting how, through careful consideration and planning, it may serve as a powerful boon to a library's workflows and time constraints.

When starting a digitization program, an important consideration is deciding whether to build a system from scratch that will process and house digitized information or buy commercial off-the-shelf (COTS) solutions. Whether it would be one or the other is purely dependent on the institution. Still, with the demand for digitized information at an all-time high, it is a decision that is becoming ever so crucial for academic libraries to get right. From a business perspective, Morrow (2019) notes that this decision comes down to a few fundamental factors, such as timing, costs, and available resources. The calculation of said factors shall help determine each option's return on investment (ROI) and aid in the decision-making process of whether one should build or buy a system.

Software acquisition is a common practice in the library setting and is often done to help streamline and expedite a library's processes. Fagan and Keach (2010) explore the different options for software acquisition available to libraries, which include building the software in-house, buying COTS solutions, opting for open-source software, and utilizing free-to-use applications. Much like what was stated in the previous paragraph, they note that the adoption of each relies on the library's available resources, making specific note of the need for technical expertise should one choose to build the system on its own.

Digital Library Services During the COVID-19 Pandemic

If there is anything good that came about from the pandemic, it hastened the adoption of various digital library services in academic libraries. Although the circumstances in which they were implemented were unfavorable, the Philippine library's response to the pandemic is a testament to the tried and tested Filipino culture of ingenuity and resilience.

Fresnido and Esposo-Betan (2022) listed the digital library services offered by academic libraries during the pandemic. These services include virtual library orientation/information literacy sessions, interlibrary lending, document delivery services, and online content promotion, to name a few. New initiatives

were offered at the onset of the remote learning set-up in HEIs. Some notable initiatives were the provision of e-reference, access to digital resources, loan policy adjustments, work-from-home arrangements, establishment of institutional repositories, and digitization.

Digital Document Delivery and the Pandemic

Limited mobility brought about by quarantine restrictions within the country necessitated academic institutions' dependence on digital document delivery to augment the lack of traditional, physical library service. Given that students no longer have physical access to learning resources within a library, the success of e-learning is very much dependent on a library's capacity to provide digital learning resources required by its primary stakeholders (i.e., the students). In a study of online learning challenges amidst the pandemic in the Philippines, Barrot et al. (2021) note that students primarily cope with the stress of online learning through resource management and utilization. Similarly, Huang et al. (2020) posit that at the core of e-learning in times of great distress, suitable digital learning resources coupled with "flexible pedagogy" should be applied.

Document delivery is nothing new and has been a typical library service since the advent of the 21st century when technological advancements made it possible to provide access to information resources in the digital format (Dieterle, 2002). This allowed library patrons access to local and worldwide collections in the convenience of their own homes. However, it is worth noting that providing purely digital library services, often without access to a physical library, is unprecedented for most libraries in the Philippines.

When a library's collection does not suffice, academic libraries may turn to other libraries through consortiums or interlibrary loans to augment said insufficiency (Garcia & Peñaflor, 2017). Notable consortiums within the country that engage in resource-sharing include the Academic Libraries Book Acquisitions Systems Association, Inc. (ALABASA), the Mendiola Consortium (MC), the South Manila Inter-Institutional Consortium (SMI-IC), and the Network of CALABARZON Educational Institution Library Committee (NOCEILC), to name a few.

Building an Institutional Repository

While most academic libraries have access to electronic journals and databases, most knowledge produced internally in the parent higher education institutions is predominantly in print. Consequently, developing institutional repositories is a priority for many higher education institutions. In this context, institutional repositories are "formally organized and managed collections of digital content generated by faculty, staff, and students" (Sarker et al., 2010, p. 2). These repositories are an essential part of a higher education institution as they help capture, manage, and disseminate the intellectual assets of an institution. These, in turn, may then be used to address the need for learning resources.

Many academic institutions within the country have institutional repositories to streamline the storage and dissemination of internally produced research and other intellectual assets to their stakeholders. Some examples of academic institutional repositories are the University of Cebu's Graduate School Library's Online Repository, UP Diliman's *Digital Archives*, Central Philippine University's *BAHÁNDIÀN*, and the AdMU's *Archium*. Information housed in these repositories includes — but is not limited to — theses and dissertations, personal and presidential papers, university publications, and other forms of creative and scholarly output.

METHODOLOGY

Collection Strategy

The study employed a descriptive-comparative research design to obtain information on digitization programs implemented within HEIs and research-producing institutions (RPIs). This was done primarily to conduct the study while causing minimal to no interruptions to the processes of the interviewed institutions. A list of all HEIs, as compiled by the Commission on Higher Education, along with 12 RPIs, was used as the primary reference for the study.

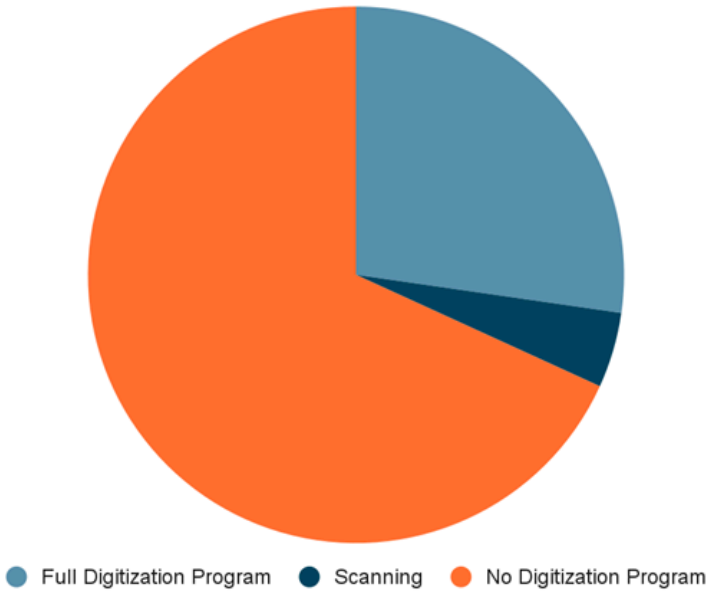
Data were primarily gathered through online surveys conducted via video calls using a survey questionnaire as an instrument. The questionnaire is divided into three parts: (1) the profile of the institution, (2) digitization activities implemented within the institution, and (3) the estimated cost of digitization activities. In addition, e-mail correspondence was used to collect supplementary data on questions that institutions were unable to provide a definite response to during the survey. Due to limitations brought about by the COVID-19 pandemic, a convenience/snowball sampling method was utilized. Analysis and presentation of data was done through tabulation.

Background of Institutions

283 HEIs and RPIs (271 HEIs and 12 RPIs) were contacted, and 44 have responded. Thirty institutions

said they did not have a digitization program, and 14 claimed to have one. Upon further inquiry, two of the 14 were found to have only been implementing discrete digitization activities (i.e., scanning), while the other 12 have full digitization programs.

Figure 2
HEIs/RPIs responses when asked if they have a digitization program within their institution.



Among the 12 verified institutions, five institutions (one RPI and four HEIs) accepted the author's request for a further interview. For this study and considering the institutions they work in, the librarians' names and the institutions they represent have been anonymized. They will, therefore, be referred to as Institution A, Institution B, Institution C, Institution D, and Institution E. To better understand the context in which the institutions mentioned above carry out their digitization programs, details such as the number of clients and digitized materials are elaborated in *Table 1*.

Institution A is a private, international, non-government, non-profit, and non-stock institution in Manila with a client base of about 500 registered users. It is the sole research-producing institution in the study. It currently operates within the confines of an HEI and caters to its students and faculty, whose total number amounts to approximately 10,000.

Institution B is a private, non-stock, non-profit, non-sectarian coeducational university located in Manila, which has a student and academic staff population of approximately 20,000. The library's primary demographic is its students, which range from grade school students to undergraduate and postgraduate students.

Institution C is a private, non-profit, religious, coeducational university in Manila, well-known for its longevity in the field of education, with a student population of about 40,000. Due to its long-standing history, it has a rich collection of unique, historical, and archival paraphernalia (e.g., maps, books, newspapers) dating as far back as the Spanish colonial times.

Institution D is a public, coeducational research university in Quezon City with a student population of

Table 1
Profile of Interviewed Institutions

	Approximate Number of Clients	Types of Materials Digitized
Institution A	10,500	Journals, Research Publications, Photographs, Institutional Memoirs, Photographs, Notes, Broadsheets and Newspapers
Institution B	20,000	Books, Theses and Dissertations, Archival Materials, Institutional Memoirs, Administrative Files
Institution C	40,000	Books, Archival Materials, Maps, Newspapers
Institution D	48,500	Print Materials (e.g., books and maps), Dated Copies from the General Collections Section that have no available digital copy, Filipiniana Materials
Institution E	200,000	Books, Journals, Archival Materials

about 47,000 and a faculty of about 1,500. It is home to several research institutes and is renowned for producing graduates in diverse fields. A state university, its main library houses a sizable collection of Filipiniana materials, some of which are already fragile and dilapidated. Given this, the library set out to implement a digitization program to preserve its Filipiniana collection.

Institution E is a private, non-sectarian, coeducational university in Manila with a population of about 60,000 students. Its library uses a centralized online system catering to the information needs of two other constituent universities. Overall, it caters to approximately 200,000 students.

FINDINGS

Challenges in Digitization

Survey, e-mail, and interview responses were classified according to the current phase of digitization that the institutions were in, namely, *Starting a Digitization Program*, *Implementation*, and *Sustainability*. The former part documents issues encountered by librarians who have yet to start a digitization program of their own. These librarians are referred to as "Librarian #1," "Librarian #2," and so forth to protect their identities and reputations. On the other hand, the latter two parts feature personal experiences in digitization, digitalization, and digital preservation, if applicable. Likewise, the five institutions interviewed for this part are called "Institution A," "Institution B," and so forth.

Starting a Digitization Program

The respondents cited several barriers to implementing a digitization program within their libraries. Among those cited were the lack of staff, dedicated physical space, and inadequate equipment and funding.

Staff

One of the significant barriers to implementing a digitization program in libraries is staffing concerns. This is primarily due to the lack of registered librarians and qualified library personnel within the country to help with the operational tasks required for digitization. Librarian #1 acknowledges this shortage in personnel, stating that their institution "is looking to digitize its own library collections soon. However, the program has seen delays due to the school looking for a new librarian."

Lourdes David of the Professional Regulatory Board for Librarians currently estimates that only about 10% of the country's demand for librarians is satisfied (Adel, 2020). While she suggests that libraries may hire non-librarian staff to compensate for this undersupply, a librarian must still be present to oversee library operations. Given this, it is inevitable for some libraries to operate without a librarian, leaving them without the technical expertise required to manage and implement a digitization program.

Space

Also cited is the lack of dedicated space for digitization. Some institutions mentioned that their library was under renovation at the time of contact. Librarian #2 laments the lack of space allotted for their library, noting that they "have not yet started their library digitization process since renovation of our new library is still ongoing and due to unwanted pandemic."

Others cited having to deal with the physical closure of the institution itself, consequently leaving the librarians unable to digitize. "Our library is closed due to a pandemic, and we don't have a digitization program here," Librarian #3 says. Similarly, Librarian #4 states, "Our physical library is closed indefinitely. We are building up our Digital or E-library. Digitization is part of the plan, but we can only do it when the physical library opens again."

Quarantine restrictions brought about by the pandemic have been in place for almost two years, so it makes sense that most libraries are closed until the national government implements a change in policy. Especially at a time when institutions have come to favor online platforms over physical classrooms and offices, librarians are prompted to continue library operations off-site.

Equipment and Funding

Another cited challenge is inadequate equipment and funding for digitization. This is the case for many libraries in the Philippines either because technologies required for digitization are not readily available for acquisition or the library does not have enough funds to procure said equipment. Librarian #5 acknowledges that their library lacks the technical equipment to implement and maintain a digitization program. "We do not have any digitization program as it is different from the Library System. Digitization needs a scanner, barcode, and encoder for that purpose, and we lack people to do the task", he says. Likewise, Librarian #6 notes: "We don't have a digitizing project now since we don't have the appropriate digitizing equipment. We resort to scanning of much needed (selected) library materials using ordinary scanning equipment."

A library's lack of physical and social resources is often directly correlated to a lack of funding. Pandey and Misra (2014) state that substantial funding is required to offset operational and start-up costs for digitization (i.e., employee wages and equipment acquisition). Thus, the library cannot implement its digitization program without adequate funding. Moreover, many institutions are keen on cutting down on costs given the current state of the economy, leaving many libraries with just enough budget to sustain a skeletal workforce.

Implementation

The interviews highlighted that the digitization programs are implemented on an ad-hoc basis. Respondent institutions had a variety of reasons for undertaking digitization. Most of the respondents' digitization initiatives began in response to external triggers (e.g., the pandemic) rather than as a part of a comprehensive strategy to provide digital library services. Consequently, some institutions had to proceed with digitization despite persisting problems regarding starting a digitization program, as previously mentioned.

Technical Knowledge/Expertise

As mentioned in the earlier issue on staffing, the Philippines severely lacks librarians and is in dire need of capable library and information professionals. This insufficiency has often been to the detriment of many libraries since a certain level of technical knowledge is required to effectively manage and implement library programs and operations, let alone a digitization program.

In his survey of digital preservation needs within notable archives in the Philippines, Isip (2015) notes two significant barriers that need to be addressed: the lack of technological infrastructure and technical expertise on the part of librarians. He posits that digital preservation within the country is still in its infancy and that these barriers need to be overcome if the country wants to maximize the benefits of digitization. David and Alayon (2016) made a similar claim, stating the importance of qualified librarians and library personnel in implementing a digitization program. Much like Isip (2015), they found that a lack of technical skill and poor planning were to blame for the poor maintenance of existing digitized collections.

Interviews with the five institutions with digitization programs mentioned earlier revealed the same sentiments. The complexity of managing and implementing a digitization program necessitates dedicated librarians and library personnel, especially when dealing with materials in poor condition. All five institutions employed at least one (1) licensed librarian in managing the digitization program, with said librarian being accompanied by technical staff knowledgeable in digitization.

In-house vs. Outsourced

Except for Institution E, every institution interviewed employed a mix of in-house and outsourced resources. All of Institution E's digitization processes were done in-house. Institutions A, B, and C, on the other hand, outsource personnel to carry out the more technical aspects of digitization (e.g., Master Image Production, Image Optimization, Derivative Image Production, etc.) while having their in-house librarians take care of the arrangement and description of digitized materials, as well as metadata creation. Institution D has a slightly different approach in contrast to the other institutions since it not only digitizes internal resources but also takes on external projects from other institutions. Its internal information resources are digitized in-house, while external projects are outsourced.

Logistics

Depending on the library's digitization set-up, certain instances may require the transport, delivery, and insurance of records to be digitized. This is especially true for those who outsource their digitization programs to an off-site facility. In these cases, specific provisions must be present to account for the safety and condition of the materials to be transferred to the off-site facility, as this will give libraries peace of mind when entrusting their materials to service providers. However, no insurers in the Philippines currently offer coverage for records.

Some respondents are also reluctant to transfer their resources to an off-site facility (especially when such resources are fragile or contain sensitive information). Thus, they opt to outsource their digitization programs to external providers but have said providers set up their equipment within the library itself and either bring staff in from the service provider or manage the hiring of project staff or interns themselves. This affords the library a more hands-on approach to managing and monitoring digitization processes while also saving them the risk and hassle of transporting their collections to an off-site facility and possibly having them damaged, stolen, or lost along the way.

This is the case for three of the institutions interviewed, namely Institutions A, B, and C. Institutions A and C deal with a lot of archival materials in addition to their usual collection of theses and dissertations, so both institutions viewed it best to

have their service providers set up within their libraries and have them digitize within their premises. Institution A has a considerable collection of photographs, notes, broadsheets, and newspapers (some dating back to the Japanese occupation). Meanwhile, Institution C has a rich collection of archival materials dating back to the Spanish colonial period. Thus, it makes sense for both institutions to opt for an in-house set-up. On the other hand, Institution B digitizes a lot of internal and administrative files, which is why, in the interest of the security and confidentiality of the materials being digitized, they opted to have their service providers set up their equipment in-house. It is only in special cases, such as when a material to be digitized requires specialized equipment — either due to the sheer size of the material (e.g., maps) or the condition of the material — that the institutions above consider having their materials digitized off-site.

Sustainability

Potentially a consequence of the many identified challenges for academic libraries in starting digitization is the project-based approach to these activities. Most grants and funds are provided on a time-limited basis with line-item deliverables, so proposals for "digitization projects" are common and focus on reformatting from print to digital. These projects often end and are considered successful after scanning or converting "x" number of materials and dumping those into hard drives or cloud storage. As the project ends with file delivery, no provisions are made for the digital preservation of these documents once they are sent to the library patron, usually through e-mail or a Google Drive link.

Similarly, projects involving the creation of institutional repositories are continually at risk as provisions for the continuing maintenance of software and hardware are frequently neglected. As the institutions that rely on this kind of project funding are just getting started, they have no existing server infrastructure or maintenance personnel available. The lack of hardware also means that these institutions tend towards online and web-based services, which are paid annually or on free software with file size or quantity limits. Thus, while a digitization project may be reported as a success in the short term, there is a considerable and present risk to the sustainability of these digital collections and their accompanying accessibility.

Another prevailing mindset from the interviewees' responses is a focus on scanning from print to digital and an assumption of process fixity for the records. Not one of the respondents mentioned digitalization or looking into changing the processes that result in the creation of many print collections in the library, such as in the case of theses submissions. Digitalizing would reduce the burden of digitization and enable academic libraries to focus on providing access and preserving digital collections. However, digitalization increases the need to find sustainable funding sources and adopt a program-based mindset over project-orientated perspectives.

CONCLUSION AND RECOMMENDATIONS

This pandemic has made it clear that the Philippine education system is ill-equipped to handle emergencies. As what has already been made apparent by the national government's insufficient response to a lack of face-to-face classes, a contingency plan should be set to afford learning institutions and their attached libraries some leeway should there be another crisis/emergency of this scale in the future.

Also apparent is the disconnect between the demand for online learning resources of library patrons and the libraries' available resources, which often lack in digital formats. While this can be attributed to a lack of digitization of available print collections on the part of the libraries, a paradigm shift in thinking about information creation is necessary to reduce process complexity and remove the disconnect between creation and access. Records must be created with stakeholders in mind, not just in the content of the many theses, administrative papers, and educational resources generated by universities, but also in the context and structure by which the information is shared and presented.

Thus, it is evident that there is a wide-open market for information professionals specializing in the consultancy and management of digitalization in Philippine academic libraries. Correspondingly, there is a need for library schools to go beyond introductory courses in ICT and explore the application of these technologies, intending to produce graduates competent in the standards, processes, and technical infrastructure of digital preservation in its entirety.

Likewise, the entry of more digital preservation service providers in a market dominated by precious few companies would give libraries more options and reduce costs through competition while increasing the quality of deliverables. There is also an opportunity for new companies to provide continuing support services to libraries that might otherwise find it challenging to sustain digital preservation even after a successful digitization project, provided that

academic libraries can successfully campaign for the funding support of sustainable programs vs. a project-based approach to these services.

For digitization programs to be implemented in more HEIs in the region (and, in a more optimistic perspective, the country), the institution of digitization communities of practice is recommended. Communities of practice in libraries are nothing new and are often used to facilitate resource and knowledge-sharing between member institutions. A digitization community of practice operates under the same principle. Libraries, archives, and museums with experience implementing digitization programs within their premises may share resources regarding their workflows, best practices, and service providers (for outsourcing, if applicable) with libraries that would like to start their programs but are unsure where to begin. A digitization consortium takes this concept a step further by engaging in resource-sharing and providing avenues for facility-sharing between libraries. Thus, in theory, a library with a bigger budget may assist in the digitization needs of a library with a lesser financial capacity by lending equipment to the latter.

Implementing a digitization program can be very beneficial to academic libraries, and it is high time that HEIs capitalize on these benefits. If the pandemic has made anything clear, most academic libraries in the country require a more robust digital framework to provide flexible access to their collections at a moment's notice. Given this, libraries must review their short- and long-term goals and figure out where digitization can be integrated within said goals. Doing this will open more avenues for a library's capacity to provide access to information (e.g., controlled digital lending, e-reference services, and establishing institutional repositories, to name a few). Thus, this dramatically enhances digital library services and crisis-proofs them, so to speak, to better handle predicaments of the same magnitude in the years to come.

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