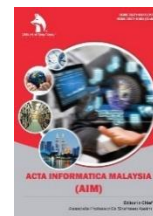




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RESEARCH ARTICLE

THE DEVELOPMENT OF A CLOUD-BASED UNIVERSITY RESEARCH REPOSITORY SOFTWARE USING A CONFIGURABLE SUBSCRIPTION MODEL

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ABSTRACT

With more research that are added every year of every school calendar, there is no doubt the researches fell in a file or stack of hardbound that resides in the library. Unfortunately, this research should not only settle on the shelves. Making them electronically available as references, or to be cited are the ones it truly deserves. This paper emphasizes the need of a cloud-based research repository to be implemented in every university that can be utilized to serve its purpose. This research repository is based on an online publication and subscription model. Online publication provides reading sources via internet in which is accessible and more convenient to most people. The repository will also adapt the concept of configurability as the users may have their own preferences with regards on how they publish or subscribe a paper. These would give them more options on deciding how they would publish and or avail paper references. Research which are within the repository that will be referenced, cited, or downloaded has corresponding remuneration based on the approval of the University. In this way more researchers will continue to provide more scholarly output to be published and to gain more citing, downloads and eventually more remunerations. The repository has the potential to expand as more researchers will be turned its service and would be beneficial to stakeholders. The respondents on this paper shows the acceptability of the process making more likely to work in any educational institution. Moreover, as time progress, researchers and organizations would avail to use the software in accordance with their needs as well as the preferences of its user with the configurability of the software, thus providing a continuous educational-business process to all stakeholders. And with the current situation of the global pandemic heterogenous access to resources are all being sought.

KEYWORDS

Online Publishing, Subscription Model, Research Repository, Configurable subscription, Research Subscription

1. INTRODUCTION

Online Publication has been a trend in this era as these provides reading sources via internet in which is accessible and more convenient to most people. This paper aims to elicit the advantages of having an electronic/cloud-based avenue wherein stakeholders can provide their research works while on the other hand researchers who are looking for information that will help on their scholarly work. The university will serve as the admin serving as the bridge between stakeholders. Furthermore, this setting enables distribution of publication globally and delivers content into any devices such as personal computer, tablet, and smartphones. It does not also require physical printing and distribute physically which are costly to most companies/organization or individuals who publishes their works. It has also helped and solved the risk of over-production of reading materials (Hughes, 2014).

Online Publication has acted as source of learning for anyone as this enables publication of wide range of sources that are written by authors worldwide. Constantly increasing number of students is relying with these sources as they can view and read in a more convenient manner. The students would no longer need to go to physical libraries, and these would help them access the source in anytime and anywhere. This was probably the most exciting development in terms of bringing design thinking into

mainstream library practice (Bell, 2016). It is apparent today that most universities have their own publication sites in which they able to offer their own written works such as journals and research. The schools across America are responding with policies in which allow an access on open-source textbooks that are written by the faculty, peer-reviewed and available online. It also enables the improvement of student engagement by being more interactive (Deseret, 2015).

2. LITERATURE REVIEW

2.1 Cloud-Based Technology

According to an article by most of the publishing companies are now modernizing their business models (LoPresti, 2014). One of these movements in the technology sector is shifting into a cloud-based computing; where data and information, processing, and storage are managed using internet or the company's local data servers. It is said that there are several ways cloud-based services can help publishers. This includes publication, design, content management, and business services. It is a must that publishers are well-informed on the potential benefits as well as the pitfalls in shifting to cloud. Another aspect of cloud computing is that it is more agile compared to normal publishing and is viewed as one of the cloud's most significant strengths. With the cloud-based publishing,

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the user can access the book anywhere. This means the publisher can grow faster, and at the same time, pay less with the new process.

According to a study conducted research about building a publishing studies database which can be made available through subscription from an academic publisher and reflected publishing practices globally (Emblidge, 2015). Online academic database was created because there are certain problems with textbooks in publishing studies. On the same note brought about by the 21st Century, online publishing has risen in this technological era (McNaught, 2015). It is really evident that approaches to access resources are shifting now using technology. There are signs that this is changing as more libraries cover research outputs emanating from the universities (Bangani, 2018). Although present computing practices enhance as the course of time, these upgrades are widely visible to websites that contain blogs, auctions, and wikis, also in other social networking sites and community online games.

Only a small percent of these have taken the new concepts to be in the best academic journals released. Some of the new computing practices see these journals as irrelevant, out of date, and not well organized. As technology performs its function, technology theory is going to be more irrelevant and confusing. Inclined with this research care is being utmost with some assumptions of mistake, a myth that can be contradicted by scientific procedure itself. Extra keeping for the loads of support for positioning, awarding and promotion committees leads to poor inspiration for academic inputs. In the findings of the research conducted by there are benefits and risks in using and implementing cloud-based technology as a resource in universities (Mircea and Andreescu, 2011). But despite of having drawbacks, some universities still use the cloud-based technology and there are some proof that indicate positive approach in this kind of technology like significant decrease in expenses in some universities because of cloud-based technology. And because of the present economic situations, more and more organizations are adopting the cloud-based technologies.

2.2 Digital Repository and Open Access

A digital repository can serve as a virtual space for gathering and sharing objects of interest and importance, where they can be searched, studied, and enjoyed at any place with access to the internet (Bogucki, 2021). The Open Access (OA) movement continues to gain traction. The recent breakdown of negotiations between Elsevier and the University of California system has brought renewed attention to OA issues to academic faculty, students, librarians, administrators, and governance bodies. The academic library has a role in explaining OA issues, advocating for OA, and of course for supporting and managing OA resources, including institutional repositories, OA journal subscriptions, OER, open research data, and other OA materials such as grey literature (Mack, 2020). Open access overall has not allowed libraries to save money on serials subscriptions and has often increased costs through their support of institutional repositories and payment of author fees. Continued library support for open access is often more of a philosophical stance without significant cost-saving benefits (Holley, 2018).

2.3 Subscriptions And Configurability

In 2015, 86 percent of the articles in eLife and PLOS acknowledge funder support, as to 76 percent of the articles in the largely subscription journals of BioOne. Such findings can inform libraries and funding agencies, as well as publishers, in their consideration of a direct-payment open access model (Wilinsky and Rusk, 2019). This shows the increase of subscription in journals. The ever-increasing journal subscriptions are also evident in many universities and research institutions failing to provide access to the much-needed scholarship for propagation of research and development due to dwindling budget allocations (Tapfuma and Hoskins, 2019). Moreover, it provides covering large amount of researches in less a time thus it is also essential at the same time to understand the library subscription quality (Bandi, 2021).

Price of journal and subscriptions also varies, constantly rising prices of journal and database subscriptions, granting agencies requirements for recipients to submit their research publications into open access repositories, and pressure on libraries to create Institutional Repositories (IR) to promote the institutions' reputations (Dawson and Yang, 2016). Partnership and consortium are also observed to amplify the support in research. John Wiley and Sons Inc., the Austrian Academic Library Consortium and the Austrian Science Fund announced a three-year combined open access publication and subscription agreement. This transformative agreement provides researchers and students at 22 institutions with access to all subscription journals published by Wiley. Corresponding authors from

KEMÖ-affiliated institutions will also be able to publish unlimited open access articles in Wiley's hybrid journals at no charge to the author. (John Wiley and Sons Inc., 2018).

It is apparent that a growing number of people have shifted to using digital format of publications. People from academic community use online publication in distributing studies, reports, and journals in a more accessible manner for both students and teachers. These online sources are also more inexpensive than the traditional printed format as this no longer requires reprinting copies based on its demand. Institutions, including universities, have adapted this mainly to make publications more accessible which helps widen the audience of their published journals or research. According to "Articles freely available online are more highly cited (Tilley, 2004). For greater impact and faster scientific progress, authors and publishers should aim to make research easy to access." In their study, it was concluded that online papers were 4.5 times more likely to be cited than the offline papers.

With their conclusion, no doubt that those who aspire to publish their works preferred using the digital means rather than the traditional. For such in a university, as the primary subject in this study, digital publishing helps expand the audience of the research that were submitted in their library, and not only that they could promote these researches, but they could be beneficial for all the researchers who have a hard time finding resources. The proponent has also adapted the concept of configurability. According to some researchers it is important for librarians to understand the heterogeneity of these expectations, as well as local priorities, so that journal access meets users' needs (Barreau et al., 2018).

3. RESEARCH METHODOLOGY

3.1 Method of Research

The research design used in the study is the descriptive method. Descriptive method is primarily concerned on how the variables that were gathered will be turned into a result that will turn out solutions or answers with regards to the problem of the study. More importantly, the study focused on how a configurable cloud-based research repository may be used within a university. This will be implemented wherein it will allow the faculty, administrative staff, and students to publish their works, particularly research, where anyone can access and read these papers. The proponent distributed survey questionnaires to assess the perception of the respondents about what is their ideal research repository.

This includes the assessment for the ff. problems: 1) Their previous experiences on online subscription; 2) The level of agreement of the respondents on the likelihood of the supporting the development of a university research repository; 3) The level of agreement of the respondents on the benefits of an online research repository using a subscription business model; 4) The level of agreement of the respondents on the identified characteristics of the system; and 5) The level of agreement on the implementation of a strong security backbone of the system. The proponent measured the level of agreement based on the Likert Scale measure shown in table 1.

SCALE	RANGE	INTERPRETATION
1	1.00 – 1.50	Not Problem
2	1.51 – 2.50	Minor Problem
3	2.51 – 3.50	Moderate Problem
4	3.51 – 4.00	Serious Problem
SCALE	RANGE	INTERPRETATION
1	1.00 – 1.50	Strongly Disagree/ Extremely Unlikely
2	1.51 – 2.50	Disagree/Unlikely
3	2.51 – 3.50	Partly Disagree/Neutral
4	3.51 – 4.50	Agree/Likely
5	4.51 – 5.00	Strongly Agree/Extremely Likely

3.2 System Development

The proponent has come up with a configurable research repository that established the results of the gathered data from the different sources such as the questionnaire, related studies, and related literatures. This is developed through an *Agile Development Methodology*, which is an iterative and incremental type of development. The proponent used PHP programming language for the server-side programming and MySQL for the back end of the prototype. The use of a Model-View-Controller framework was also employed in the development, thus the use of *CodeIgniter Framework*. The proponent used The Open Group

Architectural Framework (TOGAF) in shown in figure 1 presenting the Enterprise Architecture. It describes the structure and processes of the developed system and how it is linked to other systems within the organization. It is a high-level approach in system designs typically modeled in four levels which is composed of Business, Application, Data, and Technology levels (Wikipedia.org).

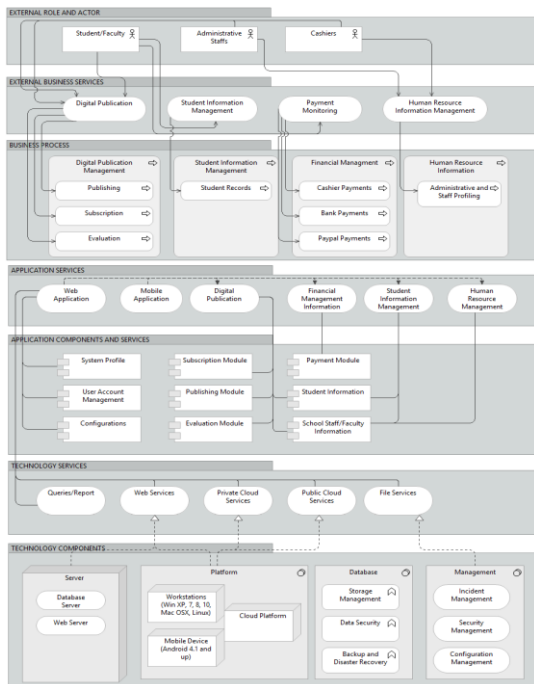


Figure 1: Research Publishing System Enterprise Architecture

4. FINDINGS AND DISCUSSION

The following are the findings:

4.1 The Previous Experiences of the Respondents on Online Subscription

The previous experiences of the respondents on online subscriptions in terms of:

- Cost and Payment,
- School Researchers in WWW presence, and
- Relevance of Material.

4.2 Cost and Payment

The previous experiences of the respondents on online subscription in terms of cost and payment is presented in Table 2. As seen in Table 2, the respondents considered cost and payment a minor problem when it comes to online subscriptions; this is revealed by the obtained overall mean assessment of 2.44. Ranked as first is the problem of the availability of subscription options (e.g. selected items of the research only, pay per view, etc.), having a mean result of 2.55 and is interpreted as a moderate problem. Second in rank is the availability of several payment options, having a mean of 2.41 and is interpreted as a minor problem. Third in rank is the varied subscription cost of research sites, having a mean of 2.35 and is interpreted as a minor problem.

Table 2: Cost and Payment			
	MEAN	INTERPRETATION	RANK
Varied subscription cost of research sites.	2.35	Minor Problem	3
Availability of subscription options (e.g. selected items of the research only, pay per view, etc).	2.55	Moderate Problem	1
Availability of several payment options.	2.41	Minor Problem	2
OVERALL MEAN	2.44	Minor Problem	

4.3 School Researchers' WWW presence

The previous experiences of the respondents on online subscription in terms of school researchers' WWW presence is presented in Table 3. As seen in Table 3, the respondents considered School Researchers' in WWW presence a moderate problem when it comes to online subscriptions; this is revealed by the obtained overall mean assessment of 2.63. Ranked as first is the statement "researches from the local school are not available anywhere and anytime", having a mean of 2.91 and considered as a moderate problem. Second is that the "researchers who have limited physical school presence from the same school are not aware of the researches done locally", having a mean of 2.55 and is considered as a moderate problem. Third is that the local schools rely on international publication subscription, having a 2.44 mean and is considered as a minor problem.

Table 3: School Research's WWW presence			
	MEAN	INTERPRETATION	RANK
Researches from the local school are not available anywhere, anytime.	2.91	Moderate Problem	1
Researchers who have limited physical school presence from the same school are not aware of the researches done locally.	2.55	Moderate Problem	2
Local schools rely only on international publication subscription.	2.44	Minor Problem	3
OVERALL MEAN	2.63	Moderate Problem	

4.4 Relevance of Material

The previous experiences of the respondents on online subscription in terms of relevance of material is presented in Table 4. As seen in Table 4, the respondents considered relevance of material a moderate problem when it comes to online subscriptions; this is revealed by the obtained overall mean assessment of 2.68. Tied in first and second rank is "titles do not provide enough information about the contents of the research", as well as "abstract does not match the content of the material", having a mean of 2.72 and considered as moderate problem. Third in rank is "material does not provide hyperlinks to the cited article in a different journal", having a mean of 2.61 and considered as moderate problem.

Table 4: Relevance of Material			
	MEAN	INTERPRETATION	RANK
Titles do not provide enough information about the contents of the research	2.72	Moderate Problem	1.5
Abstract does not match the content of the material.	2.72	Moderate Problem	1.5
Material does not provide hyperlinks to the cited article in a different journal.	2.61	Moderate Problem	3
OVERALL MEAN	2.68	Moderate Problem	

4.5 Level of Agreement of the Respondents on the Likelihood of Supporting the Deployment of a University Research Repository and its corresponding Subscription Business Model.

The level of agreement of the respondents on the likelihood of supporting the deployment of a university research repository and its corresponding subscription business model is presented in Table 5. As seen in Table 5, the respondents likely agreed on the likelihood of supporting the deployment of a university research repository and its corresponding subscription business model; this is revealed by the obtained overall mean assessment of 3.92. Ranked as first is that "published research is current", having a mean of 4.05 and considered as Likely. Second, is that the "subscribers are notified about new uploaded researchers", having a mean of 4.04 and is considered as Likely.

Third is "published researches are thoroughly reviewed and signed by

school authorities”, having a mean of 3.98 and is considered as *Likely*. Fourth is “subscription options are available”, having a mean of 3.91 and is considered as *Likely*. Fifth is “discounts are available for loyal subscribers”, having a mean of 3.88 and is considered as *Likely*. Sixth is “high availability (minimal or no downtime)”, having a mean of 3.88 and considered as *Likely*. Seventh is “old researches are available at a cheaper cost”, having a mean of 3.86 and is considered as *Likely*. Eighth, is “payment schedules options are available”, having a mean of 3.82 and is considered as *Likely*. Lastly, “subscription is at an affordable scheme”, having a mean of 3.81 and is considered as *Likely*.

Table 5: Likelihood of Supporting the model

	MEAN	INTERPRETATION	RANK
Subscription is at an affordable scheme	3.81	Likely	9
High availability (minimal or no downtime)	3.88	Likely	6
Published researches are thoroughly reviewed and signed by school authorities	3.98	Likely	3
Subscription options are available	3.94	Likely	4
Published researches are current	4.05	Likely	1
Old researches are available at a cheaper cost	3.86	Likely	7
Payment schedule options are available	3.82	Likely	8
Discounts are available for loyal subscribers	3.91	Likely	5
Subscribers are notified about new uploaded researches	4.04	Likely	2
OVERALL MEAN	3.92	Likely	

4.5 Level of agreement of the respondents on the benefits of an online research repository using a subscription business model

The respondents’ level of agreement on the benefits of an online research repository using a subscription business model in terms of the following: 3.1) Predictable Revenue of the School; 3.2) Build Longer -Term Relationships; 3.3) Convenience for the student/researcher; and 4.) Minimize workload.

4.4.1 Predictable Revenue of the School

The respondents’ level of agreement on the benefits of an online research repository using a subscription business model in terms of predictable revenue of the school is presented in Table 6. As seen in Table 6, the respondents agreed on the benefits of an online research repository using a subscription business model when it comes to the predictable revenue of the school; this is revealed by the obtained overall mean assessment of 4.10. Rank as first is that “it allows the university and the researcher for additional source of income”, having a mean of 4.12, interpreted as *agree*. Second is that it “increase in revenue would mean better projects from both ends”, having a mean of 4.10, interpreted as *agree*. Third is that it can create accurate forecasts if required for possible publication from authors and subscribers, having a mean of 4.09, interpreted as *agree*.

Table 6: Predictable Revenue for the School and the Researchers

	MEAN	INTERPRETATION	RANK
Allows the university and the researcher for additional source of income.	4.12	Agree	1
Can create accurate forecasts if required for possible publication from authors and subscribers.	4.09	Agree	3
Increase in revenue would mean better projects from both ends.	4.10	Agree	2
OVERALL MEAN	4.10	Agree	

4.4.2 Build Longer Term Relationships

The respondents’ level of agreement on the benefits of an online research repository using a subscription business model in terms of build longer term relationships is presented in Table 7. As seen in Table 7, the respondents agreed on the benefits of an online research repository using a subscription business model in terms of Building Longer Term Relationships; this is revealed by the obtained overall mean assessment of 4.08. Ranked as first is that long-term client is often a good ambassador for the learning materials because they have such regular interaction with the school, having a mean of 4.22 and is interpreted as *agree*. Second is that it is easier to keep a current client than to find a new one, having a mean of 4.08 and is interpreted as *agree*. Third is that the customer (student, faculty, or alumni) does not need to do anything more after the initial sign-up process, having a mean of 3.95 and is considered as *agree*.

Table 7: Build Longer Term Relationships

	MEAN	INTERPRETATION	RANK
The customer (student, faculty, or alumni) does not need to do anything more after the initial sign-up process.	3.95	Agree	3
Easier to keep a current client than to find a new one.	4.08	Agree	2
A long-term client is often a good ambassador for the learning materials because they have such regular interaction with the school.	4.22	Agree	1
OVERALL MEAN	4.08	Agree	

4.4.3 Convenience for Student/Researcher

The respondents’ level of agreement on the benefits of an online research repository using a subscription business model when it comes to the convenience for student/researcher is presented in Table 8. As seen in Table 8, the respondents agreed on the benefits of an online research repository using a subscription business model in terms of convenience for student/researcher; this is revealed by the obtained overall mean assessment of 4.10. Ranked as first is that the customer can always go back and cancel or change subscription, having a mean of 4.19 and is considered as *agree*. Second is less work that is required of the customer, having a mean of 4.14 and is considered as *agree*. Third is it allows the customer to “set and forget” so that conveniently, learning materials simply turn up on your notification, having a mean of 4.14 and is considered as *agree*.

Table 8: Convenience for Student/Researcher

	MEAN	INTERPRETATION	RANK
Less work that is required of the customer.	4.14	Agree	2
Allows the customer to “set and forget” so that conveniently, learning materials simply turn up on your notification.	3.96	Agree	3
The customer can always go back and cancel or change subscription.	4.19	Agree	1
OVERALL MEAN	4.10	Agree	

4.4.4 Minimize Workload

The respondents’ level of agreement on the benefits of an online research repository using a subscription business model in terms of minimizing workload is presented in Table 9. As seen in Table 9, the respondents agreed on the benefits of an online research repository using a subscription business model in terms of minimizing workload; this is revealed by the obtained overall mean assessment of 4.10. Ranked as first that the authors are used as channel to engage with them anytime, having a mean of 4.22 and is considered as *agree*. Second is that subscription lets regular interaction, having a mean of 4.05 and is considered as *agree*.

Third is that it allows less focus on different methods if drawing back researchers such as discount offers, promotion, etc, having a mean of 4.03 and is interpreted as *agree*.

Table 9: Minimize Workload			
	MEAN	INTERPRETATION	RANK
Less focus on different methods if drawing back researchers such as discount offers, promotions, etc.	4.03	Agree	3
Subscription lets regular interaction.	4.05	Agree	2
The authors are used as channel to engage with them anytime.	4.22	Agree	1
OVERALL MEAN	4.10	AGREE	

Summary on the analysis and interpretation of the gathered data, the study produced and plotted the following findings:

On the assessment of the previous experiences of the respondents on online subscription:

The weighted mean of the encountering a problem with regards to the cost and payment is 2.44, interpreted as there were *minor problems* on the previous experience of the respondents. This shows that respondents are open to payment subscription.

The world wide web (www) presence of the university research repository was considered as a *moderate problem* which obtained an overall mean assessment of 2.63.

This shows that respondents preferred to have a research repository which can be accessed through the world wide web.

The relevance of material was considered as a *moderated problem* which obtained an overall mean assessment of 2.68.

This shows that respondents are willing to accept payment subscription as long as the material gathered has relevance on their research or study.

On the assessment of the agreement of the respondents on the likelihood of supporting the deployment of university research repository and its corresponding subscription model, the respondents *likely agreed* on supporting the deployment of a university research repository which obtained an overall assessment of 3.92.

This shows that most of the respondent would like to have a research repository.

On the assessment on the level of agreement of the respondents on the benefits of an online research repository using a subscription business model:

The respondents *agreed* on the benefits of an online research repository using a subscription model when it comes to the predictable revenue of the school, obtaining an overall mean assessment of 4.10.

The respondents *agreed* on the benefits of an online research repository using a subscription business model in terms of building longer term relationship, obtaining an overall mean assessment of 4.08.

The respondents *agreed* on the benefits of an online research repository using a subscription business model in terms of convenience for student/researcher, obtaining an overall mean assessment of 4.10.

The respondents *agreed* on the benefits of an online research repository using a subscription business model in terms of minimizing workload, obtaining an overall mean assessment of 4.10

This further support the advantage of having a research repository that could work both for the researcher and students. The repository could also an added tool for income generation option for the University.

Figure 2 shows the business process flow of the system. As seen, publishers, either a student or a faculty member, may submit research. It will be evaluated by an evaluator and may decide to approve or reject to publish the research. If approved, the school administrator will set the price for the research. After setting the price, the research will be published.

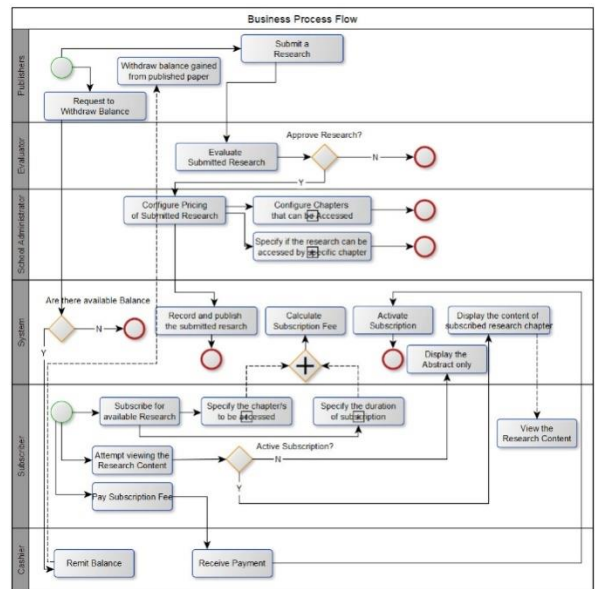


Figure 2: Business Process Flow of the Research Publishing System

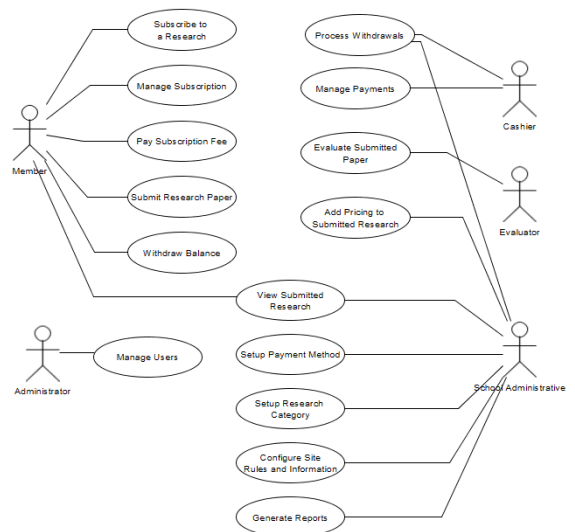


Figure 3: Use-case of the Developed Research Publishing system

Figure 3 shows the use-case overview of the developed system. There are five (5) roles in the developed system. Each of these roles has varied access on the different features of the system.

Assessment of the level of agreement of the respondents on the identified characteristics of the system:

The respondents *agreed* on the effectivity of the identified characteristics of the system in terms of features and functionality, obtaining an overall mean assessment of 4.17.

The respondents *agreed* on the effectivity of the identified characteristics of the system in terms of navigation, obtaining an overall mean assessment of 4.23.

The respondents *agreed* on the effectivity of the identified characteristics of the system in terms of control and feedback, obtaining an overall mean assessment of 4.28.

The respondents *agreed* on the effectivity of the identified characteristics of the system in terms of context and text, obtaining an overall mean assessment of 4.25.

On the assessment of the level of agreement on the implementation of a strong security backbone of the system.

The respondents *agreed* on the implementation of a strong security backbone of the system in terms of attack monitoring and prevention, obtaining an overall mean assessment of 4.23.

The respondents *agreed* on the implementation of a strong security backbone of the system in terms of strong password, obtaining an overall mean assessment of 4.14.

The respondents *agreed* on the implementation of a strong security backbone of the system in terms of two-factor authentication (2FA) on all the accounts, obtaining an overall mean assessment of 4.12.

The respondents *agreed* on the implementation of a strong security backbone of the system in terms of embedding other measures in the system both in application and process, obtaining an overall mean assessment of 4.18.

5. CONCLUSIONS

With the current trend of technology especially with the way research are going on, it is essential to have an online repository of researches. This will ensure that every research created can be monitored, referenced, viewed, and even cited. Moreover, this study shows that online subscription is just a moderate problem showing that subscribing is more accepted than in traditional library setup. Respondents likewise agreed that the online research repository are beneficial in terms of the predictable revenue of the school, building long-term relationship, convenience, and minimizing workload. All stakeholders will benefit on these settings, from the creator of research, from the individual who are looking for a reference for research, for the school in maintaining and monitoring research. Creating a single avenue where all stakeholders interact thus providing a strong output on research.

RECOMMENDATIONS

The repository and subscription model resolves the problems of availability of researches. With the current situation of global pandemic, the system will converge all the stakeholders into a single avenue to address their needs. Universities and academic libraries are encouraged to utilize the system to cope and augment sharing of academic resources of research thus minimizing the workload of the management in handling researches. When it comes to payment options for subscription it is recommended to use different payments APIs, such as payments REST API by PayPal, thus recommended to be integrated with the system. This will enable payments to be done online and may be able to attract more interested subscribers who do not have time going to actual school or bank. When comes to security it is recommended to use at least Two-Factor Authentication in retrieving password or accounts. This is to firmly avoid common system vulnerability, such as identity theft. Future researchers that are also conducting related study may use this as a reference and guide for further studies in improving related system.

REFERENCES

- Bandi, I., 2021. Measuring Library Subscriptions to the availability of scholarly articles published by the academic and research community of the institution. *Library Philosophy & Practice*, Pp. 1–7.
- Bangani, S., 2018. The History, Deployment, and Future of Institutional Repositories in Public Universities in South Africa. *Journal of Academic Librarianship*, 44 (1), Pp. 39–51. <https://doi.org/10.1016/j.acalib.2017.12.003>
- Barreau, D., Bouton, C., Renard, V., Fournier, J.P., 2018. Health sciences libraries' subscriptions to journals: expectations of general practice departments and collection-based analysis. *Journal of the Medical Library Association*, 106 (2), Pp. 235–243. <https://doi.org/10.5195/jmla.2018.282>
- Bell, S., 2016. Tipping Point for Design Thinking in Libraries (Finally...?), *Designing Better Libraries*, last modified September 30, 2016. <http://dbl.lichost.org/blog/2016/09/30/tipping-point-for-design-thinking-in-libraries-finally/>
- Bogucki, J., 2021. Cloud Services for Digital Repositories, 57 (5) ISSN 0024-2586.
- Dawson, P.H., Yang, S.Q., 2016. Institutional Repositories, Open Access, and Copyright: What Are the Practices and Implications? *Science & Technology Libraries*, 35 (4), Pp. 279–294. <https://doi.org/10.1080/0194262X.2016.1224994>
- Deseret, L.C., 2015. Universities seek alternatives to expensive textbooks. <http://national.deseretnews.com/article/4212/universities-seek-alternatives-to-expensive-textbooks.html>
- Emblidge, D., 2015. A Publishing Studies Online Academic Database: In-progress Research Project. <http://link.springer.com/article/10.1007/s12109-015-9410-y>
- Holley, R.P., 2018. Open Access: Current Overview and Future Prospects. *Library Trends*, 67 (2), Pp. 214–240. <https://doi.org/10.1353/lib.2018.0034>
- Hughes, B., 2014. Changing the Publishing Business Model: Consider the Whole Value Chain, Not Just Unit Price. <http://www.bookbusinessmag.com/post/changing-publishing-business-model/>
- John Wiley and Sons Inc. 2018. Wiley, the Austrian Academic Library Consortium (KEMÖ) and the Austrian Science Fund (FWF) Announce Combined Open Access and Subscription Agreement. *Business Wire* (English).
- LoPresti, M., 2014. Publishing in the Cloud: Tips for Publishers on Making the Transition. <http://www.econtentmag.com/Articles/Editorial/Feature/Publishing-in-the-Cloud-Tips-for-Publishers-on-Making-the-Transition-97166.htm>
- Mack, D.C., 2020. Open Access in the Academy: Developing a Library Program for Campus Engagement. *Grey Journal (TGJ)*, 16 (3), Pp. 181–185.
- McNaught, K., 2015. The Changing Publication Practices in Academia: Inherent Uses and Issues in Open Access and Online Publishing and the Rise of Fraudulent Publications. <http://quod.lib.umich.edu/j/jep/3336451.0018.308?view=text;rgn=main>
- Mircea, M., Andreescu, A.I., 2011. Using Cloud Computing in Higher Education: A Strategy to Improve Agility in the Current Financial Crisis. <http://www.ibimapublishing.net/journals/CIBIMA/2011/875547/875547.pdf>
- Polit, D., Beck, C., Hungler, B., 2001. *Essentials of Nursing Research: Methods, Appraisal and Utilization*, 5th edition Philadelphia, PA.
- Tapfuma, M.M., Hoskins, R.G., 2019. Open science disrupting the status quo in academic libraries: A perspective of Zimbabwe. *Journal of Academic Librarianship*, 45 (4), Pp. 406–412. <https://doi.org/10.1016/j.acalib.2019.05.005>
- The Open Group Architecture Framework. https://en.wikipedia.org/wiki/The_Open_Group_Architecture_Framework
- Tilley, E., 2004. The importance of online research dissemination. Retrieved from: <http://espace.library.uq.edu.au/view/UQ:9475>
- Willinsky, J., Rusk, M., 2019. If Research Libraries and Funders Finance Open Access: Moving beyond Subscriptions and APCs. *College & Research Libraries*, 80 (3), Pp. 340–355.
- Worsley, A.J., 2019. The Views of Scholars on the Effects of Subscription Costs to E-Journals in an Academic Health & Life Sciences Library: A Case Study. *Journal of Electronic Resources Librarianship*, 31 (4), Pp. 241–254.

