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TABLE OF CONTENTS

Preface iv

PROCEEDINGS PAPERS

1. Reinventing the library in the cloud: proprietary versus open source and the possibility of convergence
by Richard Levy 1

2. NLB's innovation journey: from ideas to implimentation
by Kia Siang Hock 9

3. Gamification of libraries in universities: potential opportunities and Challenges
by Associate Profesor Dr. Tan Wee Hoe & Siti Sumaizan Ramli 23

4. Creating innovative learning space at UniMAP library through failed and successful experiments
by Mazmin Mat Akhir & Md Nizam Azid 37

5. Embedded librarians: transforming the librarian's role for scientific research advocacy in the digital era
by Dr. Khasiah Zakaria 47

6. iHikmah: IIUM online community of practice (CoP) portal
by Sarifah Abdullah 59

7. System and innovation in National Library of Malaysia : Samsung Smart Library (SSL)
by Siti Aishah Sheikh Kadir & Aidatul Hasnida Abdul Rani 69

8. System and innovation in National Library of Malaysia : Knowledge Management (KM) 77
by Siti Aishah Sheikh Kadir, Razman Abd. Rani & Shazlin Azni Shaharudin Shah

9. Application and best practices of media integration strategies 89
by Nurul Diana Jasni

10. Nurturing library operational innovation using the library management system for operational and services excellence 96
by Sharifah Fahimah Saiyed Yeop

11. Memartabatkan Bahasa Melayu bahasa ilmu: dinamika teknologi maklumat memacu kesarjanaan akademia 105
oleh Haji Sulaiman Kaiat & Kamariah Abu Samah

SLIDE PRESENTATIONS

1. MOOCS and the future of libraries 127
by Adam Brimo

2. Collaborative innovation, community 149
engagement: the story of Pustaka Negeri Sarawak
by Rashidah Bolhassan & Fairul Azli Banchit

Author's Index 160

Proceedings Comittee 161

Exhibitors 163

Sponsors 164

Photos 165

PREFACE

The 5th PERPUN International Conference 2016 with the theme "System & Innovation in Libraries" was successfully organised by the Tuanku Bainun Library, Universiti Pendidikan Sultan Idris (UPSI) at the FELDA Residence Hot Springs, Sungai Klah, Sungkai, Perak, Malaysia on 26 – 27 July2016. It was a good platform for librarians, publishers, policy makers in libraries, CEO in Information Technology and academia to meet, discuss and share knowledge in library innovations and latest ICT applications. The conference also aims to promote understanding, sharing of innovative updates in libraries as well as current issues in library fraternity. The objectives areto deliver insights for libraries in Malaysia to align and engage with latest technology,share expertise in managing library issues,enhancing knowledge network in transformation, intensification of in-house system development andcommercialization of innovative in-houseproducts.

The PERPUN Conference comprises two keynote addresses and four sessions addressing current events related to library innovations, its implications and future challenges to the academic, society and librarianship aspects locally and globally. It highlights library initiatives and in-house systems development by extracting resources available in each institution for knowledge sharing, among speakers and participants.The keynote speakers namely Mr. Adam Brimo (CEO Open Learning, Australia) and Mr. Richard Levy (Vice President, Discovery Innovation, EBSCO Information Service, Australia) had delivered issues on innovation related to the library and university; and the roles of academic libraries in MOOC and open access environment. The four sessions addressed pertinent topics on implementation of products/systems innovation, the role of librarians in scientific researches, knowledge management, best practices in innovation and gamification and libraries. These topics provide new insights, perspectives and experience that would benefit librarians, system development personnels and other information providers to enhance the library services to users and the community.

The 5th PERPUN International Conference 2016 was officiated by The Honourable Professor Dato' Dr. Zakaria Kasa, Vice Chancellor, Universiti Pendidikan Sultan Idris who congratulated the Tuanku Bainun Library as this was the first international conference organized by the library and had attracted about 140 participants, including exhibitors. The Chief Librarian, Madame Rusliza Yaacob had delivered the closing remarks. She expressed her sincere thanks and gratitude and appreciate all Chief Librarians and Directors for their great support to make the conference a success.

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REINVENTING THE LIBRARY IN THE CLOUD: PROPRIETARY VERSUS OPEN SOURCE AND THE POSSIBILITY OF CONVERGENCE

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ABSTRACT

Library technology has been moving increasingly towards cloud and SAAS based services. With the onset of new management and discovery solutions, the prospect of exposing the full breadth of the library collection into the cloud has become a greater possibility. Traditionally the library has been centred around the catalogue and the OPAC but ever since Google emerged, libraries have been struggling to provide a new model consistent with user expectation for simple, quick and intuitive access to content while also trying to improve workflows to meet the challenge of a more electronic-oriented and less print-based collection. Cloud and SAAS technologies can provide more unified access and management solutions to these challenges. Ultimately, a shift towards a more unified model is inevitable. It is the means by which this is achieved which remains debatable. The web is increasingly a place of applications, APIs and interoperability with open source becoming a powerful alternative to commercial and proprietary options. This paper explores the possibility that open source and proprietary solutions could converge to create something more viable, open, collaborative and flexible than libraries have experienced hitherto. Ultimately, the goal is to provide the best possible outcome for users in an increasingly open and competitive research environment where the relationship between quality and quantity cannot be separated or compromised. The library can and must go the cloud but the cloud must also be adapted to the needs of the library and, above all, to the needs of its user community.

Keywords: Library technology; Software as a service; Discovery services; Library service platforms; Integrated library systems; Open source technologies; Next generation library catalogues.

1. LIBRARY TECHNOLOGY – FROM EVOLUTION TO REVOLUTION…AND BACK AGAIN

Libraries, like archives and museums, are synonymous with human history, heritage and tradition. They have been at the centre of intellectual endeavour for centuries, their continuous, though not always universal, presence being defined by their fundamental necessity as a means to preserve, store and generate knowledge in multifarious and increasingly specialised ways. The motivation for collecting, collating, archiving and disseminating information is one of the cardinal aspects of civilisation, without which, to paraphrase T.S. Eliot, there would be no data, no knowledge and ultimately no wisdom. Whether that information is shared aurally, visually or through the written word, it is through the careful and assiduous organisation of information resources that content is conserved, circulated, accessed and critically evaluated for future generations. To conduct research into any subject, the researcher, student or end user would at some stage be exposed to a library. Yet, ever since the emergence of Google, Amazon and other web-based technologies, libraries have faced a dramatic shift in user behaviour that has disrupted, compromised and depreciated their role, dislocating library services from the centre of research to the wider periphery of the open web. As the 2009 Ithaka Faculty Survey stated, the library has been "disintermediated from the discovery process, risking irrelevance in one of its core functional areas".[1]

There are two ways to look at this threat of irrelevance. One is that it is inevitable and, as the open web becomes more popular and sophisticated in its capacity to index content, libraries will fade into the background and become much narrower in their conservative function, subsumed by the wider web of content that is available. The other is to look at the ways in which libraries and library technologies have adapted to the challenge of the open web and made their services more accessible to their users via web-based platforms. Given that so much of the content on the open web is available for "free", it is not surprising that libraries, already faced with constraints to operational budget, are looking at more efficient ways to deliver services at lower cost without compromising on quality of service. Most libraries today have either implemented or are seriously considering implementing a discovery service to unify their collections for quick and intuitive access to unique content that would otherwise be undervalued and depreciated without a complementary Google-like presentation layer. Many libraries are looking at Cloud and Software as a Service to optimise workflows and unify management of print and electronic resources. No library wants to make cuts to services that are considered valuable but the pressure of rising costs and limited budget means that a tipping point between cost and benefit will be breached and difficult decisions have to be made. For publishers and providers, decline in revenue can risk investment in innovation and so there is a double negative in a scenario where there is a mutual dependence between the library as a client and the provider as a commercial service relying on its fee-paying customers. This interdependent relationship between libraries and commercial vendors has been entrenched

for the last five decades, both on the content side in terms of publishing and aggregation and in the provision of library catalogues and other complex and highly specialized workflow management systems. The partnership is ambiguous to the extent that, while market forces are central to innovation, the library, as a non-profit community-based organisation, has to justify expenditure according to value that cannot be calculated financially. The return on investment in a library is the degree to which it serves institutional objectives around provision of non-cost service and how it increases that ROI over time to justify future investment in its infrastructure. For the vendor, sales and revenue are integral to institutional integrity, no matter how well meaning or beneficent the intentions of the organisation. Some of the biggest library technology companies are owned by venture capitalists while, in recent years, major mergers and acquisitions have reduced choice in the library market and led to emergence of even larger players controlling the industry. Roger Schonfeld, the Director of Library Communications at Ithaka writes that "customers and partners of the content platforms and library systems vendors should not be surprised to see further strategic partnerships if not outright consolidation".[2]

The question remains as to how this symbiotic relationship between market forces, market consolidation and libraries will help or hinder progress in library technology strategy. One only has to look at open access publishing and Altmetrics to see that traditional ways of evaluating research are changing dramatically. Ultimately, the choice will no longer be one between a dwindling number of commercial players but between what is left of the commercial space and the exponential rise of the open access and open source communities.

2. OPEN SOURCE VERSUS PROPRIETARY

The popularity of open source as an alternative to purely proprietary and commercial services continues to increase. In the library technology and software space, open source services such as Koha, ElasticSearch, Blacklight, Kuali and Moodle have set new standards for how libraries can not only choose services but also contribute to them in creative and dynamic ways. It is this trend towards open, not closed platforms that will influence how the future of libraries is designed and built in years to come. In many ways, it is already happening as innovative librarians with vision, talent and technical know-how, no longer wait for vendors for provide the holy grail of technology but set about building it themselves. This is a task that requires significant resources at the institutional level and invariably some input from commercial organisations who still have a major stake in content, discovery and metadata management. The big difference between open source and commercial services is that the former can be potentially shared as openly licensed code, allowing for libraries and other organisations to receive and contribute back to the community upon which open source is inherently built. As

Linus Torvalds, the creator of the Linux kernel, argues "in open source, we feel strongly that to really do something well, you have to get a lot of people involved'.[3]

Open source, however, should not be seen purely as a conflict of interest between profit-based and non-profit communities. If one looks at the music, film or publishing industry, we see that commercial services have adapted to the threat of file sharing by creating new models around subscription-based services such as Netflix, Apple Music and Amazon Prime. Open source should really be seen as the compelling and viable means through which the web has worked and will continue to work as a place of interoperable applications, also known as APIs. Despite rampant commercialisation of web services like Facebook, Google and Twitter, these services continue to be freely used on multiple platforms in the same way as a smart phone has applications that can be run on a laptop or tablet, including those made by competing companies. Some apps are free while others are premium but standards of interoperability between them allow for multiple types of usage across multiple types of devices. This is a world where Apple or Android provide the platforms but where the apps are built and shared by thousands of third party creators, some commercial and some entirely free and community driven. This is a world that both the library and library technology providers have to seriously confront and adapt to if they are to remain relevant and inventive. Yet, hitherto, most libraries have expected commercial vendors to handle and deliver the vast majority of their technical services and, as the compulsion to unify and streamline operations becomes more urgent, some libraries are gravitating to one provider for everything. The perceived benefit of greater rationalisation of service also comes with the risk of undermining choice, of putting all the eggs in one basket, potentially increasing cost as more service is handled commercially and creating a blinkered perception that one vendor can do everything well. This is a trend that runs counter to the evidence of what is happening in the open web. It is a trend conceived by and for the commercial vendor so that it can maximise returns on annual software subscriptions offered as Cloud services. It also compromises and falsely concatenates the critical relationship between end user platforms like discovery and back end tools for managing workflows around content. According to Marshall Breeding, "any unbreakable coupling between specific discovery services and resource management platforms imposes concerns for libraries … Libraries need the ability to set discovery and management strategies independently and expect these systems to have mutual interoperability.[4]

Choice, interoperability, flexibility and lowering of operational costs: these are not options that we generally associate with commercial services, especially in the library market. There is exclusivity to systems that seek to bundle and unify discovery and workflow solutions in a universal whole. It is a closed model designed to lock the library in to one proprietary operating system. It is generally generic, limited in terms of core customisation, limited in terms of APIs to work with systems that compete with it and limited in terms of the capacity of the library to contribute its own vision of how it wants a system to work for its own peculiar sets of

collections and services. The assumption that there is a single standard upon which all libraries can operate and function is a false one. Even MARC, for example, has multiple variations around the world and that too is changing. Libraries are characterised by the diversity of their collections, communities and services as well by the ways in which those communities and services change over time. The top-down approach of delivering software as a service in the Cloud has the effect of diluting and narrowing the scope in which libraries operate. The library is forced to conform to a single system rather than being able to adapt a system to its own ecology. But in a world where code can be created openly to run on multiple platforms, the possibilities are almost endless. It simply requires the will, the skills and the imagination to do it differently. This is where open source can play a major role in how the library of the future evolves from a closed monolithic to a more open and manifold architecture synonymous with the open web itself. It also presents the librarian with challenges and opportunities to develop new skills and talents that have hitherto been confined to the more traditional sphere of library management and end user services. While not every librarian can or should imagine themselves as a coder or "hacker", the power of innovation can be extended to those who see change as a chance to expand the library's presence in the institution and beyond. Managers and stakeholders can budget for new job categories and roles while library schools and graduates can be much better placed to offer a curriculum that is fully aligned with open web-based platforms that are redefining education, business, culture and recreation. From academic to public and special libraries, the range of services that can be built on shared and open platforms means that librarians are not simply facilitators of change but drivers and creators of a space they can manage and control more directly in association with their user communities. It is a strategy for survival and continuity within the volatile flux of technological change. Steve Coffman from Library Systems and Services notes that

Just because we have new competition in roles once exclusively our own does not mean we should cede the field to commercial providers…No, we are librarians…Our skills, training, knowledge, and experience are inseparably tied up with the book and published literature. The services we perform are still needed in a digital age, whether everything goes electronic or we continue to operate in a hybrid environment. But we do need to take advantage of the tools and technologies now available to us to find better and more effective ways of connecting people with books and information. If we are equal to the task, librarians and librarianship have a long, bright future. If not, others now stand ready to take over for us.[5]

If libraries are capable of controlling their own destiny, commercial providers in turn have to adapt their services to make them more interoperable and modular, meaning that there is no longer a clear and defined demarcation between a commercial service and how it interoperates openly in an open source ecology that permits multiple players to operate, collaborate and even compete as they do in the open web. It is through this interchange between new and open platforms that the library will become more like the web itself, yet remain specialised and

focused on its own areas of expertise. For the user, this is a more familiar world, one they have grown up on, not something alien and set apart by centuries of tradition. The library as a service would be built on the same open architectures on which the web generally operates, merging into a sphere that ultimately provides a more diverse and flexible framework in which to evolve and adapt.

3. OPEN AND PROPRIETARY: AN ALLIANCE OF OPPOSITES?

One of the myths of Open Source is that it is completely free and self-reliant. While it is true that open source code can be written and released without a financial transaction, there are always cost implications to doing-it-yourself and running it locally. As Austin McLean once said, open source is like a puppy.[6] You have to invest in its welfare, nurture it, feed it, bathe it and walk it. If *you* don't do it, you will have to pay someone else to do it for you. The costs can be unexpectedly high if you factor in security, redundancy, implementation, maintenance, troubleshooting, training and upgrades. And if your library is part of a consortium, getting agreement between partners can be a challenge. It is for these and other reasons that large open source projects have sometimes been slow to get off the ground. They can suffer from inertia and overkill without the impetus to resolve conflicting interests. But herein is the great potential of open source in the Cloud. It does not have to be owned or managed exclusively by one operator, consortium or client. Everybody owns it and nobody owns it and it is up to each library to decide how involved it becomes in the ownership process. What it does need is a unifying impetus through strong leadership and this often comes from a business-like approach that can project manage the effort along the same lines as a commercial interest. If we take Koha as an example of a successful open source library management system, there are several key determining factors that make it viable as a solution. Firstly, it is inherently open source and 'free' to access as software. The only costs associated with managing it locally would be operational, requiring technical librarians with the skills to administer it. Not every library is in a position to do this and so you have Koha communities that offer hosting, support and service on a fee-based model. The Koha communities share and pool resources to enrich development globally and regionally, thus creating the hub of expertise that sustains the momentum for further agile development. Finally, Koha has received investment and technical input from companies such as EBSCO to integrate discovery and workflow solutions via API, thus demonstrating the potential for open source code, open source community and commercial provider to collaborate and create a value added service that relies on interoperability and partnership to deliver best of breed. The puppy can thus grow into a prize dog with valuable return on the investment. It requires the vision, the will, the capability, collaboration, leadership and support to turn it into a champion. No library exists on an island in an age where most of its content, platform and service are delivered through the Cloud. Yet the service

offered via the Cloud has to involve input from the library to be a truly viable solution that caters to its staff and user community. In the world of libraries, no one size fits all yet all are part of a much greater whole.

Another example of an open source library system is Kuali OLE. This was conceived in 2008 and centred on large academic libraries in the US. The project benefitted from financial investment from the philanthropic Carnegie-Mellon foundation and recently has evolved to include the Future of Libraries is Open or FOLIO project. FOLIO encompasses more than just Kuali and is venturing to create a new fully open source solution based on modules that will allow libraries to access, adapt and contribute code back to the solution in a self-generating cycle of continuous collaborative development based on a community-oriented approach on a potentially larger scale. Interestingly, one of the first public pronouncements of FOLIO was made in April 2016[7] by a panel of library technology companies, including commercial and open source players, some of whom are direct competitors. The uniqueness of this event should not be lost in the minds of librarians. Open source is only a contradiction of proprietary or commercial software interests where those interests are not themselves open. FOLIO is based on an Apache 2 license, meaning that it is available to any library or organisation that can use it to build new services or adapt existing services to the open source code. Providers can still compete in this new space and libraries will be able to have more choice on which parts of the service they choose to include. Some libraries may run an exclusively open source model for their catalogue while utilising a commercial discovery service. Others may use a proprietary catalogue adapted with modules from the open source code. It also means that libraries can become partners, developers and strategists, helping to build or design the service according to their own needs. In turn, these instances can be shared with the community and lead to further collaboration on a continuing basis. The library thus co-creates the platform upon which it delivers its services to its users, reducing costs by up to 50% because the underlying software is free. Should the library not be in a position to develop or manage the platform locally, hosting and support could be offered via a global or regional organisation on a fee-based model. These are the kind of exciting joint ventures that can be expected from this shift to a more open library service paradigm.

4. CONCLUSION

The emergence of open source library solutions has been underway for some time. It has taken commercial providers and libraries themselves a while to think out of the box in terms of how open source could represent the library of the future. While larger libraries with the resources and foresight have previously invested in a DIY open source approach, most rely substantially on commercial services to host and run their software, be it locally or increasingly in the Cloud. The possibility of a convergence between open and proprietary has defined how the open web

works and there is a close corollary between free, open, interoperable and proprietary software on the web. Facebook, Twitter and Google run on this principle and have become more commercialised as a consequence. Libraries have a different function as providers of free services that rely on paid subscriptions to both content and software. They need to increase usage and get a return on their investment, drive user satisfaction and deliver high quality service under budgetary constraints. Open source presents unique possibilities not simply for reducing costs but for adapting library services to the web as well as adapting the web to the needs of the library. By giving libraries and librarians more choice and greater flexibility to envisage, design, build and adopt services in an open source and open platform environment, the scope for progressive change becomes more dynamic and collaborative, harnessing skills that librarians have always had while applying new skills in the software space to what has always been perceived as an old-fashioned and traditional institution. In the not too distant future, the library may be seen as one of the more inventive and technologically innovative spaces should the new wave of open source technology become the norm by which libraries (and library tech companies) do their business. It does not reduce the threat or risk to libraries as a whole in an increasingly web-based world but it does equip them with more resources with which to become an integral part of that environment and to see the erstwhile foe (the open web) as an ally and a friend.

REFERENCES

[4] Breeding, M. (2015). A white paper commissioned by the NISO Discovery to Delivery (D2D) Topic Committee, *NISO*

[7] Breeding M. et al (2016). Keynote Panel: Executive Perspectives of the Library Tech Industry, Computers in Libraries.

[5] Cofffman, S. (2013). So Now What? The Future for Libraries. Information Today, 37 (1)

[3] Diamond, D. (2003). The Way We Live Now, *New York Times*

[6]McLean, A., Levy R. (2011) Institutional Repositories, a Gateway to eResearch, *Australian Partnership for Sustainable Repositories*

[2] Schonfeld, R. (2015). What are the Larger Implications of Proquest's Acquisition of Ex Libris? *Ithaka.org*

[1]US Ithaka Faculty Survey (2010*). Ithaka Report*

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NLB'S INNOVATION JOURNEY: FROM IDEA TO IMPLEMENTATION

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ABSTRACT

In a world that is fast-paced and constantly evolving, it is critical for libraries and archives to innovate continuously so as to remain vibrant and relevant to the stakeholders. Innovation is more than being creative; it is about translating creativity into something tangible and beneficial. Innovation comes in all shapes and sizes. From improvements in processes to avant-garde new services, innovation usually begins with a simple idea. Nurtured and developed, these ideas can go a long way in revolutionizing the way we interact, serve and engage with our patrons. To this end, the National Library Board of Singapore (NLB) has put in place processes and practices that advocate and build the capability for innovation. From quick prototyping to innovation competitions, to dabbling in Open Innovation, NLB has embraced a 'dare to try' spirit in its approach to the new and unknown. Employing a method of rapid prototyping called Proof-of-concept (PoC), NLB is able to maximise time and resources, allowing us to test the viability of an idea by developing small-scale, minimal risk projects, which may otherwise remain a concept on paper. Recognizing that great ideas can come from anywhere, and from anyone, it is important to foster a culture of innovation in the work environment by encouraging all staff, regardless of job scope, to boldly venture out of their comfort zones to contribute in radical ways to the dynamic reshaping of NLB. As a result, NLB rolled out the first public library system in the world to automate the borrowing and returning of items using Radio Frequency Identification (RFID) in 1998. It continues to innovate in citizen engagement and collaboration, resource optimization and making Singapore content discoverable.

Keywords: Library innovation; Innovation culture; Innovation framework; Citizen engagement and collaboration; Resource optimization; Content discovery.

1. INTRODUCTION

The National Library Board of Singapore (NLB) manages the National Library of Singapore, 26 public libraries and the National Archives of Singapore. NLB promotes reading, learning and information literacy by providing a trusted, accessible and globally-connected library and information service through the National Library and a comprehensive network of Public Libraries. By forging strategic partnerships to cultivate knowledge sharing, the libraries also encourage appreciation and awareness of Singapore's history through their wide range of programmes and collection on Singapore and regional content. The National Archives of Singapore oversees the collection, preservation and management of public and private archival records, including government files, private memoirs, maps, photographs, oral history interviews and audio-visual materials.

The pace of change over the last two decades has been breath-taking. Rapid technological advances underpinned and resulted in a seismic shift in user lifestyle, behaviour and expectations. The mobile devices are ubiquitous and never a few metres away from our patrons. Automation and artificial intelligence are creating new opportunities once found only in sci-fi novels and movies. On the other hand, many libraries and archives in the world are facing severe funding cuts due to the economic situations. Many of them have to reduce the span and scope of their services.

How can libraries and archives stay relevant and survive in this brave new world? 'Innovation' will likely be a common answer given by those who were asked the question. Making an organization innovative however is not a walk in the park. From NLB's experience, this would involve determined and enterprise-wide efforts over many years.

2. THE NLB INNOVATION FRAMEWORK

To develop and sustain innovations within an organization, it is critical for the organization to see innovation as a critical success factor. NLB has established the NLB Innovation Framework (Figure 1). For innovation move from an ad-hoc manner to one that is repeatable, there must be a clear and shared raison d'etre for the organization to innovate. At the centre of the framework is the NLB Shared Vision of 'Readers for Life, Learning Communities, Knowledgeable Nation'.

A thriving innovation culture must first be driven from the *Leadership*. Senior management must set the tone and more importantly, take on the role of championing innovation by inspiring staff to have an innovative mindset, and be bold in trying new ideas.

People is the second building block of the framework. This recognizes that great ideas can come from anyone. It is important to harness the creativity of all staff, regardless of their job function and level. This pillar extends beyond NLB staff to include the patrons and partners.

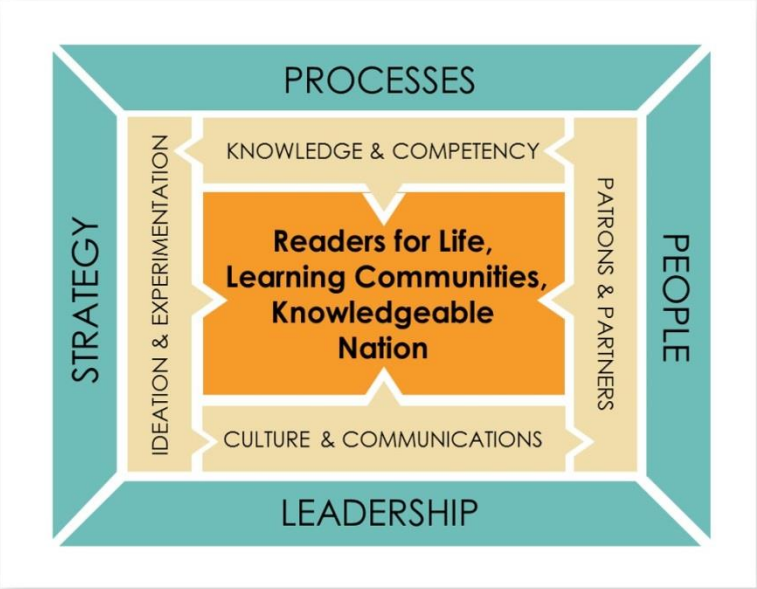

Figure 1: NLB's Innovation Framework

For innovation to take root in NLB, it is critical that innovation is seen as strategic to NLB in meeting its mission and vision. *Strategy* is therefore a key building block of the NLB Innovation Framework. It highlights the strategic nature of innovation, and also the need for a strategy to allow ideas to flourish into services, and also for the organization to learn from ideas that did not work.

NLB recognizes that the organization has to take a deliberate, disciplined and systematic approach for innovation to thrive. *Processes* are therefore needed to ensure repeatability and sustainability of its innovation journey. Figure 2 shows the established process for the development of new services in NLB.

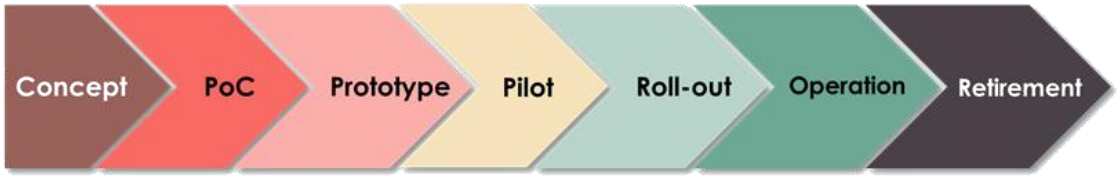

Figure 2: New Service Development Process

The process has incorporated three stages (Proof-of-Concept, Prototype and Pilot) to enable the viability of the new service to be tested before full roll-out happens. There are many benefits to this methodology:

- Ideas can be tested early in the development cycle.
- Technical and operational feasibility can be evaluated early and cost-effectively.
- Customer feedback can be incorporated early, and throughout the entire service life-cycle.
- The risk of failure during full roll-out stage can be minimised.

As a recognized thought-leader in innovation, NLB has many opportunities to share its innovation journey with other organizations during conferences or visits to NLB. From these interactions, it was clear that many organizations faced many challenges in their quest for innovation. Trying new ideas naturally mean that there will be a higher chance of failure. There is also a general tendency for people to resist change. Without leadership support, and the strategy and processes to manage such risks, it will be difficult to inculcate a mindset of innovation in an organization.

Through two decades of single-minded focus across the entire organization to innovate in order to delight customers and optimise limited resources, NLB has started to evolve and develop an Innovation DNA. As the saying goes, 'talk is easy, start is hard, sustaining is the hardest'. It is therefore critical for NLB not to be contented with its past successes, and rest on its laurels. The Innovation Framework provides a robust foundation that highlights the critical role innovation plays to enable us to continue to stay relevant in an ever-changing world.

3. INCULCATING AN INNOVATION MINDSET AND SUSTAINABLE CULTURE

NLB's innovation journey began close to twenty years ago. In 1998, it became the first public library system in the world to automate the borrowing of returning of items through the use of Radio Frequency Identification (RFID) technologies. The waiting time for borrowing and returning reduced from around 45 minutes to within a minute, resulting in a quantum leap in

customer satisfaction and staff productivity. NLB continued to push boundaries, and delivered well-liked and well-used services (Figure 3.)

Innovation is not all about cutting edge technologies. The RFID technology was well established and used in other industries when NLB applied the technology to automate library processes in 1998. Many a times, great innovative services do not even require technologies.

A strong leader is critical to jump-start the innovation journey. It is however important that the organization is able to continue to innovate even with leadership movements, internal and external changes. Building an innovation culture becomes key for organizations to move from one-time winners to serial ones. An innovation culture that is deeply rooted to the shared strategic goals will be more sustainable.

Innovation can, and should happen with everyone at every level of the organization. It is part of the NLB culture. It is in the DNA of NLB's stakeholders, including the NLB Board members, senior management, NLB staff, patrons and partners.

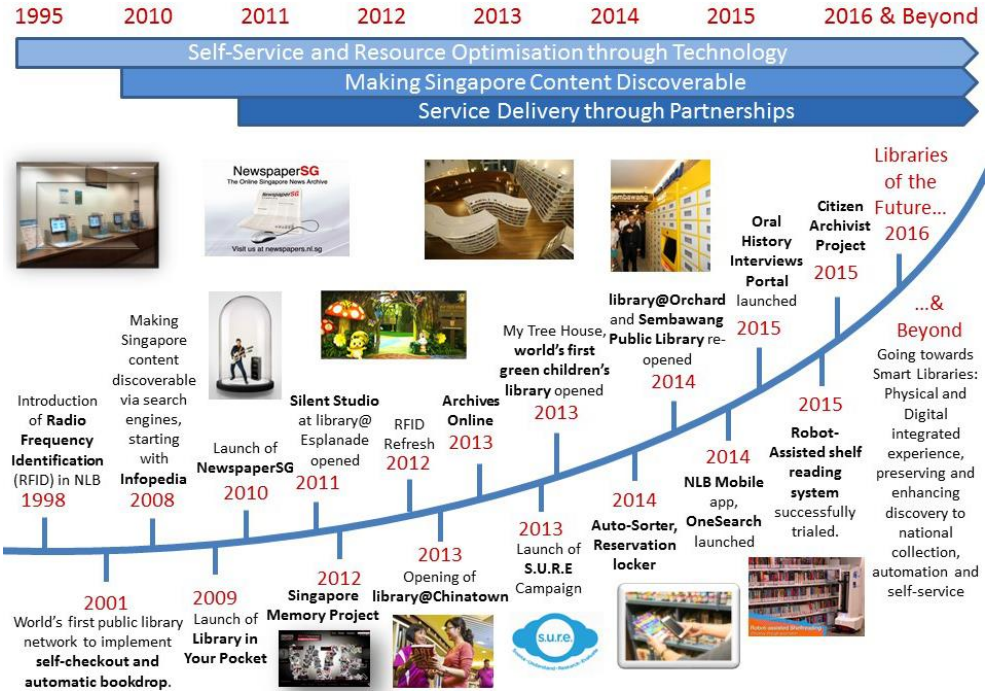

Figure 3: NLB's Innovation Journey

3.1 Leaders

At the leadership level, the NLB Board, the Innovation & Technology Advisory Committee (ITAC), the Senior Management Committee actively direct the organization in its quest for innovation excellence. The ITAC comprises NLB Board Members and co-opted senior thought-leaders in innovation and technology. The Robot-assisted Shelf-reading System was an excellent illustration in the active involvement of ITAC in pushing the innovation boundary of NLB. It linked NLB to the Institute of Infocomm Research, a top research institution in Singapore, resulting in the completion of a proof-of-concept (PoC).

3.2 NLB Staff

NLB staff often look forward to the Blackbox programme, an innovation competition that goes beyond ideation. Top ideas are provided funding and guidance for the development of proof-of-concepts. The programme, first launched in 2006, was named to represent a clean slate and a bank of limitless opportunities. It encourages ground-up, cross-divisional collaboration to fulfil the following objectives:

- Nurture creativity and innovation in NLB
- Identify potential innovative projects that can help contribute to the growth of NLB
- Help NLB staff turn their ideas to reality through proof-of-concepts, and in turn promote a sense of ownership
- Afford recognition to staff who come up with innovation ideas and develop them

Moreover, recognizing the potential synergy of crossing minds of staff from different functional roles, staff are strongly encouraged to form cross-divisional teams.

3.3 Patrons

NLB's patrons are always at the heart of innovation. It behoves upon NLB to engage the patrons actively during the conceptualisation, design and development of systems and services that impact them. They have also been extremely generous in providing feedback and suggestions on how existing services can be further improved through the face-to-face and online channels. Many of them are so passionate with the goals and initiatives of the libraries that they volunteer their time in the various library activities, including running the library@chinatown, and describing and transcribing archival content at the Citizen Archivist Project. NLB conducts focus group discussions to harness the valuable inputs from our patrons. It could be the design of new or revamped public libraries or digital services.

3.4 Partners

NLB sees great value in building partnerships with the community at large, other government agencies and with the private-sector to co-create new and innovative services. NLB collects, preserves and provides access to resources of significant national, cultural and heritage values. While these efforts continue unabated, NLB understands that it cannot undertake this enormous task alone. We must collaborate with content partners. An example of such collaboration is NewspaperSG, an online resource of current and historic Singapore and Malaya newspapers published between 1831 and 2009. Suppliers for the collection materials, IT services, building maintenance services and logistic services are also key partners. This is critical as even when these services are outsourced, they remain integral to the user experience.

3.5 All hands on deck

NLB cannot assume that it will continue to deliver innovation as the pace of change can only quicken. Many great organisations have faltered. Nokia is one example that comes to mind. It needs all hands on deck. It must embrace changes.

4. NLB'S INNOVATIONS

To achieve the vision of 'Readers for Life, Learning Communities and Knowledgeable Nation', NLB's innovations can be grouped into the following three categories:

- SOCIAL: Citizen Engagement and Collaboration
- RESOURCE: Harnessing Technology to Optimize Resources
- DIGITAL: Making Singapore Content Discoverable

Examples of innovations within each of these categories are numerous (Figure 4).

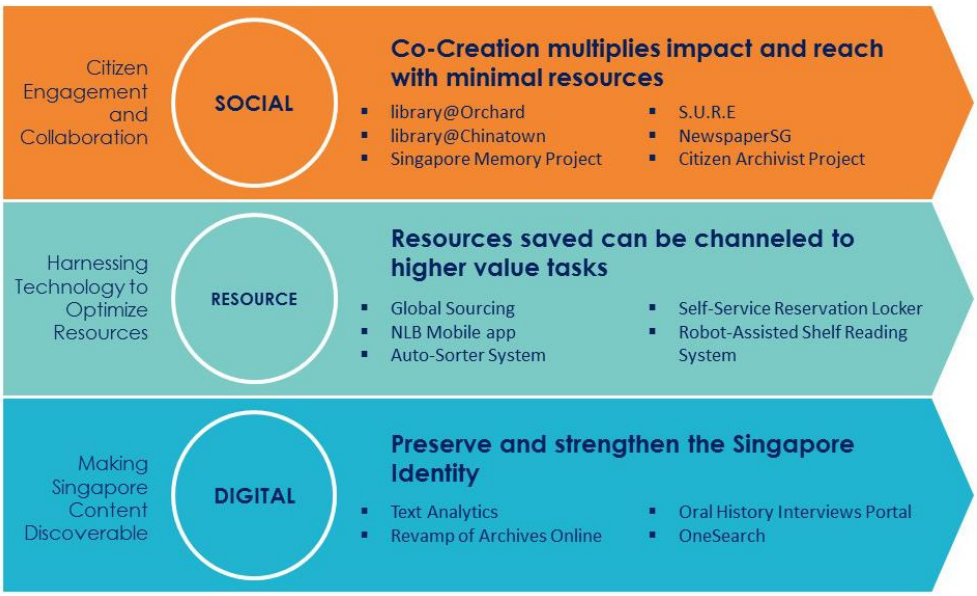

Figure 4: NLB Innovations

4.1 Citizen Engagement and Collaboration

The vision of NLB requires it to engage the citizen at a personal, community and national level. The patrons are always the focus of our services. Such engagements are multi-faceted, and we strongly believe that they have the multiplier effect on the impact of the NLB services.

An example of engagement and co-creation with patrons is library@orchard, which was re-opened in November 2014. The Design Thinking approach was taken to design the new library@orchard located in the famous Orchard Road shopping belt. Over 100 interviews with the Orchard Road regulars were conducted to sieve through what they wished to see in the new library. Prototypes of the ideas of space design are developed, showcased and used to solicit feedback from the general public. The new library@orchard was very well-received when it was re-opened. It clinched the prestigious President's Design Award (Design of the Year) in 2015 and the American Library Association's Presidential Citation for Innovative International Library Projects in 2016.

Figure 5: Co-creating with Patrons to Re-design Libraries (library@orchard)

The National Archives of Singapore launched the Citizen Archivist Project, a crowd-sourcing portal, in March 2015. This portal taps on the collective knowledge of the public to describe archival photographs, and transcribe handwritten documents and oral history recordings. Through their collective efforts, many more archival records are made accessible to everyone. It has also created greater awareness of the value of the National Archives, its extensive collections and the archival processes.

Figure 6: The Citizen Archivist Project

4.2 Harnessing Technology for Self-Service and Resource Optimisation

In its pursue for customer service excellence, NLB aims to empower the patrons to access to library services and resources anytime, anywhere, on any devices.

Kiosks are readily available in the library premises to handle the various transactions, including membership registration, programme registration, payment of fine, and many more. Reservation lockers are located just outside the library premises so that patrons are able to collect their reserved items even beyond the library opening hours (Figure 7).

Figure 7: Self-Service Reservation Locker System

In September 2014, NLB launched the NLB Mobile App that allowed library patrons to check-out books using their mobile phone's built-in camera. This radically transformed the definition of self-service, enabling patrons to bring their own device to perform transactions that could previously only be done by NLB's kiosks and stations.

Innovations in NLB are not restricted to just the patron-facing services. NLB has always understood how the back-end processes can directly impact the customer-facing ones. The Auto-sorter System was conceptualised with this in mind. It automatically sorts returned library items into specific categories to facilitate returning them to the shelves (Figure 8). In addition, based on the information derived from data analytics, it will also automatically identify popular library items. These items are placed at a dedicated shelf in the library to enable the users to easily find and borrow these popular items, resulting in improved customer satisfaction, while at the same time increasing the usage of the collection.

Figure 8: Auto-sorter System

4.3 Making Singapore Content Discoverable

Libraries and archives painstakingly collect, preserve and make accessible archival content for generations to come. These content are the treasures of the nations. With the National Archives of Singapore joined NLB in November 2012, NLB holds the most comprehensive collection of content that are of national and heritage values.

OneSearch is an online search service which was launched in 2014 to enable users to find resources across the National Library, the National Archives and the Public Libraries of Singapore, including e-database subscriptions for NLB patrons (Figure 9). It has since been extended to discover artefacts and artworks of the National Heritage Board museums.

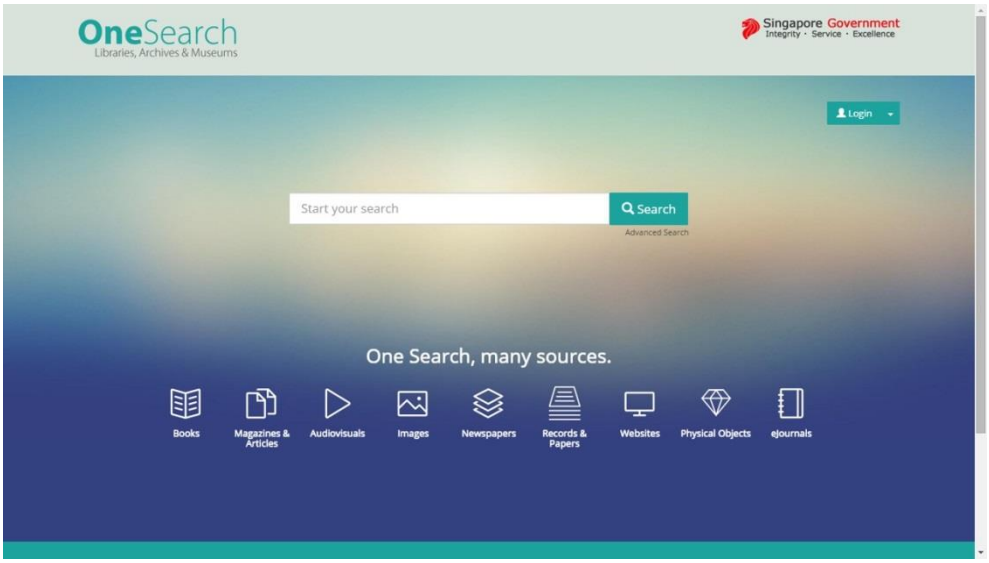

Figure 9: OneSearch - Facilitating Access to NLB Resources

The NLB digital content are accessed tens of millions of times every year. These presented NLB with opportunities to provide further recommended reads related to the content accessed. Given the extensive digital collection, it is impossible to identify the related content manually. NLB has deployed text analytics technology to sieve through millions of digital resources to identify related content. With the billions of associations identified, we are now able to provide a dossier of sort of relevant digital resources. The users can now spend their valuable time to digest the materials and gain deeper insights into the topic.

5. CONCLUSION

The NLB innovation journey continues. Three masterplans covering all the key business functions have been set in motion:

- Public Libraries of the Future (LoTF). The 26 public libraries in Singapore are popular destinations in Singapore with 26 million visits in 2015. Many of the libraries in the extensive and easily accessible network will be going through revamps over the next few years. LoTF aims to continue to enhance the patron experience where the physical and digital library are converged and more personalized.

- National Library, National Archives of Singapore Masterplan. The Masterplan focuses on filling the collection gaps, the preservation of at-risk content and the accessibility of the collections.

- National Reading Movement (NRM). NRM is a 5-year campaign by NLB to encourage all to Read More, Read Widely and Read Together. NLB will be running programmes to engage more adults to read, promote reading in mother tongue languages and collaborate with the community to build a vibrant reading culture in Singapore.

With a strong innovation culture and mindset, NLB stands on solid foundation to achieve the objectives of the plans, and brings greater values to its stakeholders.

REFERENCES

Blakermore, E. (2016). High Tech Shelf Help: Singapore's Library Robot. Library Journey. Retrieved from http://lj.libraryjournal.com/2016/08/industry-news/high-tech-shelf-help-singapores-library-robot/

Cher, P. (2016). Developing OneSearch – NLB's One-Stop Search Service to Find Resources in Singapore's Libraries, Archives and Museums.8th Shanghai International Library Forum (SILF 2016), 6-8 July 2016, Shanghai, China.

Hallowell, R., Knoop, C. & Neo, B. S. (2001). Transforming Singapore's Public Libraries, A Case Study on NLB. Harvard Business School. Retrieved from https://doi.org/10.1225/802009

Kia, S. H., Liau, Y. C. & Ong, I. (2014). Inter-connected Network of Knowledge – The NLB Journey.Paper presented at IFLA World Library and Information Congress (WLIC 2014), 16-22 August 2014, Lyon, France. Retrieved from http://library.ifla.org/876/

Koh, L., Kang, L. & Chan, F. (2015). Every Reader a Library, Every Library its Reader: Designing Responsive Libraries for Our Communities.IFLA World Library and Information Congress (WLIC 2015), 15-21 August 2015, Cape Town, South Africa. Retrieved from http://library.ifla.org/1105/

Ong, I., Goh, C., Chua, L. & Pak, P. (2014). Empowering the Library Patron: The Public Libraries of Singapore's experience with transactional services delivered through a mobile application.IFLA World Library and Information Congress (WLIC 2014), 16-22 August 2014, Lyon, France. Retrieved from http://library.ifla.org/906/

Proceedings of
5th PERPUN International Conference:
System and Innovation in Libraries
http://pustaka3.upsi.edu.my/pic2016

GAMIFICATION OF LIBRARIES IN UNIVERSITIES: POTENTIAL OPPORTUNITIES & CHALLENGES

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ABSTRACT

This paper reveals potential opportunities afforded by gamification to libraries built within universities, while juxtaposing challenges to be faced by the library administrators in different phases of gamification. In the context of libraries, gamification means turning the provision of information resources and library services into game-like activities. When the resource and service provision activities are fun, they could engage users and optimize the functions of a library in a university. A library in a Malaysian public university was examined in order to propose gamification strategies for conducting short-term and long-term game-like activities. To embark on gamification, the library should operationalize its objectives into measurable intended outcomes, and each of the outcomes should consist of three components: intended observable users' behaviours, conditions of attainment and degree of attainment. These components would be aligned to the goal, rules and feedback mechanism of a game or game-like activities. In particular, features of feedback like reward of glory, reward of access, reward of sustenance and reward of utilities would be introduced to reinforce positive behaviours shown by users. The library could also delineate users into four types of players: killers, achievers, explorers and socializers based on the library usage analytics, for which provision of resources and services could be differentiated according to their needs. Nonetheless, a plan can only be a good plan after successful implementation. Thus, this paper highlights key challenges to be taken into consideration to assure quality gamification.

Keywords: University libraries; Universities; Gamification; Game-like activities; Malaysia.

1. INTRODUCTION

In Malaysia, universities which offer academic programmes are required to set up a physical library or a physical information centre. Stated as a benchmarked standard for physical facilities by the Malaysian Qualification Agency (MQA), the library or information centre must have adequate and up-to-date reference materials and qualified staff that meet the needs of the programme and research amongst academic staff and students (MQA, 2016). In particular, individual universities must state the database system used in the library, and describe how resources are shared and how users can access these resources. According to MQA (2016), for every programme to be offered or intended to be offered, the institution must list down all library resources which support the programme, including specific number of books and journal titles, and number of collection acquired by the institution. Individual universities are also required to describe how feedback can be obtained from students and staff on the library policy, services and procedures (MQA, 2016).

When the vision of libraries in four different types of university in Malaysia were juxtaposed (see Table 1), all visions seem to gear towards gaining world, global or at least regional recognition. In terms of the scope of library missions, research and learning are two constant focuses in all four types of university. Public universities (UM & USIM) are still highlighting the notion of "teaching" in their mission, but the missions of private university libraries (MMU & Monash University) do not contain the notion of "teaching". This could reveal a difference between public and private university libraries. Recognising the similarities and differences among university libraries is essential before employing any gamification measures.

Table 1. Comparison of Vision and Mission of Libraries in Four Different Types of University in Malaysia

University	Vision of Library	Mission of Library
Universiti Malaya (UM, a public research university)	To transform the University of Malaya Library into a world ranked library, consistent with UM's aspiration for world ranking.	In support of the University of Malaya's global mission, the Library provides professional expertise, diverse information resources, and knowledge-based services for the advancement of its quality research, teaching and learning.
Universiti Sains	To be the center for	To collect, process and disseminate the

Islam Malaysia (USIM, a public non-research university)	Islamic reference information and knowledge at the global level.	latest information for the purpose of teaching, research, and learning as a base for the establishment of Islamic Digital Library.
Multimedia University (MMU, a private university)	The Library is a key academic partner in advancing MMU vision and goals to be a Top 100 university in Asia with global recognition by 2020.	To provide a knowledge hub with up to date and reliable scholarly information and services in supporting the instructional, research and development programs of the University.
Monash University Malaysia (a branch campus of a foreign university)	Underpinned by Monash University Malaysia's ambition to become the leading research and teaching university in the ASEAN region, the library is a key academic partner in advancing the mission and goals of the Malaysia campus.	The Library contributes to the vision of the University as a leading institution of higher learning and research by providing access to, and delivery of, outstanding information resources and services, effective research skills development programs and innovative learning experiences. The Library is committed to providing every graduate with a foundation for lifelong learning and to enabling students, faculty, and staff to achieve their academic and intellectual endeavours.

Gamification is a process of turning non-game activities into a game or game-like activities by using game-based mechanics, aesthetics and game thinking to engage people, motivate action, promote learning, and solve problems (Kapp, 2012). In the context of university library, gamification means turning the provision of information resources and library services into game-like activities. The purpose of gamifying university libraries would be engaging library users, motivating users to use information resources and library services, and promoting learning inside and outside the library. When the resource and service provision activities are fun, university libraries could engage users and optimize its functions in the university.

Tan (2015) proposed a five-step gamification process for education, which can be adopted for university libraries. The process was adapted from the game design process commonly practiced in the creative industry. The five-step gamification process is as follows:

- Step 1: Setting game goal and rules
- Step 2: Designing gameplay
- Step 3: Designing feedback
- Step 4: Designing game space
- Step 5: Designing game story

2. OBJECTIVE

This paper aims to reveal potential opportunities afforded by gamification to libraries built within universities, while juxtaposing challenges to be faced by the library administrators in different phases of gamification.In this paper, a library in a Malaysian public university, Tuanku Bainun Library of Universiti Pendidikan Sultan Idris (UPSI) was examined in order to propose gamification strategies for conducting short-term and long-term game-like activities.

3. POTENTIAL OPPORTUNITIES AFFORDED BY GAMIFICATION

Walker (2006) demonstrated that real-life humorous examples can be used as a teaching technique by instruction librarians. The purpose of using humour was to reduce library anxiety, promote classroom environment and help students to get more comfortable with resources in the library. Subsequently, Walker (2008) reported a case study on the usefulness of a library version of Jeopardy! TV game show in Pennsylvania State University. The game was prepared as an active learning technique for a one-shot library instruction. Walker (2008) discovered that the Library Jeopardy motivated students to *"actively participate in class and assume more responsibility for learning library instruction, while adding variety to class sessions by providing a fun environment for instructor and students alike"*.

Another instance of university library gamification was initiated by library staff in Utah Valley University (Smith & Baker, 2011). Two self-paced games were designed and developed to orient students to the library and library services. The first was called "Get a Clue" game which used clues placed throughout the library building to orient new students as they solved a mystery; while the second game was LibraryCraft, an online game where students used library resources to slay a dragon. Through post-game surveys, Smith and Baker (2011) discovered that students found the "*games entertaining and informative, and they regarded the orientations as a good use of their time and their comfort levels with library services increased*".

In 2012, Broussard reviewed best gamification practices of libraries which involved 17 online library games. Broussard (2012) gave six recommendations for choosing or creating games for library.

1. Keep it simple
2. Have a plan for using it in class or marketing it
3. Implement "gating" for key concepts
4. Make it fun
5. Provide lots of feedback
6. Playtest / evaluate

In a more comprehensive review conducted by Hamari, Koivisto and Sarsa (2014) with 24 gamified activities or services, 132 positive outcomes of gamification were found and divided into three categories, i.e. motivational affordances, psychological outcomes, and behavioural outcomes. These positive outcomes (Table 2) unfold the potential opportunities afforded by gamification to university libraries. Ten items were listed under motivational affordances, in which leader board, story, theme, points, badges and levels were mentioned repeatedly (count ≥ 7) in the literature (Hamari, Koivisto & Sarsa, 2014), hence these items can be considered as key game mechanics to provide motivational affordances to library users. As for psychological and behavioural outcomes, game-like activities must be able to provide enjoyment (count = 5) and engagement, while creating positive impact on the attainment of learning outcomes (count = 5).

Table2. Potential Opportunities Afforded by Gamification to University Library

Motivational affordances	*f*	Psychological outcomes	*f*	Behavioural outcomes	*f*
Leader board	10	Enjoyment	5	Impact on learning / Learning outcomes	5
Story / narrative	8	Engagement	4	Amount of content contributed	3
Theme	7	Motivation	3	Intentions to use & recommend	2
Points	7	Attitude towards gamification / service	2	Level & quality of participation	2
Badges	7	Fun	2	Task completion speed & quality	2
Challenge	7	Degree of happiness / flow	2	Task performance	2

Levels	7	Attitude towards badges	1	Users contribution	2
Clear goals	5	Perceived added value of gamification	1	Steering behaviour	1
Rewards	4	Social motivation	1	Response patterns	1
Feedback	4	Difference in interaction	1	Likelihood of voluntary participation	1
Time pressure	2	Social comparison	1	Number & duration of interactions with virtual clients	1
Achievement	2	Clear goals	1	Type of content distributed	1
Progress bar	2	Network effects	1	Exploration while interacting with the app	1
Avatar	1	Social influence	1	Quality of collected calibration data	1
		Recognition	1	Change of behaviour due to receiving badges	1
		Reciprocal benefits	1	Change in relative energy consumption	1
		Task involvement	1	Impact on time management	1
		Satisfaction	1	Site participation	1
TOTAL	73	TOTAL	30	TOTAL	29

4. GAMIFICATION ATTEMPT IN TUANKU BAINUN LIBRARY

The Tuanku Bainun Library is an academic library located in Universiti Pendidikan Sultan Idris (UPSI). The library was constructed with the vision to be a prestigious library in the field of education in line with globalization (Tuanku Bainun Libarary, 2016). The mission of the library is to provide information resources and library services to fulfil customer needs professionally, in support of the university's teaching-learning and research activities. Five objectives were set to achieve the vision and mission:

1. To identify, collect, store, manage and make available relevant, quality and up-to-date sources of information to support university's programs;
2. To develop and maintain a comprehensive collection in the field of education in line with the library's mission;

3. To provide various information and communication technology facilities in step with current advances and user needs;
4. To assist and enhance library skills among library users in searching, accessing and acquiring accurate information;
5. To generate competent human resource in every area of knowledge and related activities.

Based on the vision, mission and objectives, customers' needs analysis was done to identify all relevant customers of the Tuanku Bainun Library (Table 3). The gamification efforts can be started by operationalizing the needs into intended observable behaviour, conditions of attainment, and degree of attainment (Tan, Nurul Fazmidar & Wang, 2016). Next, the effort of gamification should be placed on making users' library experience fun and engaging. Table 4 shows how library could provide various ICT facilities in step with current advances. Lazzaro's (2004) 4Keys2Fun was adopted when proposing four types of fun activities in the library.

Table3. Customer's Needs Analysis

Customer(s)	Needs library to
University	Support teaching and learning activities Support research activities Develop and maintain a comprehensive collection in the field of education
Lecturers	Identify, collect, store, manage and make available quality and up-to-date sources of information for running academic programmes
Students	Provide various ICT facilities in step with current advances and learners' needs Assist in searching, accessing and acquiring accurate information Enhance library skills in searching, accessing and acquiring accurate information
Staff	Generate competent human resource in various areas of knowledge

Table4. Generating Gamification Ideas to Make Students' Library Experience Fun

Type of Fun	Gamification Ideas	Activities
Easy fun	Inspires students to play active role in exploring digital and printed treasure of information in a fantasized library.	Pustaka Fantasia
Hard fun	Provides students the opportunity to beat their personal reading records and mastery of library skills.	Personalized Leader Board
People fun	Provides the excuse to hang out with friends. Build social bonds and team work by spending more time with friends.	Info-searching Competition/ Book Searching Challenge
Serious fun	Enlivens boring assignments through purposeful play of ICT devices. Changes how students think, feel, behave or do assignments in the augmented reality (AR) world.	AR Assignment Challenge

In terms of playing an active role in exploring the library, the virtual presence of the Tuanku Bainun Library was made accessible to users, in which a mock-up Facebook page was placed at the entrance for users to take photos. If this mock-up is used during a special library programme or activity, the photo-taking session could establish a sense of ownership among users towards the library.

Figure 1. Using Facebook Mock-up Frame to Establish a Sense of Ownership Towards the Tuanku Bainun Library

As for the hard fun activities, the library constantly updates the leader board, presenting five types of users who borrowed the most books from the library—academic staff, non-academic staff, external member, postgraduate student, and undergraduate student (Figure 2). Apart from giving the winners rewards of glory, other forms of rewards could be given to users to recognise their achievement in accessing resources and services, including rewards of access, rewards of sustenance and rewards of facilities.

Figure 2. Leader Board at the Entrance of Tuanku Bainun Library

The effort of increasing visits and usage of the Tuanku Bainun Library was reinforced by the establishment of the Knowledge Café (Figure 3). The Knowledge Café consists of five zones. In the Net Comm Zone, users can read newspapers and magazines, chit-chat or access internet using their personal laptop or mobile devices; for those who do not bring their laptop or computing devices, they can use computers at the Internet Hub. In the Brainstorm Hub, up to eight users can gather and discuss; while the Teabrary allows users to eat and drink while using the library. A TV was also placed at the Media Lounge for users to watch TV programmes. All these efforts were meant for engaging younger users, particularly UPSI students. Perhaps, games related to library instruction could be installed on to desktop computers in the Internet Hub to expose users to resources and services provided by the library.

Figure 3. Setting up the Knowledge Café to Facilitate Users' Interaction in the Library

By referring to the library usage analytics, the library could also delineate users into four types of players: killers, achievers, explorers and socializers (Bartle, 1996), for which provision of resources and services could be differentiated according to their needs. Players who are categorized as killers will thrive to compete with other players, so organising competition or

contests related to reading or library services would excite them. Achiever type of players are commonly objective-driven, thus organizing activities which require them to collect points, badges or trophies would motivate them to take part. As for the explorer type of players, conducting treasure hunt or reshuffling collections in the library would attract them to visit the library frequently. The socializer type of players are keen to engage with other library users. Thus, hosting seminars, talk series or workshop which are related to library education would fit them.

5. CHALLENGES

The key challenge encountered by university libraries would be in keeping abreast with the changing needs of the students, particularly the generation Z students. Gamification has been recognised as an effective tool to engage the generation Z students, but there are two questions that need to be addressed. Firstly, to what extent should the library administrators gamify their information resources and library service provision activities? Secondly, will gamification-embedded activities enhance library services and further promote user engagement? In addition, university libraries need to take into consideration the changes or changing style in reading culture and new innovations in reference services for their users.

Another issue in gamification of library services is the need for technical and pedagogical support, particularly in creating dedicated apps or games for the library. In the case of the Tuanku Bainun Library, mobile apps which feature the library services, including OffPAC, iPUSTAKA UPSI and others. This requires creative and innovative thinking skills of the library staff, in collaboration with the experts from the faculty. Innovation and sustainability are major aspects in improving the delivery system of library management and administration, with the changing trends in ICT.

6. CONCLUSION

Physical libraries are essential facilities which must be provided by universities when offering academic programmes. Public and private university libraries generally share a similar vision to gain world, global or regional recognition. Research and learning are two common scopes catered in the missions of both public and private university libraries.

Needs analysis should be conducted with the library customers or users, in which the outcomes could be operationalized to initiate gamification process. In the context of university library, gamification means turning the provision of information resources and library services into

game-like activities. Leader board, story, theme, points, badges and levels are proven game mechanics which can provide motivational affordances to library users.

REFERENCES

Bartle, R. (1996). *Hearts, clubs, diamonds, spades: Players who suit MUDs*. Retrieved Aug 25, 2016 from http://mud.co.uk/richard/hcds.htm

Broussard, M.J.S. (2012). Digital games in academic libraries: a review of games and suggested best practices. *Reference Services Review, 40*(1), 75-89.

Hamari, J., Koivisto, J., & Sarsa, H. (2014). Does Gamification work? A Literature Review of Empirical Studies on Gamification. *The 47th Hawaii International Conference on System Sciences*, 6-9 Jan 2014, Hawaii, USA, pp. 3025-3034.

Kapp, K.M. (2012). *The Gamification of Learning and Instruction: Game-based Methods and Strategies for Training and Education*. San Francisco: Pfeiffer.

Lazzaro, N. (2004). *Why we play games: four keys to more emotion without story*. Oakland: XEODesign Inc. Retrieved Aug 20, 2016 from http://xeodesign.com/xeodesign_whyweplaygames.pdf

Malaysian Qualifications Agency. (2016). *COPPA: MQA-01 Programme Information*. Petaling Jaya: Malaysian Qualifications Agency. Retrieved Aug 11, 2016 from http://www.mqa.gov.my/portalMQA/borang/coppa/MQA-01.pdf

Smith, A-L., & Baker, L. (2011). Getting a clue: creating student detectives and dragon slayers in your library. *Reference Service Review, 39*(4), 628-642.

Tan, W.H. (2015). *Gamifikasi dalam pendidikan: Pembelajaran berasaskan permainan.* Tanjong Malim: Penerbit UPSI.

Tan, W.H., Nurul Fazmidar M.N., & Wang, Y. (2016). Inventive problem-solving puzzle game design and development. *International Journal of Computational Vision and Robotics, 6*(3), 244-252.

Tuanku Bainun Library. (2016). *Vision, Mission, Objective*. Retrieved Aug 20, 2016 from http://pustaka3.upsi.edu.my/index/?page_id=9&lang=en_US

Walker, B.E. (2006). Using humor in library instruction. *Reference Services Review, 34*(1), 117-128.

Walker, B.E. (2008). This is jeopardy! An exciting approach to learning in library instruction. *Reference Services Review, 36*(4), 381-388.

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CREATING INNOVATIVE LEARNING SPACE AT UNIMAP LIBRARY THROUGH FAILED AND SUCCESSFUL EXPERIMENTS

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ABSTRACT

UniMAP Main Library in Pauh Putra Campus was established in 2012, almost ten (10) years after the establishment of Universiti Malaysia Perlis. It was designed in 2005 to provide sufficient space for collection building, academic-class facilities and services. Extensive changes to the library's interior design were proposed in 2011 in view of changing landscape of digital environment. Internal layout consumed large areas of collection development space for only limited amount of actual print collections held by the library.Moreover, the initial design was not able to accommodate space requirements for Generation Y such as leisure areas and wired working facilities for students to enjoy their gadgets. Obviously, the early design emphasized on providing space for individual study rather than collaborative learning space. Brief surveys carried out among undergraduate students in 2015 successfully provide an insight of modern university library expected by Generation Y. After five years of operations, the library basically welcomes many positive remarks by academic, industry and corporate communities despite many failed and successful experiments.

Keywords: Academic class facilities and services; Library's interior design; Generation Y.

1. INTRODUCTION

The library was established in year 2002 with the establishment of Kolej UniversitiKejuruteraan Utara Malaysia or widely known as KUKUM. During 10 years after its establishment, the library resides in level 1 and 2, Podium Block within KWSP Building in Kangar, Perlis. Interestingly, the areas were previously occupied by a local well known shopping mall among surrounding residence. Limited library areas were then becoming the university major concerns due to rapid growth of library collections and students population. Yearly collection budget allocation was optimized by acquiring more electronic resources items covering electronic journals. Focus was given towards developing comprehensive electronic collections to support teaching-learning and research projects in engineering field. Over ten years, the library operates within distributed campus environment with significant preference towards digital contents.

At present, UniMAP Library consists of the Main Library in Pauh Putra Campus, Branch Library in Kangar as City Campus and Digital Hub at UniCITIAlam Sungai Chuchuh. The University Library in Kangar City Campus reflects 10-years experiments and dedicated approaches towards building up an innovative hybrid library. Successful experiments were adopted by UniMAP Mini Library at School of Manufacturing Engineering in Pauh Putra Campus and extended to the Main Library in the same campus. Adopting the concept of hybrid library, UniMAP Main Library encounters major revisions from its original design. Figure 1 shows milestone towards developing UniMAP's hybrid library.The Main Library was officially named after His Royal Highness Tuanku Syed Faizuddin Putra, Crown Prince of Perlis in a memorable ceremony held at the library on 29th September 2016.

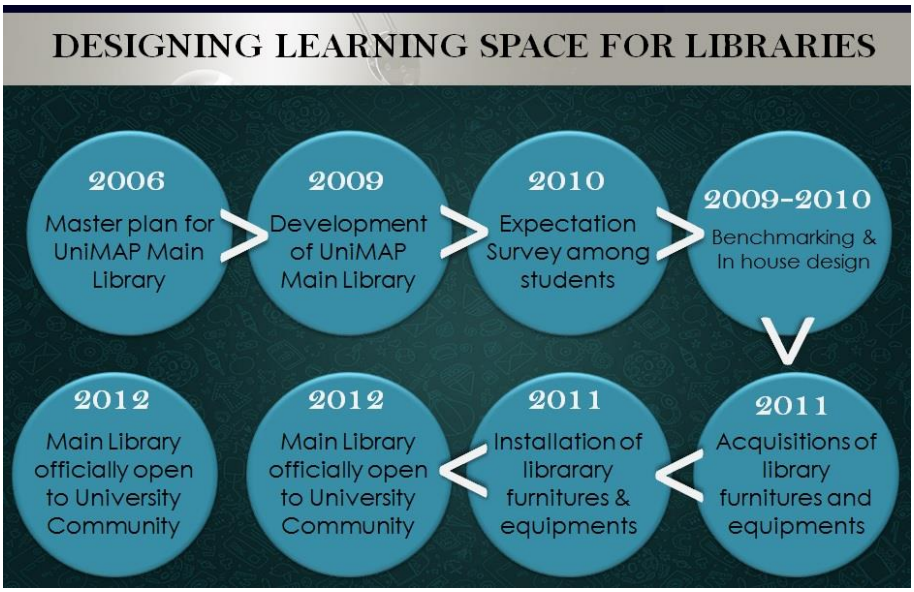

Figure 1. Milestone Towards Developing Learning Space at Universiti Malaysia Perlis

2. DESIGNING LEARNING SPACE FOR LIBRARIES

Initial efforts towards developing the University Main Library were carried out since year 2006. Major focus was given to create a university library with unique design and aesthetics values. Recommendation made by the first Chief Librarian on developing spiral ramp to replace ordinary staircases was materialised on design by architects and engineers. Exterior design exclusively showcase futuristic library with glass wall and attractive glass dome constructed on top of the building. The design of glass dome and wall provides interesting view of the whole campus areas in the future. It's dynamic in terms design clearly translated the library aim to enhance exploration of knowledge among the university members. The glass dome creates obvious distinction between the library with other building complex in the campus. However, minimal focus was given on providing access to contents, facilities and learning spaces according to futuristic trends. Hence, the library interior design and space allocation was still very much connected to conventional academic libraries.

2.1 Initial Space Design

In 2009, the library team was advised to review the initial interior design of the library areas covering location and segmentation of services and facilities. Highest percentage of library areas was given to collection development (45%), learning and studying areas (30%), services and facilities (15%) and 10% for office areas. This is based on simple estimation of space allocation according to proposed floor plan. Common features of conventional academic libraries were noticeable through huge number of bookshelves. In addition, group study tables were placed to provide areas that are conducive for studying and optimizing the library collections. Due to these specific features of conventional academic libraries, focus was not given to fulfil growing needs for collaborative learning among new generation of library users. Recognizing drastic changes of library users' behaviour throughout the globe, the library must be seen as fascinating learning space to support teaching-learning, research and consultation activities.

2.2 Hybrid Library And Learning Space Design

UniMAP obviously developed a hybrid library which is defined as an organizational entity that brings together a wide range of academic assets including metadata, catalogues, primary source materials, learning objects, datasets, digital repositories and physical resources in a structured and managed way (Regg Carr, 2011). The UniMAP library aimed to offer state-of-the-art facilities to support access to electronic resources and services in the library. Besides housing thousands of printed volumes of books in the library, UniMAP is dedicated to introduce new technologies and latest learning devices to support current needs of our students.

However, the library team needs to understand real expectations of students towards the library's collections, facilities and services. In 2010, UniMAPlibrary carried out a brief surveys among undergraduate students on their expectation of future UniMAP Library. The survey contains three open ended questions and managed to collect more than 100 valuable recommendations from undergraduate students.

Within the next four months, initial design was produced to integrate current orientation of library collections, services and facilities into new demands and expectations from students. Nevertheless, physical structure of the library did not permit additional space and new structures for high technology oriented facilities and services. Effective strategies were generated by the library team to inculcate innovative learning facilities into conventional space design. Guided by recommendation lists from the survey, new definitions of services and facilities were produced in order to fulfil strategic directions of UniMAP Main Library.
This covers nine (9) elements of UniMAP learning space; contributing to campus life experience, producing exceptionally talented graduates, supporting individual learning styles and behaviour, embracing technology and innovations, enhancing access to scholarly information, enriching campus life experience, enhancing discovery, strengthening resource sharing and creating conducive environment for collaboration (refer to Figure 2).Space constraints at the Main Library in City Campus, Kangar prohibited implementation of many mass events covering students and faculty members. Within 10 years after its establishment, the new Main Library will be able to provide platform for various activities and event to further contribute towards excellence campus life experience.

3. INNOVATIONS AND CREATIVITY AT UNIMAP LIBRARY

Innovations and creativity is the focal point of Tuanku Syed Faizuddin Putra Library since its establishment in 2012. The library is designed to adapt changes and requirements of new environment and strategic directions from its customers and stakeholders. Ongoing benchmarking with world-class academic libraries in few countries covering South Korea, Australia, Singapore, Thailand and Japan has helped the library to form interesting identification of Tuanku Syed Faizuddin Putra Library. Besides installation of high technology equipment and devices at the library, priorities were given to visual concepts representing local attractions, local environment and creating library as conducive home for users. As a result, the library environment does not replicate other libraries in the other part of the world. Hence, it has its own unique identity which is linked to the university and its surroundings.

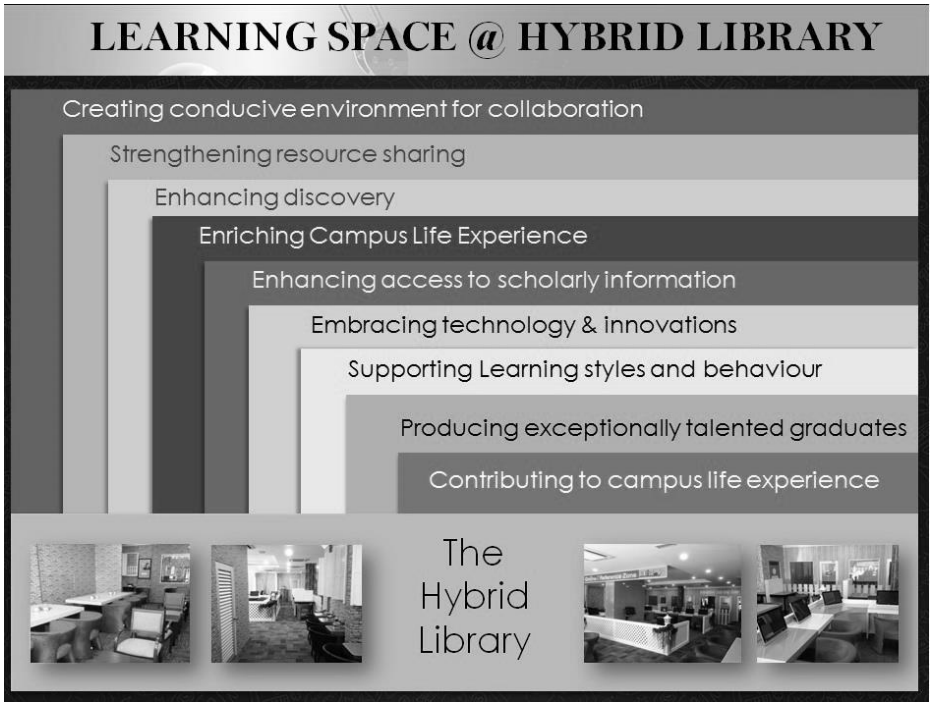

Figure 2. Elements of UniMAP Library Learning Space

According to Director of Utrecht University Library, there are three key reasons why the library should innovate (Robert Elves, 2015). First, we need to adapt to a changing environment. Secondly, libraries need to improve existing products and services and thirdly, we need to make use of new opportunities. Small Group Activities (SGA) called Creative Team involving few library staff was formed to cater new needs and requirements from time to time. Members of the Creative team are responsible to propose ideas and concepts to add value to the library environment. Experimenting with creativity at the library is a unique approach to enhance its role within the university, locally and globally. The team has continually contributed towards enhancing services areas and facilities at the library.

4. SUCCESSFUL EXPERIMENTS

In digital age, libraries are providing access to electronic resources across the campus. More focuses were given to designing effective physical space to support teaching-learning and research activities as well as information needs for life-long learning process. This is in line with new requirements towards library of the future. According to Miguel Figuera (2015):

> "The library of the future, whether the physical space or its digital resources, can be the place where you put things together, make something new, meet new people, and share what you and others bring to the table. It's peer-to-peer, hands-on, community-based and creation-focused."

4.1 Creating More Collaborative Learning Space

UniMAP Library created more collaborative learning space to support students in engineering, science and technology.Since 2012, study areas were converted to collaborative learning space to fulfil customer's needs towards collaborative learning strategies. As a result, all discussion rooms at the library were upgraded to wired discussion rooms with access to wide screen computers and Wireless Internet Access. Conventional reading areas were re-designed to enhance collaboration and communication among users either within dedicated rooms or open areas. Users may optimize collaborative learning space at Wired Discussion Rooms (Figure 3), Semi Collaborative Learning Zone (Figure 4), Noise Zone (Figure 5) and Smart Learning Zone (Figure 6). These areas are fully equipped with wide screen computers, smart board technology, modern design of tables and chairs and Wireless Internet Access. Those facilities are conducive for group presentation sessions, group discussions and small group classes. Those facilities are designed to support access to electronic resources and electronic services offered by the library.

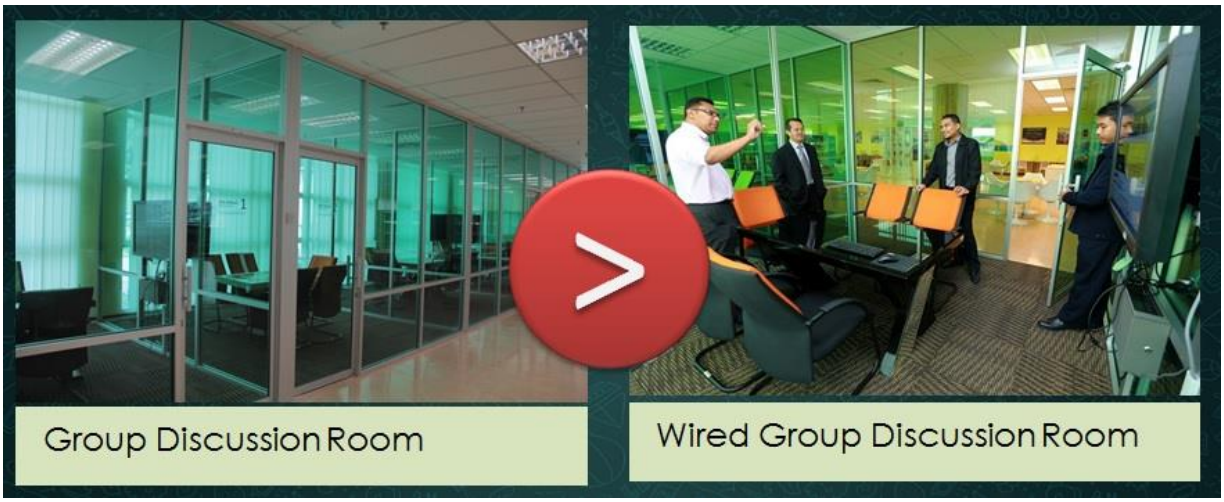

Figure 3. Wired Discussion Room

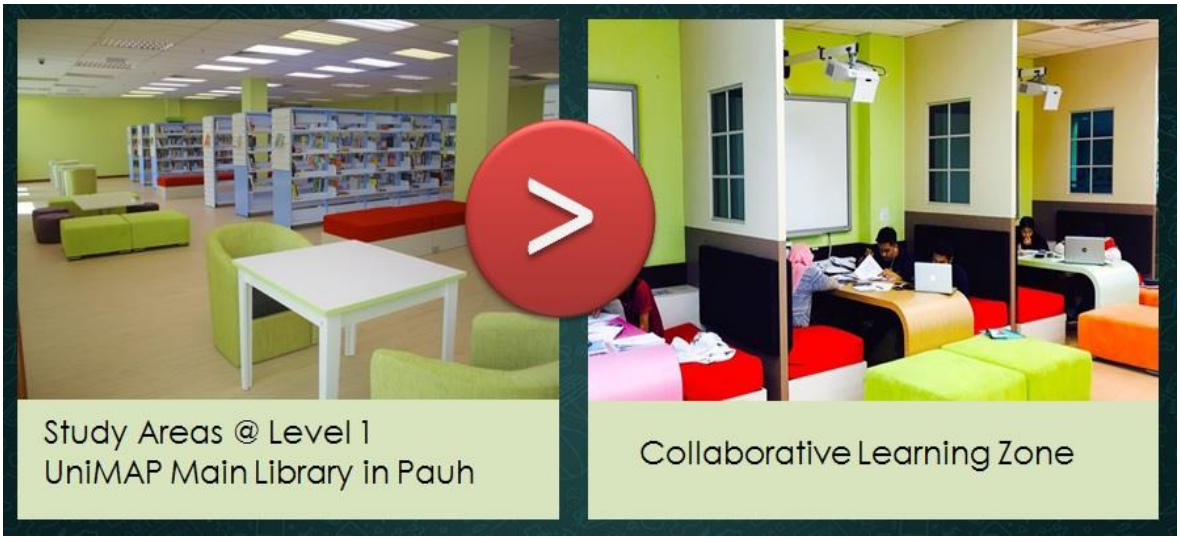

Figure 4: Semi Collaborative Learning Zone

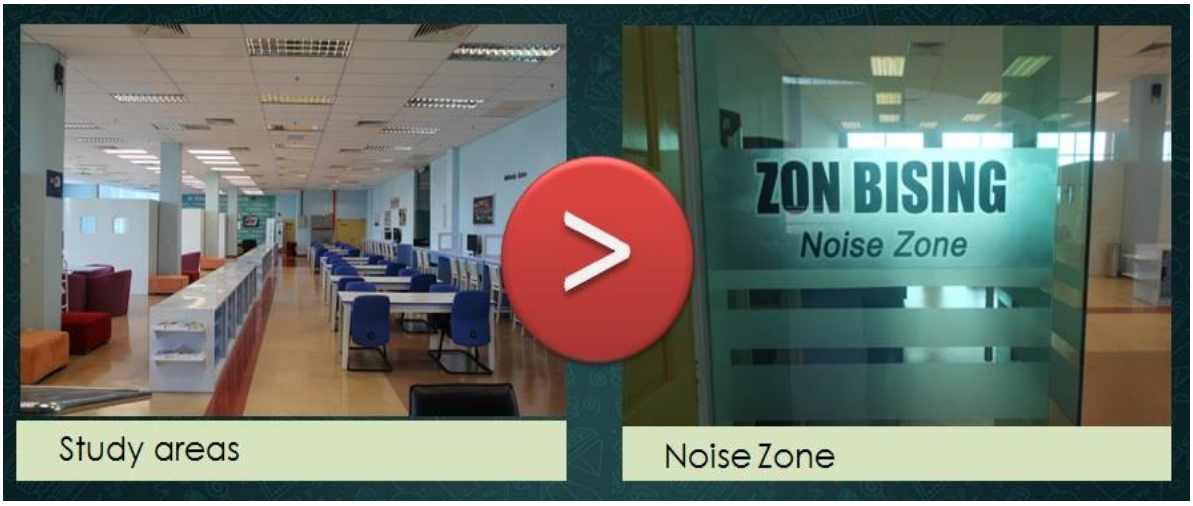

Figure 5. Noise Zone

Figure 6: Smart Learning Zone

4.2 Wired Areas

Recent scenario shows that library users do not rely on public access workstations or computers to support their teaching-learning and research activities. . At UniMAP library, users show dependencies on public access computers only for document printing from the Internet or e-resources platforms. Nowadays, majority of university students owned laptops and other gadgets suitable for storing and retrieving information. Students optimized their gadgets to store relevant documents and to produce their scholarly works. Laptops for instance becoming hub of resources for students integrating variety of functions for play-work-fun. Therefore, more wired areas need to be created instead of enhancing number of computers in library labs or public areas.

Due to initial design constraints, installation of electrical and Internet points were not possible. Only selected carrels nearby the library walls were managed to equip with electrical sockets by additional wiring. Students preferences towards facilities equipped with electrical sockets were interestingly showed in their selection of study areas in the library. Based on this observation, UniMAP Digital Hub in UniCITI Campus was designed to satisfy students' needs and preferences towards the library facilities. The Digital Hub provides 100% access to power outlets furniture, and 100% WIFI coverage. As a whole, students also require wired facilities within collaborative learning areas to support their learning behaviour.

4.3 Learning Pods

Conventional library design is focusing on providing space for individual study areas. Group study spot were located nearby library collections area to allow convenient access to reading materials. Development of e-book as powerful information resources lead to changes in students learning behaviour. Eventually, providing learning space is related to many other factors besides the library collections. At UniMAP Library, efforts were carried out to provide more collaborative learning space that fully equipped with Wireless Internet Access, nearby other library facilities and the library staff. In fact, focus was given to create dynamic and mobile facilities to support collaborative learning behaviour to support available facilities, namely limited number of discussion rooms and leisure areas. At least 16 learning pods in various forms; cubical, partitions, and mobile rooms were added to the library facilities for the past 4 years. Assuredly, learning pods are becoming popular choice for UniMAP students to fulfil their study behaviour.

5. FAILED EXPERIMENTS THAT LEAD TO BETTER SOLUTIONS

5.1 Creating Multipurpose, Highly Adaptable Gathering Place

The library creates many dedicated areas for different customers. In 2013, the library developed Postgraduate Lounge to support research activities among postgraduate students. This initiative was implemented by the library team through observations and visits to various academic libraries in Korea and Melbourne. The visited libraries in Melbourne for instance, provide personalised working areas for postgraduate students to ensure conducive ecosytems for postgraduate students to collaborate, network and most importantly, to produce excellent research reports. Access to the dedicated areas is restricted to postgraduate students only through access-control card. Similar model was adopted by the library management team to support various initiatives on the University High Impact Research.

The model was not practical for UniMAP since locations of postgraduate students were scattered across Perlis in more than 25 administrative centres. As a result, the Postgraduate Lounge was underutilized and access to this area was open to undergraduate students after 2014. In 2015, direction for Postgraduate Lounge was later rebranded as Industrial Engagement Zone (Ind-e-zone) as part of a national initiative to enhance graduate employability by Talent Corp. Ind-e-Zone was optimized by Centre for Industry & Government Collaboration (CIGC), UniMAP to organize training sessions from industrial partners. The area was equipped with meeting rooms and cubical for interview sessions. However, the area was actually converted to multipurpose, highly adaptable gathering places to support various events and activities in the

university. Libraries in the future should be able to provide multipurpose learning space and specialised area for dedicated customers is no longer practical.

6. CONCLUSION AND WAY FORWARD

UniMAP library received many positive feedbacks and responds from both academic community and the public regarding our concept and approach in developing effective learning space for Generation Y. In this present scenario, academic libraries must be willing to create a living library, which is adaptable to change and technology.

REFERENCES

Baker, D. (2008). Combining the best of both worlds: the hybrid library. In R. Earnshaw& J. Vince (Eds.), *Digital convergence – libraries of the future* (pp. 95-105): Springer London.

Elves, R. (2015). Innovation in libraries: report from the Business Librarians Association annual conference. *SCONUL Focus, 65*, 54-57.

Martin, C. (2015). Who says libraries are dying? They are evolving into spaces for innovation 2015, from http://theconversation.com/who-says-libraries-are-dying-they-are-evolving-into-spaces-for-innovation-44820

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EMBEDDED LIBRARIANS: TRANSFORMING THE LIBRARIAN'S ROLE FOR SCIENTIFIC RESEARCH ADVOCACY IN THE DIGITAL ERA

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ABSTRACT

This paper explores how embedded librarianship can use the available technologies to support and enhance participatory teaching, learning and research experiences in academic libraries. This is a conceptual paper of the embedded librarians in their quest to amplify the support for research in this digital era in Malaysia. The study ratifies a view from Khasiah (2015) that a significant way of supporting research as a librarian is to engage in the research practice and to participate in knowledge creation rather than merely managing and providing information for the research and researchers. The study will report on findings about the perception of academic librarian's roles in building on the vast increase in library user power brought on by the digital age and further assist the university's knowledge production in accordance to the national policies towards proliferation of scientific research. The emergence of embedded librarians in research will be able to optimize their librarianship skill and beyond, especially via lifelong learning process and profound attitude towards engaging in the scientific research. The transformation of roles as embedded librarians in research will enhance and further make librarians more relevant in this digital era. The theoretical basis employed is that of Boyer's model of scholarship as it is the affirmation that every learning process which involves support for research should start by the librarians appreciating the activities in scholarly communication. The involvement of embedded librarians in research will improve the current academic librarians' competency and practice for a better future.

Keywords: Embedded Librarians; Research Support; Digital Era; Scientific Research; Malaysia.

1. INTRODUCTION

As librarians look for methods to handle increasing volumes of multi formats of information and various researchers' need, several of them are turning to the model of embedded librarianship (Schulte, 2012; Berdish&Seeman, 2010) to establish and foster collaborative partnerships for learning. For an embedded librarianship to flourish and become an institution of growth with positive collaborations which could encourage confidence, empowering the librarian to become the right partner in teaching, learning and research is important. This paper explores how embedded librarianship can use available technologies to support and enhance participatory teaching, learning and research experiences in academic libraries.

The topic of embedded librarians in their quest to intensify the sustenance for research in this digital era is new to Malaysian librarians. Therefore, embedded librarians refer to the practise of collaboration and involvement in the scholarly communication process. In a nutshell, embedded are roles which librarians regularly do to support the researchers, scholars and post graduates.

Libraries are in the business of offering information services and informationresourcesto its users. The implementation of new communication technology especially new media has bonded the users and library staff as there is an application of the two way communication process.

As librarians look for ways to permeate information, digital and new media literacies into authentic research tasks in the context of content area study and passion-based information-seeking needs, many librarians are turning to the model of embedded librarianship to establish and foster collaborative partnerships for learning. At the root of embedded librarianship is the establishment and growth of relationships that cultivate trust, enabling the librarian to become a true partner in teaching and learning.

2. LITERATURE REVIEW

A review of the theoretical literature on the ATR construct shows that very little agreement exists among the scholars and researchers on how the construct can be defined conceptually. As the construct develops and evolves over the years, scholars from the various disciplines give their own conceptual definitions as to how the construct should be conceptually defined.

2.1 Embedded Librarianship

Embedded librarianship is not a new notion. Some definitions are as follow:

- An embedded journalist is supposed to have better access to a story; an embedded librarian provides better access to the librarian and to the library's resources. (Hedreen, 2005)
- Brings the learning process in closer proximity to the scholarship on which the disciplines are based and to those that service it-librarians." (Dewey, 2004)
- Emphasised the importance of forming a strong *working relationship* between the librarian and a group or team of people who needs the librarian's *informationexpertise*."(Shumaker, 2012)
- "It is about the work of an academic librarian who participates in an *academic course* on an *ongoing basis*, teaching *information literacy skills*."(Models of Embedded Librarianship Final Report, SLA, 2007)

This was discussed and studied by many outside Malaysia such as Schulte (2012) who revealed that an "entire double issue of Public Services Quarterly was devoted to the topic in 2010" (p.1). ACRL even published a book on the topic (Kvenild & Calkins, 2011). In 2009, there was a published chronicle review of various ways in which librarians have been embedded, including course integrated instruction, participation in research teams, collaborations in scholarly communication initiatives, and physical location of librarians in academic departments (Kesselman & Watstein, 2009). Additionally, in 2009, the results of an indepth study of embedded librarianship were published as a result of funding from the Special Libraries Association (Shumaker & Talley, 2009). However, these ideas are not followed and considered by librarians in Malaysia (Khasiah, 2015).

Embedded librarianshipis a model that embodies many possibilities for disrupting the stereotypes of a library as a warehouse of books rather than a dynamic commonplace site where learning and people shape the narrative of the library experience for a learning community whether it be a school or academic library **(**Hamilton, 2012). The idea of being an embedded librarianship is low in cost and may be use free as well as low-cost in teaching technologies to support and enhance participatory for creating delightful learning experiences in academic libraries. Many ways can be shown on how partnerships for learning were forged and the impact of these collaborative relationships on the understandings and experiences of learners of all ages.

A good conceptual paper may also build theory by offering propositions regarding previously untested relationships. Unlike, a purely theoretical paper, the propositions in a conceptual paper should be more closely linked to testable hypotheses and in doing so offer a bridge between validation and usefulness (Weick, 1989). The Mael and Jex paper does this with workplace boredom, whereas the Sharma and Kirkman paper does this with empowering leadership.

By connecting with diverse groups of library users and assisting their needs, embedded librarians compel themselves to service in a very different way than they did in traditional one-shot user education classes. In this era, librarians are using the embedded model to become valuable collaborators, trusted instructors, and partners in shaping the curriculum and broad institutional goals beyond the boundaries of the library.

2.2 Scientific Research Advocacy

Research supporters (such as in e-commerce, mobile computing, cloud computing, big data and hyper-converged platforms and news/social media) convey a distinctive perspective to the research process, making scientific and advances more timely and effective for people. As an advocator, librarians participate in various activities; they incorporate the collective standpoint into the research enterprise and serve as a notification of the need for research focused on benefits and outcomes. Advocates likewise support the dissemination of technical advances that lead to new and better methods to improve any research. Meanwhile, bestowing to Fishbein (1967), attitude was conceptualised as “learned predispositions to respond to an object or class of objects in a favourable or unfavourable way” (Fishbein, 1967, p. 257).

Some of the activities involving research supporters are;

a) Advise: Supporters develop recommendations and provide input on strategic directions or broad policy issues. Activities may include: Participating on formal advisory boards, speaking on panel discussions at meetings or conferences.
b) Design: Supporters assist in developing or enhancing programs and activities. Their contributions often help in identifying barriers to implementation. Activities may include partnering with librarians on trial development.
c) Review: Supporters evaluate and analyse research proposals and ongoing research projects. Activities may include: Participating in peer review panels
d) Editing or translating scientific language in documents to improve readability for non-scientific audiences
e) Disseminate: Supporters interpret and communicate research findings and scientific information for non-scientific audiences. Activities may include: Using scientific content to develop materials explaining research findings to different cancer communities, Sharing all types of knowledge sharing resources and publications through social media.

2.3 Supporting Scholarly Publishing

Research is important for the nation’s development and also for librarians (Canadian Association of Research Libraries, 2007). Without the product of publishing, there will not be any books to buy. Thus, involvement from the initiation of a book to the finishing is something that a librarian should think about. As part of the entity in the university community, academic

librarians should and could contribute to the university's missions and vision (Wiener, 2009). Academic librarians should not distance themselves from endeavour of knowledge production. They should be part of it. Ernest Boyer, an early supporter of "engaged scholarship," called for a set of transformations to lower the gaps between academic departments. Boyer proposed to open up new space for redefining the full scope of academic work. Thus, Boyer explored connections among the four dimensions of scholarship: teaching, discovery, application, and integration. The same dimensions were applied here in the study to emphasise how academic librarians can support the best environment by practicing four scholarship roles so that the scholars might relate differently to their teaching, discovery, application, and integration activities by collaborating with people and organisations beyond campus and ultimately directing their work towards larger, more complex, and more compassionate ends (Boyer, 1990).

2.4 Attitude towards Scholarly Publishing

Attitude studies received substantial responses from researchers globally. There are several reasons why research on attitudes is essential. First, attitudes are believed to influence behaviours, "We are talking here about accountability for example evidence of student achievement, transparency, a willingness to engage comparability and ranking issues (Eaton, 2007).

Second, a relationship between information literacy, attitudes and achievement has been shown to exist (Saunders, 2009). Furthermore, as stated by Zainab (2001), there is "an assumed inter-dependence between information collections in libraries and the services of the university and the faculty, which are both the producers and consumers of that information". .However, in Malaysia, there is a lack of positive attitudes about scientific research among Malaysian academic librarians (Hamzah&Hisham, 2011) which results in only 5% of academic librarians writing and publishing.

Muniz, Batista and Loureiro (2010) further stated that there is evidence that attitudes influence knowledge sharing. Education researchers and policymakers have issued reports that emphasise the importance of assessment and accountability for ensuring quality in higher education.

2.5 Scholarly Publishing Basics

Libraries are important features in a knowledge driven society. It made its point by accumulating and displaying collection knowledge which everyone should know (Oakleaf, 2010, p. 79). Furthermore, libraries promote democracy (Aabo&Audunson, 2002, p. 7) and suggested that the growing interest in knowledge comes from the idea of the things that knowledge can

give to an organisation. Therefore, libraries as any other organisation, can use knowledge to improve profitability, drive innovation or refine products and services. Nonaka and Takeuchi's (1995) research into Japanese companies has led them to conclude that the source of Japanese success is continuous knowledge creation and production, which leads to successful organisations.

Academic librarians have the role as collaborators of learning and are evident that it may lead to better education (Kezar, 2005). They are also being part of the scholarly environment (Devlin, Burich, Stockham, Summey& Turtle, 2006). Therefore, libraries should not turn away from their responsibility to advocate their primary user; the researchers. Despite the evolution of library roles, Lougee (2002) significantly notes that the library keeps a distinct identity that holds special meaning for members of the academic community. To survive in a continuously changing information environment, academic librarians must find ways to become agile, flexible organisations (Giesecke& McNeil, 2004). Furthermore, Malaysia currently lacks some of the critical elements to support the knowledge economy. Amongst them are the lack of adequate awareness and skilled human resources, inadequacy of a knowledge economy, supportive education and training infrastructure, a lack of R&D capability, a relatively weak science and technology base, a deficiency in institutional support and info structure, a slowly evolving financing system, and a lack of technopreneurs (Govindan, 2000).

In recognition of these factors, the government throughout Malaysia have launched numerous initiatives since the 1970s to link universities to industrial innovation more closely. The Government wish to see Malaysians equipped with contemporary skills and the right mind set to face the challenging future of the rapidly changing world. Against the background of the regional hub of education as an economic strategy, international university rankings, the globalisation of education, proliferation of academic articles and journal impact factors academic librarians have to use fresh approaches of alliance-creation and partnerships. Now, there are diverse demands for packaging and desktop delivery of information. Most vital scholarships in this area are related to customer focus and information literacy for researchers. Malaysia's policies that are related to education and training also emphasises the need to address the shortage of research and researchers and to enhance the quality of knowledge production.

The view of knowledge and related activities happening in the universities as a valuable organisational resource has been recognised and accepted by all. As such, "university's competence depends on its ability to create new knowledge, build on its capabilities platform, and make the capabilities more inimitable to achieve competitive advantage" (Liu, 2012, p. 114). Hence, the consideration of knowledge production thrives in universities is considered to be an imperative source of Malaysia's survival in this knowledge hungry society. The issues are vital to be addressed as the result will not only affect the university's standing and ranking but

also the future of the academic librarian. The study put in context the contribution of the new production of knowledge as proposed by Gibbons, Limoges, Nowotny, Schwartzman, Scott and Trow (1994). For example, the evolution of distributed and collaborative forces have prompted libraries to be far more engaged in the processes of research, integrating content, tools, and services more intimately within scholarly communication workflows. Malaysian academic libraries have the most exciting environment to work with presently. This is a result of the world's universities ranking which saw all universities in Malaysia fighting very hard to stay on the top 100 world standings. The main indicators of these rankings constitute mainly knowledge production. Malaysian knowledge production in this study is defined as "explicit knowledge in all fields available in the form of publications such as journals and books".

3. METHODS

The target population for this study was the academic librarians (professionally trained library employees) from five research university libraries in Malaysia. The study employed a survey method using questionnaire to collect data. A response rate of 59 per cent was attained resulting in one hundred and thirty nine (130) usable questionnaires. All items are measured on Boyer's (1990) scholarship scale using a 7-point scale ranging from (1) strongly disagree to (7) strongly agree.

Table 1: Embedded Roles Scale Based on Boyer, 1990 (Source: Khasiah, 2016)

Variables	Dimensions	Number of statements	Cronbach's alpha
Embedded Roles	1. Teaching information literacy	9	0.953
	2. Research support activities	11	0.938
	3. Information consulting activities	10	0.938
	4. Publishing support activities	9	0.972
	Overall	39	0.957

4. RESULTS

The estimated regression equation is significant at the 0.01 level but a low R-square value (0.152) indicates a poor fit. Perception on research usefulness is not a significant predictor on the level of embedded roles of librarians. Between the two significant predictors, positive attitude towards research has a relatively higher impact then research anxiety on embedded roles. The coefficients indicate that positive attitude towards research ($p < 0.01$) and research

anxiety ($p < 0.01$) exert a positive impact on embedded roles. In the regression analysis, the emphasis is on the impact of the four sub-dimensions of scholarship roles on attitude towards research.

Thus, a regression equation was estimated with attitude towards research as the dependent variable on the one hand, and the four dimensions of embedded roles (teaching information literacy, research support activities, information consulting activities and publishing support activities) as the independent variables. Only one of the four variables, involvement in publishing support activities is significant, implying that involvement in these activities has a positive impact on attitude towards research ($p < 0.01$). The estimated regression equation is significant at the 0.01 level but the low *R*-square value (0.019) designates a very poor fit.

5. CONCLUSION

This paper explored the embedded librarianship activities among Malaysian academic librarians. Embedded librarians are a group of persons who have become further involved in their support for research. The significance of this study is the progression of the useful movement in a librarian's role which is embedded librarianship. "Embedded librarianship" is a situation where librarians use their existing skills and experience to enable users to capture all levels of knowledge. It is also a skill of "creating" one of the level in Bloom's Taxonomy.

By joining a rising movement in embedded librarianship to enhance the library user's motivation in research and scholarship, librarians can directly contribute to knowledge creation and production (Williams & Winston, 2003). This study provided some positive signs of a proactive strategy from academic librarians to support various Malaysian governments' initiatives such as MyRA. The strategy is pertinent to chart the provision which librarians have shown in support of their university in the Malaysian education scenario as the place for a better knowledge production habitat. This is also intended to clearly communicate the academic library's direction and priorities for supporting scientific research, which is the top strategic priority for Malaysian research universities.

Engaging in Research Support Activities

Malaysian universities strived to present the right attitude to satisfy the information needs of academic library users. Information literacy is one key component of collaboration done by librarians to support the learning activities in order to optimise the learning experience of graduates. These are done daily by offering the right activities so library users can have the most effective and meaningful consultations when working with academic librarians. Thus, user

education could be offered as an integrated module instead of each module done separately. This is referred to as the integrated user education module and this module has been successfully tested at the library of UniversitiTeknologi MARA PuncakAlam.

Not only the module has embedded elements but it was innovated with integrated components. At the end of every session, the participants with many levels of information literacy skills, were able to achieve the objective of the module which is multiple awareness and skills to support their needs throughout their university's years which could help them to graduate on time (GOT). The module is called the Integrated Embedded Library Skills (IntELS).

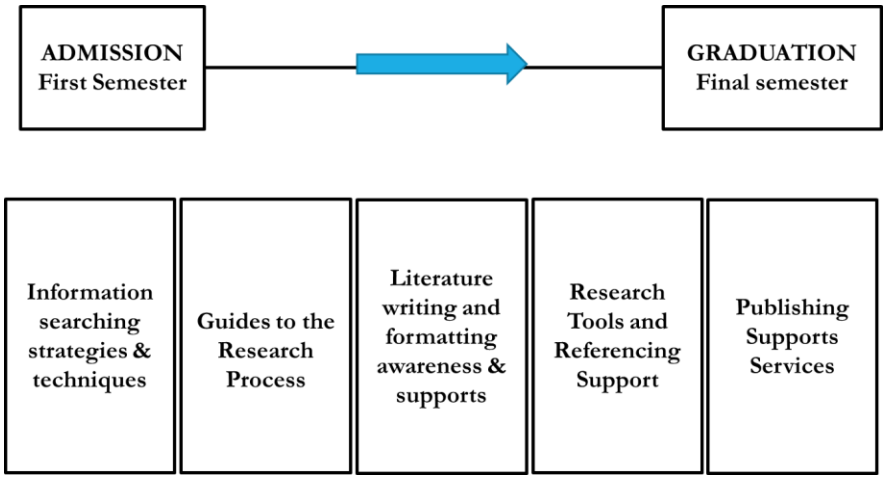

Figure 1. Integrated Embedded Library Skills for GOT (Source: Khasiah, 2015)

The IES module (Figure 1) is slightly different from the module done by Jones, Evans and Magierowski (2007). Their study strongly suggests that embedding information literacy into the curriculum is the most effective means of supporting student learning. In IES, librarians are embedding their current skills, knowledge and attitude to be in line with the need to increase the quality of knowledge produced by the institution. This framework supports students who are keen to be information literate graduates ready to be lifelong learners (Shapiro & Hughes, 1996).

Throughout the literature related to embedded librarianship, embedded librarians are often requested to be capable of a wide range of activities, including peer review panels, advisory boards, educational materials review, and scientific steering committees (Jones, Evans &Magierowski, 2007; Muir, & Heller-Ross, 2010; Schulte, 2012; Shumaker, 2012). They proposed that all librarians to have skills such as:

a. Systematic literature review; Critically evaluate published research
b. Citation analysis; Statistical tools/quantitative analysis;

c. Expertise on choice of data sources and analysis
d. Bibliometrics and scientometrics - evidence appraisal or critical appraisal of institution's own research output,
e. Institutional mandate or strategic pelan - knowledge on choosing a publication avenue
f. Advance the theory and practice of librarianship and keep faculty acquainted of new knowledge
g. Knowledge on electronic and digital technologies, at least about Open Access,
h. Almetrics - value of social impact of scholarly communication,
i. Familiarity of tools to disseminate research output,
j. Knowledge on predatory journals/ publishers and hijacked journals.

However, fostering an organizational atmosphere that values the perspectives remains the main contributions of research advocates.

ACKNOWLEDGEMENTS

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REFERENCES

Aabo, S., &Audunson, R. (2002). Rational choice and valuation of public libraries: Can economic models for evaluating non-market goods be applied to public libraries? *Journal of Librarianship and Information Science*, 34(5), 5-15.

Berdish, L., &Seeman, C. (2010). A reference-intensive embedded librarian program: Kresge Business Administration Library's program to support action-based learning at the Ross School of Business. *Public Services Quarterly*, 6(2-3), 208-224. doi:10.1080/15228959.2010.497462

Boyer, E. L. (1990).*Scholarship reconsidered: Priorities of the professoriate*. New York: The Carnegie Foundation for the Advancement of Teaching.

Devlin, F. A., Burich, N. J., Stockham, M. G., Summey, T. P., & Turtle, E. C. (2006).Getting beyond institutional cultures: When rivals collaborate.*Journal of Library Administration*, 45(1-2), 149-168.

Dewey, B. I. (2004). The embedded librarian: Strategic campus collaborations. *Resource Sharing & Information Networks, 17*(1/2), 5-17.

Fishbein, M (1967). Attitude and the prediction of behaviour. In: Fishbein, M (Ed.). *Readings in attitude theory and measurement*. New York: Wiley

Gibbons, M., Limoges, C., Nowotny, H., Schwartzman, S., Scott, P., &Trow, M. (1994).*The new production of knowledge: The dynamics of science and research in contemporary societies*. London: Sage.

Hamzah, M. F., &Hisham, R. (2011). Knowledge production in Malaysia by information professionals for evidence based librarianship. Retrieved June 7, 2015 from http://www.qqml.net/papers/June_2014_Issue/3215QQML_Journal_2014_MohdFaizal Hamzahetal_June_509-518.pdf

Jones, S., Evans, C. &Magierowski, R. (2007). A vertically integrated, embedded curriculum enhances the information literacy skills of science undergraduates, in Enhancing Higher Education, Theory and Scholarship, Proceedings of the 30th HERDSA Annual Conference, Adelaide, 8-11, 285.

Kezar, A. (2005). Redesigning for collaboration within higher education institutions: An exploration into the developmental process.*Research in Higher Education*, 46(7), 831-860.

Khasiah Z. (2015) Embedded librarianship in research and scholarship among academic librarians in Malaysian research universities. An unpublished thesis. Shah Alam: UniversitiTeknologi MARA.

Littlejohn, S. W. (2002). *Theories of human communication*(7th ed.). Belmont, CA: Wadsworth/Thomson Learning.

Liu, K. L. (2012). Assessing university research performance with multiple constituencies.*International Journal of Cyber Society and Education*, 5(2), 111-126. Retrieved July 9, 2012 from http://www.academic-journals.org/ojs2

Lynch, C. (2004). The new dimensions of learning communities, threshold: Exploring the future of education. Retrieved July 9, 2013 from www.ciconline.org/aboutcic/publications/archives/threshold_winter04.htm

Marincola E (2003) Research Advocacy: Why every scientist should participate. *PLoSBiol* 1(3): e71. doi:10.1371/journal.pbio.0000071

Muir, G., & Heller-Ross, H. (2010). Is embedded librarianship right for your institution? *Public Services Quarterly*, 6(2-3), 92-109. doi:10.1080/15228959.2010.497464

Muniz, J. Jr., Batista, E. D., &Loureiro, G. (2010).Knowledge-based integrated production management model.*Journal of Knowledge Management*, 14 (6), 858-871.

Nonaka, I., & Takeuchi, H. (1995).*The Knowledge creating company: How Japanese companies create the dynamics of innovation.* Oxford: Oxford University Press.

Oakleaf, M., & Association of College and Research Libraries. (2010). *Value of academic libraries: A comprehensive research review and report*. Chicago: Association of College and Research Libraries. Retrieved October 13, 2011 from http://www.ala.org/ala/mgrps/divs/acrl/issues/value/val_report.pdf

OECD Glossary of Statistical Terms.OECD.Bibliometrics. 28 March 2013. Retrieved 5 January 2016 from http://stats.oecd.org/glossary/

Papanastasiou, E. C. (2005). Factor structures of the attitudes towards research scale. *Statistics Education Research Journal*, 4(1), 16-26.

Presidents' Forum of Excelsior College. (2007). Transparency by design: Principles of good practice for higher education institutions serving adults at a distance. Retrieved November 7, 2010 from http://snipurl.com/1te8j

Saunders, M., Lewis P., &Thornhill, A. (2009).*Research methods for business students* (5th ed.). New Jersey: Prentice Hall.

Schulte, S. J. (2012). Embedded academic librarianship: A Review of the literature.*EBLIP*, 7(4), 122-138.

Shumaker, D. (2012). Embedded librarians in corporations, non-profits and government. In *The Embedded Librarian: Innovative Strategies for Taking Knowledge where it's needed*. Medford, NJ: Information Today, Inc. Retrieved August 25, 2016 from http://www.infotoday.com/it/jul12/Shumaker--Embedded-Librarians-in-Special-Libraries.shtml

Weiner, S. (2009).The Contribution of the library to the reputation of a university.*The Journal of Academic Librarianship*, 35(1), 3-13.

Williams, J. F., & Winston, M. D. (2003). Leadership competencies and the importance of research methods and statistical analysis in decision making and research and publication: A study of citation patterns. *Library & Information Science Research*, 25(4), 387-402. Retrieved June 14, 2014 from http://www.sciencedirect.com/science/article/pii/S0740818803000501

Zainab A. N. (2001). Library resources and services and publication productivity.*Malaysian Journal of Library and Information Science*, 6(1), 71-91.

Zakaria, K., &Kassim, N. A. (2012).The scholarship practices and knowledge production environment among academic librarians in the research universities in Malaysia. Paper presented at at QQML 2012, Limerick, Ireland.

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iHIKMAH : IIUM ONLINE COMMUNITY OF PRACTICE (CoP) PORTAL

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ABSTRACT

In 2014, the IIUM embarked on knowledge audit project. Seven (7) gaps were identified and four (4) recommendations were proposed. These are : 1- Encourage a learning workspace ; 2- Create Formalised Internal Knowledge Processes and Standards; 3- Connecting People to Content; 4- Connecting People to People. In 2015 the University haddecided to develop CoPs as a network platform that links employees to knowledge sharing. This is one of the knowledge management initiatives recommended. Online CoP project provides a personalized workspace where individuals can collaborate, communicate, conduct research, and plan activities based on a common interest. The purpose of this paper is to share the experience of IIUM in developing online community of practice portal. The portal is developed by using open source software namely Drupal. Among the features available are user profile, planning tools (calendar, tasks), admin tools (management, security, workflow, content management), collaboration/communication (e-forums, web meetings, blogs, chat), research tools (article, links to external sites, portal search, multimedia) and general (help, system announcements, feedback)

Keywords: CoP; Community of practice;Portal;Knowledge management;Knowledge audit.

1. INTRODUCTION

International Data Corp. (IDC) estimates that poorly managed knowledge costs Fortune 500 companies about $12 billion a year (Stewart, T. A., 2002). You do not need numbers like IDC's to know that the need is there: Just consider how much time you waste searching for information that ought to be at your fingertips, how many times you have been frustrated by having to talk

to five or six people before getting the right knowledge or information, how many times a mistake could have been prevented if only you have known who to check with?

These scenarios represent many organizations today that failed to identify and leverage on existing knowledge, thus leading to "reinventing the wheel", repeating mistakes and wasting resources. From e-mails to documents, spreadsheets to presentations, pictures to multimedia content, there is valuable knowledge potentially housed in each of these files. But content without effective access and usage is worthless and unmanaged repository can cost a bundle unless proper steps are taken. All these represent explicit knowledge.

There is another form of knowledge to consider – tacit knowledge - which is personal knowledge that is in people's minds. People with experience and expertise are the organization's most vital information resources, and it is imperative that information services provide access to or at least information about knowledgeable experts in the organization. It has been highlighted that 20% of knowledge is stored in documents whilst 80% is stored in the heads of knowledge workers. Thus, managing organizational knowledge more effectively and exploiting it in the marketplace, is the latest pursuit for those seeking competitive advantage.

Over the years,theuniversity has built a rich bank of information resources and knowledge assets in various document forms and as well as a pool of knowledgeable experts. To ensure the information iseasily accessible and used, it needs proper knowledge management system. Due to that, IIUM has included knowledge management strategies in its ICT strategic plan. In 2014, the university has embarked on knowledge audit project. As a result of knowledge audit project, the university has established community of practice(CoP) initiative to enhance knowledge sharing among staff in IIUM. This paper describes how to implement CoP portal as a tool for knowledge sharing.

2. IIUM ICT STRATEGIC PLAN 2013 – 2015: KNOWLEDGE MANAGEMENT

The IIUM ICT Strategic Plan 2013-2015 is a plan that determines the direction, development strategies and implementation of ICT projects in the University. It is to focus, synergize and spell out the strategic direction statement, key result areas (KRA), and action plan in order to fulfill IIUM's aspiration to be the Premier Global Islamic University by 2020.

There were three (3) Key Result Areas (KRA) supporting the IIUM ICT Strategic Direction Statement as below:

IIUM ICT KRA	ICT KRA GOALS
Governance	To strengthen ICT governance towards the highest standard
Service Delivery	To provide customer-focused, efficient, sustainable and reliable service
Knowledge Management	To systematically manage knowledge for societal well-being, wealth-creation and new knowledge.

Currently, the systems and databases are in silos. It is a challenge for the university to compile and access data. To solve the problem, the University needs to establish knowledge management system. Knowledge management is defined as "getting the right information to the right people at the right time". Under Knowledge Management KRA, there are several action plans were lay out.

NO.	EXPECTED OUTPUT	ACTION PLAN
1.	Knowledge capture	1. To identify and capture information that exists across the University through KMaudit exercise. 2. To enhance knowledge capture for knowledge sustainability and to ensure data validity and reliability. 3. To establish a single, trusted and recognized IIUM wide data for better decision making. 4. To develop University corporate taxonomy.
2.	Efficiently manage the University's knowledge resources	1. To enhance system integration and data mining to pull together isolated knowledge bases. 2. To utilise intelligent agents to deliver "just-in-time information.
	Strengthening knowledge	1. To instil the habit of knowledge sharing practices within and across the University.

3.	sharing and collaboration	2. To establish rewards and recognition program for knowledge sharing.
4.	KM planning process	1. To plan and acquire KM budget implementation. 2. To establish measurable progress made against KM plan.

3. KNOWLEDGE MANAGEMENT AUDIT

In 2014, the university has asked the Library to lead the knowledge audit project. Knowledge audit plays an important part of introducing KM into any organization. It is a systematic examination and evaluation of organizational knowledge health status, thus providing the audited unit to measures knowledge of its existing and potential knowledge value. The project was started in May 2014 to October 2014, the project was done by consultant namely Paradigm Systems Sdn. Bhd.

The audit methodology used for data gathering for this project was brainstorming sessions cum focus group and questionnaires. The data and analysis generated 4 essential outputs – Knowledge Needs Analysis, Knowledge Inventory Analysis, Knowledge Flow Analysis and Knowledge Map Analysis.

In a nutshell, the combined analyses identified seven KM gaps in IIUM:

- Gap in managing knowledge of internal core experts, which denotes not fully leveraging the skills and competencies available internally.
- Gap in codifying of tacit knowledge, which raises concern of no retention of knowledge that is in human mind.
- Gap in knowledge accessibility, which shows access to some key knowledge to be difficult.
- Gap in formalising knowledge processes, which highlights people working in silo and information not transferred into other parts of organisation.
- Gap in knowledge sharing practices, which reveals awareness of KM among staff is still low.
- Gap in organisation learning culture, which depicts the lack of culture in learning from mistakes, sharing lessons learned and experimenting new ways of doing things.
- Gap in ICT-enabled knowledge, which indicates an absence of integrated, user-friendly and collaborative information system to promote knowledge sharing.

To address these gaps, this report recommends four enablers and four Quick Wins (that can be implemented in one to six months period) that would help IIUM in formulating a plan of action. The four enablers and Quick Wins are:

- Encourage a learning workplace
  Quick Win: Create a Training and Development Directory to organise materials and knowledge from workshops, conferences, seminars and other forms of training.
- Create formalised knowledge processes and standards
  Quick Win: Maps out selected three to four core activities, document and share them.
- Use technology as an enabler to connect people to content
  Quick Win: Improve and provide access to selected knowledge that is essential.
- Provide tools and platforms to connect people to people
  Quick Win: Create a Directory of Experts that reveals "knowledge master" of IIUM.

Upon completion of this project, the University has asked the Library to implement two (2) projects from the above recommendations. The Library decided to embark on the following:

a. Develop Directory of Experts by subscribing PlumX from Ebsco
b. Implement IIUM Community of Practice (CoP) projects namely iHIKMAH.

4. IIUM COMMUNITY OF PRACTICE (CoP)

4.1 What is Community of Practice (CoP)

Community of Practice (CoP) is a community of people who share a common interest in a certain area, and it provides these people, at different levels and of different backgrounds, with an opportunity to exchange knowledge, skills, experiences, and information inaparticulararea. Through interactions, people in the community give and get support and advice in person and virtually. CoP provides a rather informal and relaxing environment where everyone can learn and develop himself or herself professionally (Wenger, 2002)

4.2 CoP at IIUM

From the knowledge audit findings, IIUM is facing the following issues:

a. Knowledge in IIUM is in silos. It is stored in repositories known only to some and only available to selected individuals. Access then become an issue.

b. Critical knowledge within individuals gets “lost’ when they leave the organization or retire. Meaningless effort is spent in recreating the loss knowledge.
c. Workers who need “just in time’ knowledge are unable to know who has what knowledge. Connecting to a right person to impart experience or advise becomes a challenge.
d. Valuable contributions to knowledge sharing and transfer cannot be forced. Top management faces this challenge even if they can allocate employees to knowledge sharing activities, or assign them to dedicated projects and instruct them to contribute their knowledge to their organization.

The solution lies in creating a knowledge enabling environment for people to share their experiences and in establishing special methods for identifying, creating, storing, sharing and using the kind of knowledge that is often not documented. Based on those challenges, in 2015 IIUM decided to embark on a solution that utilizes the concept of cultivating Communities of Practice (CoP) as an informal learning tool to facilitate the creation of knowledge enabling environment in the organization. The Dar Al-Himah Library is taking the lead in managing this project.

To be inline with the University’s strategic planning initiatives, the following eight pillars have been identified as areas where teaching and learning development is most needed.

a. Quality teaching and learning
b. Research and innovation
c. Internationalisation
d. Hollistic student development
e. Talent management
f. Financial sustainability
g. Good governance
h. Islamisation

For each pillar, a CoP has been established leading by appointed moderator. All staff are welcome to join.

The process involved in the implementation of CoP are as follows :

a. Developing aknowledge portal. This portal becomes the platform of knowledge sharing tool.
b. Leveraging on social networking tools.
c. Building the online CoP, capturing and codifying conversations.

Regular brainstorming labs were held to simulate scenarios, capture and codify the conversations via social networking tools. It is critical to ensure the knowledge contributors are made available in these sessions. This is the tough part.

4.3 IIUMCoP Portal

In the implementation of CoP, the portal will become an enabling tool in the establishment of knowledge sharing in IIUM. The portal can knit the experts together into a virtual community and aid collaboration.

The portal is developed by using Drupal 7.4.1, database MySQL and PHP as web services. The Drupal system is chosen because it supports good forum features. The portal consists of the following modules :

a. Admin Tools (Management tools, security, workflow & content management)
b. Profile (User profile and User preferences)
c. Planning Tools (Calender& Tasks)
d. Research Tools (Federated search engines, expertise, etc.)
e. Collaboration/Communication (Forum, Blogs, chats and Web meetings)
f. Roles (TCS, grantees & stakeholders)
g. General (Help, System announcements, feedback)

The portal has beengiven the name iHIKMAH (wisdom of knowledge sharing). Below is the front page of the portal.

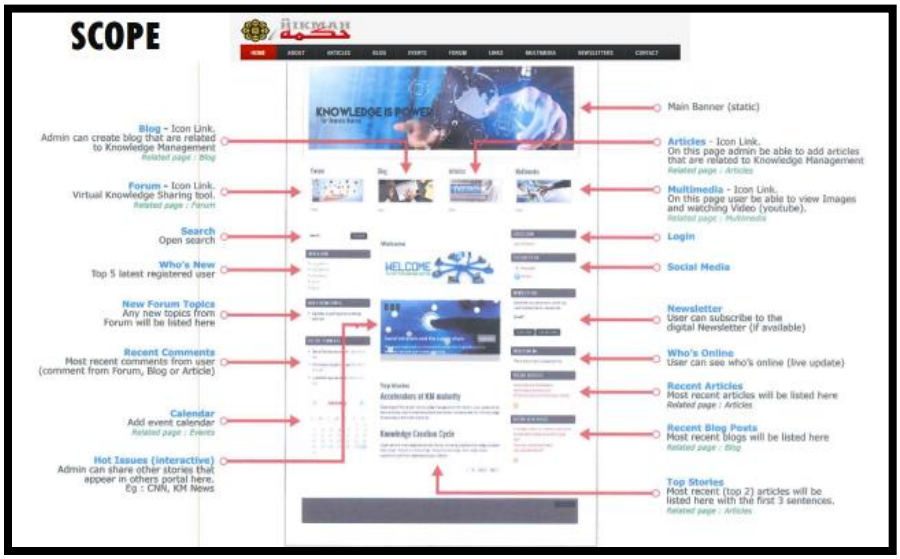

Figure 1 – Ihikmah Portal

4.4 CoP Forum

One of the most important aspects of CoP is that a group of people are able toshare knowledge, learn together and create common practice (Buckley& Giannakopoulos, 2011). Community members frequently help one another to solve problems, give one another advise and develop new approaches or tools for their field. Thus, one of the main modules in CoP portal is e-forum. Currently there are about 1,500 conversations that had been posted by the domain members. These treats need to be replied and codified by the respective moderators. Below are screen shorts of the e-forum module.

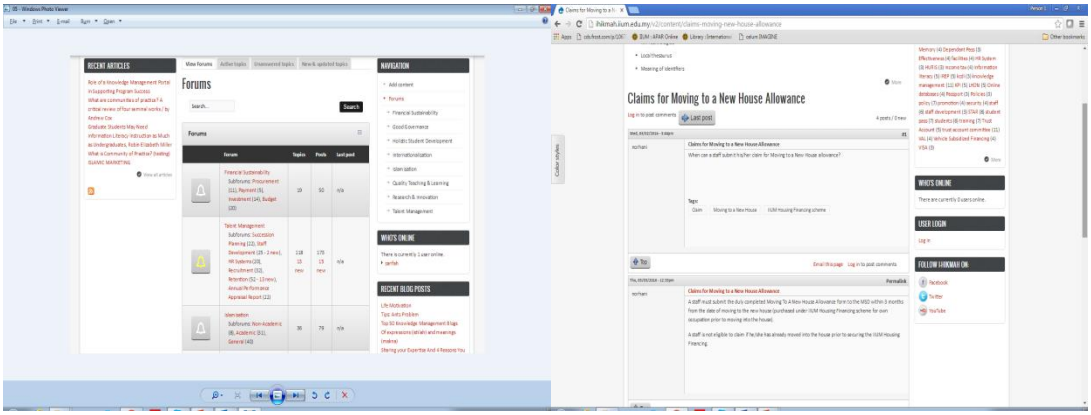

Figure 2 – Forum Screen

5. ISSUES AND CHALLENGES

Beforethe launch of iHikmah to the IIUM community, the content must be sufficient, valid, reliable and the treats are attractive enough to the users. All treats created must be examined, validate whether they relevant enough. The treats may be added, changed or deleted. All treats have the right keywords, verify the knowledge or enhance the issues. To ensure these are achieved, we have to schedule several face-to-face domain management labs. However, the attendance was not encouraging.

Probst &Borzillo (2008) found that there are five major reasons for failure ofthe community of practice activities. First, lack of a core group. These CoPs lack a group of core members actively engaged in its activities, such as regular participation in meetings, the inflow of fresh ideas, and support provided to other members on problem solving. This may due to the work loadpressures,not permittingmembers of the CoP time to regularly meet and discuss any critical issue. Second, low level of one-to-one interaction between members (face-to-face, telephone, e-mail, etc.). Members rarely contact one another regarding practices that they use in their respective units, or to help one another solve common problems. This, resulted in the members showing no enthusiasm to maintain their collaboration in the CoP.

Third is therigidity of competences. Members tend to primarily trust their own competences, and are therefore less willing to integrate practices originating from other CoP members into their daily work. Thereluctance to learn from others impedes members' capacity to absorb new competences. Practice transfers between members of the CoP are therefore rare. Fourth, is thelack of identification with CoP. Members do not view participation in their CoP as meaningful for their daily work. They thus do not perceive other members as peers who can assist them with useful knowledge and practices. The fifth is practice intangibility which occurs when members fail to engage with one another in a way that allows them to illustrate the practice to make it concrete enough for other members to understand and visualize its function. Instead of printing out the instructions to do something, it is better ifthe members are shown how to do it.

The above matters are some of the challenges that have to be faced and to strategize, inorder to ensure the successful implementation of CoP.

6. CONCLUSION

From existing studies, like any initiative, CoPs need to be energised especially at the beginningstage. Along the way we need to ensure quality content need to be captured and

codified, the services that we provide to facilitate a knowledge sharing environment is crucial. Finally we have to ensure online and face to face conversations are kept alive. We are hoping from our CoPsweare able to share the experiences amongst IIUM community and build a facilitating environment that will allow our knowledge workers to engage.

REFERENCES

Ahmad Dahlan, Abdul Rahman (2016). Intellectual assets and knowledge audit as fundamental step for the "University of the Future" transformation.

Burkley, Sheryl, Giannakopoulos, Apostolos (2011). Knowledge sharing through communities of practice.*Proceedings of the European Conference on Intellectual Capital*, p. 103-112.

CITES (2005). Partners Virtual Community. CITES,

International Islamic University Malaysia (2012).*ICT strategic plan : IIUM 2013-2015.*Kuala Lumpur : International Islamic University Malaysia

International Islamic University Malaysia (2014).*Knowledge audit report*. Kuala Lumpur :International Islamic University Malaysia.

Karwowski, Waldemar&Orlowski, Arkadiusz (2014).*Drupal as an important part of a knowledge management system*. Warsaw :PrzegladElectrotechniczny.

Probst, Gilbert &Borzillo, Stefano (2008). Why communities of practice succeed and whythey fail. *European Management Journal*, vol. 26, 335-347.

Steward, T. A. (2002).The Case Against Knowledge Management. *Business 2.0 (February).*

Wenger, Etienne, Mcdermott, Richard & Snyder, William M. (2002).*A guide to managingknowledge : cultivating communities of practice*. Boston : Harvard Business School Press.

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SYSTEM AND INNOVATION IN NATIONAL LIBRARY OF MALAYSIA : SAMSUNG SMART LIBRARY (SSL)

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ABSTRACT

National Library of Malaysia (NLM) unveiled Malaysia's first Samsung SMART Library at its premise in June 2014 making this first of its kind digital-book reading zone ensued from an unprecedented public-private partnership between NLM and Samsung Malaysia Electronics (SME) Sdn. Bhd. The Samsung SMART Library at NLM is poised to provide a new and interactive reading experience for Malaysians, especially children and youth, within an enhanced technology-enabled library environment. NLM has been tasked to make information available to all and encourage the cultivation of reading habit amongst Malaysians. The SMART Library has been designed to enhance knowledge accessibility and learning through the use of the latest technology for all. In line with the Malaysian Vision to become a developed country in 2020, the Samsung SMART Library is an initial effort built to support the Government's transformation of Malaysia into a knowledge-based society that is powered by ICT know-how by the year 2020. The users of Samsung SMART Library have the opportunities to explore Samsung's technology and use this facility for leisure readings and research.

Keywords: Samsung SMART Library**;** National Library of Malaysia; Digital library.

ABSTRAK

Perpustakaan Negara Malaysia (PNM) telah menjalinkan kerjasama dengan Samsung Malaysia Electronics di bawah Program Tanggungjawab Sosial Korporat mewujudkan Perpustakaan Bestari Samsung (Samsung Smart Library). Perpustakaan ini adalah satu transformasi perpustakaan digital yang memberi peluang kepada masyarakat menggunakan perkhidmatan secara elektronik. Penubuhan Perpustakaan Bestari Samsung ini merupakan satu-satunya perpustakaan yang mempunyai buku digital di Malaysia. Ianya turut menyediakan perkhidmatan digital secara percuma yang menawarkan perkhidmatan buku elektronik, majalah elektronik dan surat khabar elektronik. Perpustakaan Bestari Samsung telah ditubuhkan di Zon Utara dan Timur iaitu di Perpustakaan Negara Malaysia Cawangan Perlis dan di Perpustakaan Awam Negeri Terengganu manakala bagi perpustakaan khusus, Perpustakaan Bestari Samsung telah ditubuhkan di Maktab Polis Diraja Malaysia (PDRM) Kuala Lumpur. Penubuhan perpustakaan digital ini memberi cabaran kepada pentadbiran perpustakaan dalam transformasi perpustakaan digital. Antara cabaran terhadap perpustakaan digital adalah jurang teknologi antara bandar dan luar bandar, jurang kemahiran ICT di antara generasi belia dan generasi terdahulu, perkembangan teknologi yang pantas dan memperkasakan promosi perkhidmatan perpustakaan digital. Kerjasama dalam Program Tanggungjawab Sosial Korporat ini perlu diteruskan bagi menyokong saranan kerajaan untuk melahirkan masyarakat celik IT dan berilmu pengetahuan serta menarik minat membaca dalam kalangan masyarakat Malaysia.

Kata kunci: Perpustakaan Bestari Samsung; Perpustakaan Negara Malaysia; Perpustakaan Digital; Buku Digital.

1. PENDAHULUAN

Seiring dengan perkembangan teknologi pada masa kini, Perpustakaan Negara Malaysia (PNM) telah menjalinkan kerjasama dengan Samsung Malaysia Electronics Sdn. Bhd. bagi Program Sosial Korporat mewujudkan Perpustakaan Bestari Samsung (Samsung Smart Library). Perpustakaan Bestari Samsung telah dipilih sebagai transformasi perkhidmatan Jabatan Perkhidmatan Awam Malaysia. Perpustakaan ini merupakan satu transformasi perpustakaan digital yang memberi peluang kepada masyarakat mendapatperkhidmatan secara elektronik menggunakan peranti berjenama Samsung yang terkini dan canggih. Penubuhan Perpustakaan Bestari Samsung ini merupakan satu-satunya perpustakaan yang mempunyai buku digital di Malaysia.

Perpustakaan ini juga bermatlamat untuk meningkatkan budaya membaca menerusi medium teknologi maklumat dan komunikasi (ICT). Perpustakaan Bestari Samsung telah dilengkapi peralatan terkini yang boleh diakses oleh pengguna secara percuma di PNM. Direka dan dibina

dengan kelengkapan e-Buku dalamkawasan seluas 1,300 kaki persegi yangmemiliki empat konsep khusus. Terdapat 67 peranti Samsung yang terdiri daripada pelbagai saiz tablet serta skrin berformat besar. Perpustakaan Bestari Samsung menyediakan pengalaman pembacaan yang baharu dan interaktif untuk rakyat Malaysia**,** terutamanya kanak-kanak dan remaja**,** didalam persekitaran perpustakaan digital berkeupayaan teknologi.
Perpustakaan Bestari Samsung telah dilancarkan pada 16 Jun 2014 dan telah dirasmikan oleh Menteri Pelancongan dan Kebudayaan, Y.B. Dato' Seri Mohamed Nazri bin Tan Sri Abdul Aziz, danturut dihadiri oleh YBhg. Dato' Raslin bin Abu Bakar, Ketua Pengarah Perpustakaan Negara Malaysia, sertaEn. Lee Dong Yong, Presiden, Samsung Malaysia Electronics Sdn. Bhd.

2. KAJIAN TERDAHULU

Konsep perpustakaan kini telah berubah dan melalui peralihan mengikut keperluan zaman dan arus teknologi. Perkembangan teknologi maklumat membolehkan bahan diakses dalam bentuk elektronik. Perpustakaan digital adalah kelangsungan kepada perpustakaan elektronik di mana bahan tidak hanya boleh diakses dari perpustakaan sahaja tetapi juga secara global menerusi Internet. Perpustakaan digital terdiri darisebuah entiti yang merangkumi semua aktiviti perpustakaan termasuk koleksi bahan, perkhidmatan, kemudahan dan kakitangan yang mempunyai kepakaran masing-masing untuk memilih, menyusun, memberi akses intelektual dan menyebarkan maklumat kepada masyarakat (Ruzita, 2015). Kepesatan teknologi maklumat dan komunikasi (ICT) membawacabaran kepada perpustakaan kini dalam memberi dan menyebarkan maklumat kepada pengguna. Perkhidmatan sumber elektronik boleh ditakrifkan produk yang menyampaikan data teks, nombor, grafik sebagai produk komersil yang terdapat dalam bentuk digital termasuk pangkalan data yang penuh teks, jurnal elektronik, koleksi gambar dan produk multimedia (Mamtora, 2013).

Cabaran utama bagi perpustakaan yang semakin berkembang pesat dengan lambakan maklumat membuatkan tugas mengurus maklumat menjadi lebih sukar. Pustakawan menghadapi cabaran dalam pengurusan perpustakaan untuk menyediakan maklumat yang berkualiti bagi memenuhi keperluan pelanggan. Satu kajian telah menemui bahawa penggunaan sumber elektronik dipengaruhi oleh faktor manusia dan organisasi. Mereka mendapati bahawa penggunaan sumber elektronik dipengaruhi oleh literasi maklumat dan kemahiran dalam mengakses maklumat oleh pengguna. Perpustakaan bertanggungjawab menyediakan perkhidmatan sumber elektronik yang mencukupi serta memainkan peranan penting untuk menggalakkan dan membolehkan pengguna untuk mengakses sumber-sumber digital perpustakaan. Perpustakaan perlu dilengkapi dengan peralatan dan perisian teknologi terkini bagi menyokong dan memupuk tabiat membaca dalam kalangan masyarakat (Wu, 2006).

3. PERKHIDMATAN YANG DISEDIAKAN

Perpustakaan Bestari Samsung menyediakan perkhidmatan digital secara percuma kepada pengguna kanak-kanak dan dewasa. Perkhidmatan yang disediakan adalah perkhidmatan buku elektronik, majalah elektronik dan surat khabar elektronik. Perkhidmatan dibuka pada hari Selasa hingga Sabtudari pukul 10.00 pagi sehingga 7.00 malam**,** dan hariAhad pada 10.00 pagi sehingga 6.00 petang**,** manakala ditutup pada hari Isnin.

Perkhidmatan ini menawarkan empat konsep khusus**,** iaitu Zon Interaktif yangmenyediakan perkhidmatan pembacaan e-suratkhabar (Malay Mail dan The Star) dan e-majalah *(*Life is Beautiful, Jelita, Dashboard, Dinar & Darham, Cube, Keluarga Aman, Afro Rider, Yours, Discovery, National Geographic).Zon Kerja pula menawarkan perkhidmatan kesetiausahaan seperti MS Office, *E-Studio* dan *Cloud Reader.* Pengguna kanak-kanak boleh menggunakan perkhidmatan yang disediakan di Zon Kanak-kanak yang menawarkan perkhidmatan buku elektronik, permainan interaktif dan portal pendidikan yang bersesuaian dengan tahap umur kanak-kanak. Pengguna boleh menggunakan Zon Pembaca untuk mengalami sendiri pembacaan buku elektronik dalam pelbagai subjek**,**antaranya fiksyen, perniagaan, agama, akademik, gaya hidup & kesihatan, keluarga, motivasi, teknologi dan lain-lain melalui penggunaan tablet yang disediakan.

4. PENUBUHAN PERPUSTAKAAN BESTARI SAMSUNG DI ZON UTARA DAN TIMUR

PNM dan Samsung Malaysia Electronics telah mengeratkan lagi hubungan kerjasama ini dengan menubuhkan Perpustakaan Bestari Samsung yang kedua di Zon Utara Perpustakaan Negara Malaysia Cawangan Perlis. Perpustakaan BestariSamsung ini berkeluasan 752 kaki per segi dan terdapat 35 peranti Samsung untukpengguna Perpustakaan ini telah dirasmikan pada 12 Januari 2015 dan telahdirasmikan oleh DYTM Tuanku Raja Muda Perlis, Tuanku Syed Faizuddin Putra Jamalullail. Penubuhan perpustakaan ini memberi peluang kepada masyarakat di negeri Perlis untuk menggunakan peralatan ICT dan gajet sumbangan Samsung Malaysia Electronics secara percuma.

Di bawah Program Sosial Korporat ini juga, Samsung Malaysia Electronics Sdn. Bhd. telah memberi sumbangan sebuah lagi Perpustakaan Bestari Samsung di Maktab Polis Diraja Malaysia (PDRM), Cheras Kuala Lumpur pada 4 Februari 2015**.** Perpustakaan ini dilengkapi dengan 40 peranti jenama Samsung yangterdiri daripada tablet, televisyen dan skrin besar boleh sentuh. Perpustakaan Bestari Samsung ini memberikan inisiatif kepada warga PDRM untuk membuat kajian, carian maklumat serta dapat membantu tugas operasi polis dengan pantas tanpa terlalu merujuk kepada buku teks. Aplikasi ini dapat mempelbagaikan kemudahan pencarian maklumat dalam kalangan warga PDRM dalam usaha memperkasakan modal insan yang lebih cemerlang. Kewujudan Perpustakaan Bestari itu akan mempercepatkan tugas PDRM untuk kerja-kerjapenyelidikan dan pembelajaran atas talian dalam menyelesaikan tugasan

warga PDRM. Majlis pelancaran yang diadakan di Maktab Polis Diraja Malaysia (PDRM) telahdisempurnakan oleh Ketua Polis Negara, Tan Sri Khalid Abu Bakar dan disaksikan oleh Presiden Samsung Malaysia Electronics Sdn. Bhd., Mr. Lee Sang Hoon.

Memandangkan permintaan terhadap perkhidmatan perpustakaan secara digital semakin meningkat daripada masyarakat, Samsung Malaysia Electronics Sdn. Bhd.telah menaja sebuah lagi Perpustakaan Bestari Samsung yang ke-empatdi PerpustakaanAwam Negeri Terengganu. Perpustakaan ini mempunyai keluasan1,000 kaki persegi dan dilengkapi dengan 48 peranti yang boleh digunaoleh parapengguna. Perpustakaan ini telah dirasmikan pada 17 Jun 2015 oleh PengerusiJawatankuasa Pendidikan, Sains, Teknologi dan Tugas-tugas Khas Negeri, Encik Ghazali Taib. Perpustakaan Bestari Samsung adalah satu perkembangan positif ke arah menjadikan Terengganu sebagai hab ICT di pantai timur, Semenanjung Malaysia.

5. ISU DAN CABARAN KEPADA PERPUSTAKAAN BESTARI SAMSUNG

Penubuhan perpustakaan digital ini memberi cabaran kepada pentadbiran perpustakaan dalam usaha transformasi perpustakaan digital. Perpustakaan digital telah mengubah persekitaran perpustakaan tradisi yang memberi fokus terhadapbahan-bahan bercetak kepada bahan elektronik yang boleh dicapai setiap masa dan pada bila-bila masa sahaja. Namun begitu, akibat dariperkembangan teknologi yang terlalu pantas ini, data dan maklumat perpustakaan digital akan menjadi bahan usang kerana maklumatnya tidak dapat dicapai oleh teknologi yang lapuk. Antara cabaran terhadap perpustakaan digital adalah seperti berikut:

6.2 Jurang Teknologi antara Bandar dan Luar Bandar

Kerajaan telah melaksanakan pelbagai program Penyediaan Perkhidmatan Sejagat bagi memastikan masyarakat luar bandar mendapat akses kepada Teknologi Maklumat dan Komunikasi (ICT) menerusi pusat komuniti, sekolah, perpustakaan desa dan klinik. Ianya merupakan usaha untuk merapatkan jurang digital serta meningkatkan penggunaan ICT. Dalam era globalisasi ini, peningkatan penggunaan teknologi gajet yang berlaku di persekitaran kini semakin tinggi. Cabaran kepadadunia perpustakaan digital dalam kepesatan teknologi ini iaitu jaringan Internet**,**yangmerupakan salah satu kemudahan asas kepada masyarakat pada masa kini. Namun begitu, masyarakat luar bandar kebanyakannya tercicir dariarus pemodenan ini. Ketiadaan kemahiran asas tersebut menyukarkan mereka untuk menyesuaikan diri dan berkemungkinan menghilangkan minat mereka untuk mengetahui perkara yang berkaitan dengan ICT berkenaan. Perkara ini berlaku kerana pengguna di luar bandar kurang terdedah kepada peralatan ICT dan gajet dalam kehidupan seharian.

6.3 Jurang kemahiran ICT di antara generasi belia dan generasi terdahulu

Masyarakat luar bandar kurang menerima pendedahan terhadap penggunaan teknologi maklumat dan komunikasi (ICT). Untuk menangani isu ini,kerajaan telah menetapkan beberapa objektif yang perlu dicapai dalam konteks pembangunan luar bandar khususnya untuk melahirkan masyarakat yang celik IT. Penggunaan teknologi lebih didominasi oleh generasi belia kerana golongan ini lebih berminat kepada kemudahan dan teknologi ICT,yang lebih cepat dan pantas bersesuaian dengan perkembangan pada masa kini. Generasi belia kini lebih berkemahiran dalam penggunaan teknologi berbanding dengan generasi terdahulu. Cabaran kepada Perpustakaan Bestari Samsung adalah dari kelompok generasi terdahulu yang kurang menggemari perkhidmatan secara elektronik ini, bukan sahaja kerana ianya memerlukan kemahiran untukmenggunakan peralatan ICT, malah tiadalagi menggunakan bahan-bahan perpustakaan secara bercetak.

Masyarakat luar bandar juga seharusnya didedah kepada pelbagai pengetahuan teknologi komunikasi untuk membolehkan masyarakat luar bandar mendapat ilmu pengetahuan yang mendalam terhadap penggunaan teknologi maklumat dan komunikasi (ICT). Pendedahan ini dapat melahirkan komuniti masyarakat luar bandar yang berpengetahuan dan berdaya saing untuk menghadapi cabaran globalisasi dan liberalisasi

5.3 Perkembangan Teknologi yang pantas

Perkembangan teknologi yang pantas terutamanya terhadap pengeluaran produk dan perisian berasas teknologi memberi cabaran besar kepada perpustakaan dalam memberi perkhidmatan terbaik kepada para pengguna. Cabaran kepada Perpustakaan Bestari Samsung adalah untuk memastikan peralatan yang disediakan terkini dan canggih menurut arus teknologi di pasaran. Kandungan maklumat digital memerlukan perisian yang terkini dan peralatan yang canggih bagi memastikan maklumat dapat diakses dengan cepat dan tepat. Kekangan mengakses maklumat digital akan berlakusekiranya peralatan ICT tersebut telah ketinggalan zaman dan perisian tidak lagi menyokong teknologi terkini.

6.4 Memperkasakan Promosi perkhidmatan perpustakaan digital

Bagi menggalakguna perkhidmatan digital ini, promosi yang berkesan perlu dilakukan bagi meningkatkan penggunaan serta menarik minat pengguna untuk mengguna perkhidmatan ini. Berdasarkan statistik penggunaan Perpustakaan Bestari Samsung pada tahun 2014, iaitu seramai 5,987 orang pengguna, manakala seramai 8,166 orang pengguna pada tahun 2015 mencatatkan penggunaannya yang agak rendah. Ini menandakan promosi yang hebat perlu dilaksanakan. Program promosi yang menyeluruh harus dilaksanakan bagi memberi hebahan agar dapat menarik minat pengguna untuk menggunakan perkhidmatan yang disediakan ini.

6.0 PERANCANGAN MASA HADAPAN

Menyedari perkembangan teknologi yang semakin pantas, PNM terus mengorak langkah meningkatkan mutu perkhidmatan seiring dengan perkembangan teknologi pada masa kini. Bahan kandungan digital telah mengambil alih bahan bercetak di perpustakaan sebagai bahan bacaan pada masa kini. Seiring dengan itu, PNM berhasrat untuk memberi yang terbaik kepada pengguna mengikut arus perubahan zaman terkini. Antara perancangan PNM adalah seperti berikut:

6.1 Menambah bilangan Perpustakaan Bestari Samsung

PNM merancang untuk memperluaskan bilangan Perpustakaan Bestari Samsung di Zon Selatan tanah air. Ini bertujuan memberi peluang kepada seluruh rakyat Malaysia menikmati perkhidmatan perpustakaan berkonsepkan kandungan digital yang boleh diakses menggunakan tablet atau peralatan terkini serta merapatkan jurang teknologi seluruh masyarakat.

6.2 Memperhebatkan pelan promosi perkhidmatan

Bagi meningkatkan galak guna perkhidmatan, pelan promosi yang hebat perlu dilaksanakan bagi menggalakkan orang ramai menggunakan perkhidmatan Perpustakaan Bestari Samsung. Hebahan yang meluas harus dilakukan bagi menguar-uarkan perkhidmatan yang disediakan kepada pengguna.

6.3 Menambahbaik mutu perkhidmatan

PNM sentiasa bersedia memberi perkhidmatan yang terbaik kepada pengguna. Pengguna digalakkan memberi sumbangan idea dan pandangan untuk meningkatkan mutu perkhidmatan bagi memberi kepuasan yang maksimum kepada pelanggan. PNM akan terus menambaik baik mutu perkhidmatan Perpustakaan Bestari Samsung dengan mempelbagaikan perkhidmatan dan kemudahan kepada pengguna bagi menarik minat serta memberi peluang kepada masyarakat untuk menggunakan perkhidmatan digital berasaskan peralatan terkini dan canggih.

6.4 Mengeratkan jalinan persepakatan pintar dengan pihak swasta

PNM akan meneruskan jalinan persepakatan pintar dengan pihak swasta bagi berkongsi kepakaran dan sumber yang ada bersama-sama dengan agensi swasta. Program seperti ini dapat memanfaatkan semua pihak dalam perkongsian sumber ilmu dan kepakaran oleh pihak luar. Sumbangan pihak swasta turut memberi impak yang besar kepada masyarakat dalam

mengejar arus perkembangan teknologi yang semakin pesat dan maju ini. Usaha jalinan persepakatan pintar oleh pihak swasta harus diteruskan di masa-masa akan datang bagi membina kerjasama yang jitu ke arah memaju dan mendidik masyarakat berilmu pengetahuan. Kerjasama ini perlu diteruskan bagi menyokong saranan kerajaan untuk melahirkan masyarakat celik IT dan berilmu pengetahuan sertamenarik minat membaca dalam kalangan masyarakat Malaysia.

7.0 PENUTUP

Perkhidmatan Perpustakaan Bestari Samsung dapat memberi peluang kepada masyarakat untuk menggunakan perkhidmatan digital dan mengalami sendiri penggunaanperalatan terkini yang disediakan oleh Samsung Malaysia Electronics Sdn. Bhd. Perpustakaan Bestari Samsung banyak memberi manfaat pendedahan kepada masyarakat berkaitan penggunaan ICT dan memberi peluang untuk menggunakan teknologi terkini hasil sumbangan di bawah Program Sosial Korporat daripada Samsung Malaysia Electronics Sdn. Bhd. Penubuhan Perpustakaan digital dapat mempertingkatkan keupayaan pengguna untuk meneroka ilmu pengetahuan secara maya. Pembelajaran sepanjang hayat akan dapat diterapkan dalam masyarakat bermula dari usia muda.

RUJUKAN:

Madhusudhan, M., &Nagabhushanam, V. (2012). Web-based library services in university libraries in India: an analysis of librarians' perspective. The Electronic Library, 30(5), 569-588.

Mamtora, J. (2013). Transforming library research services: towards a collaborative partnership. *Library Management*, *34*(4/5), 352-371.

Ruzita Ramli. *Perpustakaan digital dalam persekitaran e-pembelajaran: pengalaman diOUM*.Web. 10 Julai 2016.

Wu, M. Y., Chou, H. P., Weng, Y. C., & Huang, Y. H. (2008). TAM-2 based study of website user behavior-using web 2.0 websites as an example. *WSEAS Transactions on Business andEconomics*, *4*(8), 133-151.

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SYSTEM AND INNOVATION IN NATIONAL LIBRARY OF MALAYSIA : KNOWLEDGE MANAGEMENT (KM)

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ABSTRACT

The development of Knowledge Management (KM) system was to optimize knowledge sharing, expertise and best practices amongst National Library staff in creating knowledgeable workers for the department. Using Microsoft Sharepoint platform, VShare Portal was developed as a formal communication channel to make information within the department easily and effectively accessible anytime and anywhere. ThisPortal is used in managing meetings, executing projects and sharing information by uploading documents besides using forum discussion and individual blogs for an exchange of ideas and opinion.

The main challenges are in terms of acculturation and usage amongst the National Library staff. After two (2) years of implementation, usage by the management team and professional staff is considered positive, however, the percentage of usage can be further improved. The National Library hopes that with this developed Knowledge Management system and its best practicescan be a benchmark to other libraries in Malaysia in the implementation of KM in the institutions.

Keywords: VShare; SharePoint; Knowledge management; Perpustakaan Negara Malaysia.

ABSTRAK

Sistem pengurusan ilmu atau *knowledge management* (KM) dibangunkan adalah untuk mengoptimumkan modal pengetahuan dan amalan terbaik perkongsian maklumat bagi melahirkan pekerja berilmu dalam kalangan pegawai PNM. PNM telah membangunkan Portal VShare iaitu sistem pengurusan ilmu yang menggunakan platform *SharePoint* sebagai salah satu saluran komunikasi formal untuk memudahkan pegawai PNM berkomunikasi secara berkesan di mana-mana sahaja dan pada bila-bila masa. Portal ini digunakan dalam pengurusan mesyuarat, pelaksanaan projek dan juga berkongsi maklumat dengan memuatnaik dokumen. Selain daripada itu, ianya juga menyediakan ruangan forum dan blog individu untuk pegawai PNM berbincang dan bertukar-tukar pendapat serta idea.

Cabaran utama adalah dari segi penggunaan dan pembudayaan dalam kalangan pegawai PNM. Setelah lebih kurang dua (2) tahun pelaksanaan KM, penggunaan di kalangan barisan pengurusan dan pegawai profesional PNM adalah positif namun peratusan penggunaan masih boleh dipertingkatkan.PNM berhasrat agar sistem *Knowledge Management* yang dibangunkan dan diamalkan ini akan berupaya menjadi penanda aras dalam pelaksanaan KM bagi semua institusi perpustakaan di Malaysia.

Kata Kunci: Pengurusan ilmu; Perpustakaan Negara Malaysia.

1. PENGENALAN

Pelaksanaan pembangunan sistem pengurusan ilmu atau *knowledge management* KM Perpustakaan Negara Malaysia (PNM) telah dirancang secara strategik dan termaktub dalam Pelan Strategik Teknologi Maklumat PNM 2010-2013. Pelaksanaan Projek Pembangunan*Knowledge Management* (KM) PNM telah bermula pada 11 Mac 2013 dengan kerjasama Unit Pemodenan Tadbiran dan Perancangan Pengurusan Malaysia (MAMPU) sebagai perunding. Pembangunan Portal KM bermula pada 29 Oktober 2013 dan berakhir 27 Disember 2013 serta mula digunakan pada bulan Februari 2014.

Semasa pelaksanaan pembangunan KM, beberapa siri bengkel telah diadakan bagi memastikan pembangunan KM PNM berjalan dengan lancar dan mantap. Bengkel Penetapan Visi, Misi dan Objektif KM PNM telah diadakan yang dikendalikan Perunding ICT dari MAMPU dan Bengkel

Pembangunan Kandungan dan Komuniti KM yang dikendalikan oleh perundingan KM dari syarikat swasta bersama Perunding dari MAMPU.

Portal KM telah dibangunkan oleh syarikat yang telah berjaya dilantik melalui sebut harga dengan dibantu oleh pasukan-pasukan *Subject Matter Expert* (SME) PNM dengan kerjasama pasukan perunding MAMPU.

2. OBJEKTIF PEMBANGUNAN PENGURUSAN ILMU (KM)

Budaya perkongsian ilmu dalam kalangan warga PNM telah diwujudkan secara rasmi. Platform rasmi ini dilihat mampu menggalakkan penglibatan lebih ramai kakitangan PNM dalam perkongsian ilmu terutamanya *tacit knowledge.*
Pengurusan ilmu yang cekap bukan sahaja dapat membantu PNM mencapai misi dan visi yang ditetapkan malah dapat menyokong wawasan dan halatuju kerajaan dalam menjayakan inisiatif transformasi sektor awam yang menuntut perubahan minda dan cara bertindak seluruh penjawat awam.

Pembangunan KM di PNM telah dirangka bagi memenuhi objektif seperti berikut:

(a) Membolehkan perkongsian pelbagai jenis maklumat organisasi (fakta, sumber informasi, penyelesaian masalah) yang amat tinggi nilainya di kalangan warga jabatan.

(b) Dapat melincinkan pengurusan Jabatan di mana maklumat senang didapati oleh semua peringkat staf bagi memudahkan membuat keputusan yang tepat dalam kerja seharian untuk membantu meningkatkan perkhidmatan dan produktiviti.

(c) Mengelakkan daripada berlakunya kerugian kos, masa dan tenaga akibat pertindihan proses kerja dan juga mengulangi semula proses sedia ada (*avoid re-inventing the wheel*).

(d) Meningkatkan budaya perkongsian ilmu berkaitan amalan kerja terbaik dan memastikan semua kakitangan mendapat ilmu pengetahuan dan pengalaman yang sama untuk dipraktikkan.

(e) Mewujudkan sistem repositori ilmu berpusat untuk menyimpan semua ilmu pengetahuan berkaitan jabatan yang merangkumi ilmu *tacit* dan *explicit*

(f) Meningkatkan kompetensi pegawai PNM dari aspek pengurusan ilmu

(g) Mengurangkan masa bagi melatih pekerja baru.

(h) Maklumat intelektual dapat disimpan, dikekalkan dan dipelihara dalam Jabatan walaupun pekerja telah meninggalkan Jabatan kerana bersara, berhenti kerja atau pertukaran.

(i) Mengurusdanmengiktiraf ilmu pengetahuansebagaiaset jabatan yang sangat bernilai.

(j) Mengurangkan jurang antara pengetahuan *tacit* dan *explicit* dalam jabatan.

(k) Menyokong misi kerajaan dalam meningkatkan pembangunan ekonomi berasaskan ilmu pengetahuan.

Secara asasnya, melalui KM sesebuah organisasi dapat mengenalpasti kekuatan dan kelemahan serta merangka strategi untuk penjajaran semula pelan tindakan dan hala tuju yang lebih efektif.

3. PEMBANGUNAN KM DI PNM

3.1 Carta Tadbir Urus

Bagi memastikan pelaksanaan pembangunan KM berjalan dengan lancar, satu carta tadbir urus telah diwujudkan di PNM. Carta ini merangkumi Jawatankuasa Pemandu KM, Pasukan Perunding ICT MAMPU, Jawatankuasa Pelaksana KM, Pejabat Pengurusan Projek serta tiga (3) Pasukan SME telah ditubuhkan iaitu Pasukan Pembangunan Kandungan (SME), Taksonomi & Proses KM, Pasukan Infrastruktur ICT, Sistem dan Aplikasi KM dan Pasukan *Community of Practice* (CoP), Kawalan Akses danPembudayaan KM. Bidang tugas Jawatankuasa dan Pasukan yang terlibat adalah seperti berikut:

(i) Jawatankuasa Pemandu KM PNM

- Menetapkan visi, misi, strategi dan hala tuju KM PNM.
- Mengesahkan tadbir urus pembangunan KM PNM.
- Mengesahkan pelan pembangunan KM PNM.
- Mengesahkan pelan tindakan, program dan aktiviti KM PNM.
- Meluluskan peruntukan kewangan bagi pembangunan dan pelaksanaan KM PNM.
- Membuat keputusan atas isu dan masalah yang dibangkitkan oleh JK Pelaksana KM PNM.

(ii) Pasukan Perunding ICT MAMPU

- Memberi khidmat perundingan dalam pembangunan KM PNM.
- Memberi khidmat nasihat dalam pelaksanaan KM.
- Memberi khidmat nasihat dalam pembudayaan KM di PNM.

(iii) Jawatankuasa Pelaksana KM PNM

- Memantau pembangunan dan pelaksanaan projek KM PNM.
- Menyelesaikan isu-isu teknikal KM PNM.
- Merujuk kepada JK Pemandu untuk keputusan (jika perlu).
- Memantau dan menyelaras pasukan-pasukan kerja KM PNM .
- Memastikan kelestarian projek KM PNM.
- Memastikan pelaksanaan KM selari dengan visi, misi, strategi dan hala tuju KM PNM.

(iv) Pejabat Pengurusan Projek

- Menguruskan mesyuarat, bengkel, program dan aktiviti berkaitan KM PNM.
- Menyelaras dan menyimpan dokumentasi berkaitan projek KM PNM.
- Menyelaras komunikasi antara semua pihak yang terlibat dalam projek KM PNM.

(v) Pasukan Pembangunan Kandungan (SME), Taxonomi & Proses KM PNM

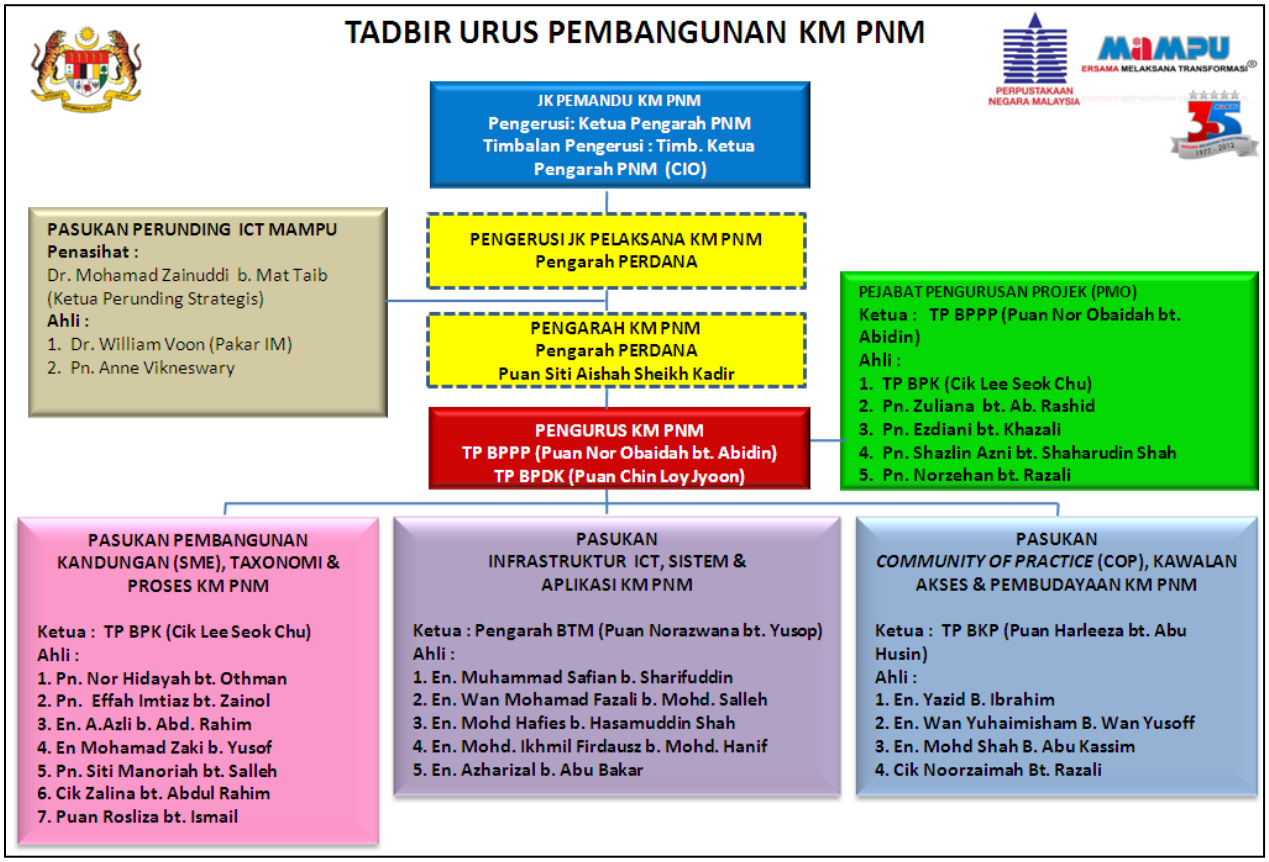
- Menentukan *knowledge* aset PNM.
- Menyelaras dan muat naik kandungan yang berkaitan.
- Menentukan taxonomi yang sesuai untuk KM PNM.
- Melengkapkan metadata berdasarkan taxonomi.
- Menyediakan dokumentasi bagi proses KM yang terlibat.

(vi) Pasukan Infrastruktur ICT, Sistem dan Aplikasi KM PNM

- Mengkaji keperluan sistem dan aplikasi KM PNM.
- Menentukan keperluan keselamatan sistem KM PNM.
- Menentukan kapasiti perkakasan dan perisian bagi sistem KM PNM.
- Menyediakan spesifikasi teknikal KM PNM.
- Memantau penggunaan sistem KM PNM (*bandwidth, response time*, dll)
- Membuat penyelidikan dan meningkatkan sistem KM PNM dari semasa ke semasa.
- Menyediakan dokumentasi sistem KM PNM.

(vii) Pasukan *Community of Practice* (CoP), Kawalan Akses danPembudayaan KM PNM

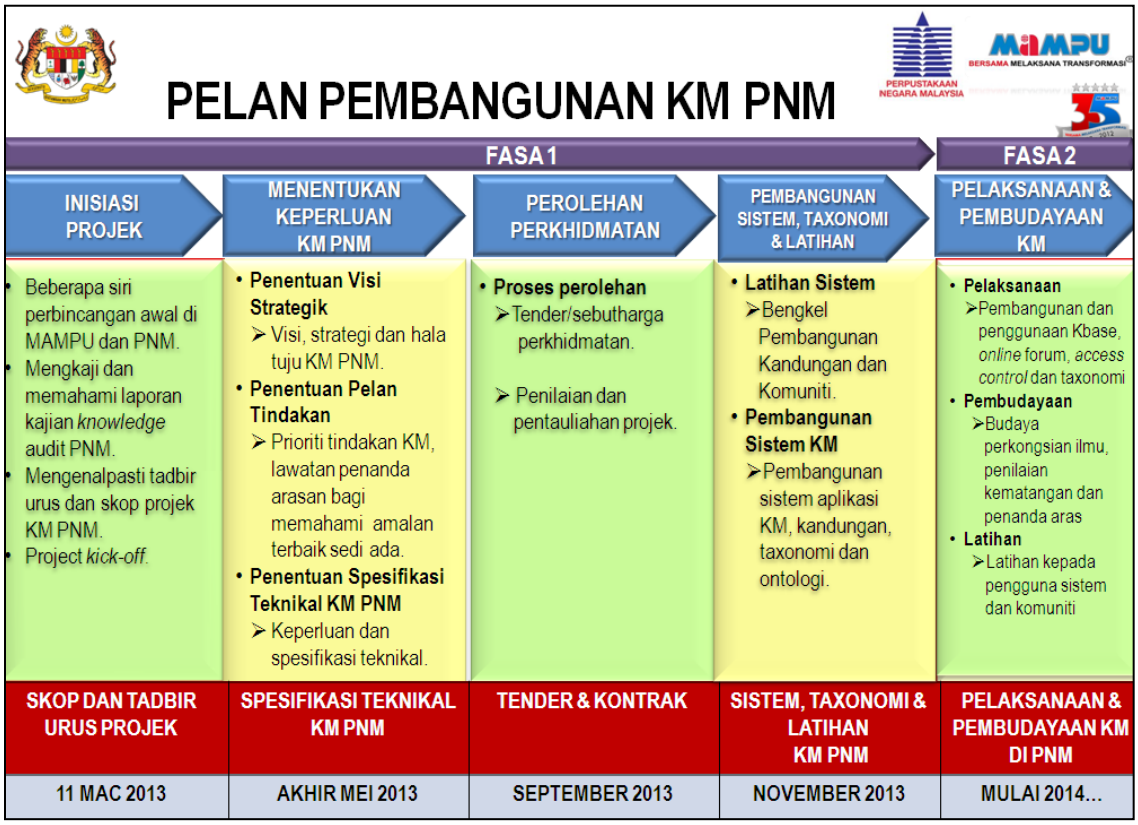
- Mewujudkan senarai CoP, ketua CoP, moderator dan keahlian.
- Menjadi KM *broker* antara komuniti.
- Memantau dan menggerakkan komuniti.
- Mengendalikan aktiviti bagi merancakkan pembudayaan KM PNM.
- Mempromosikan KM PNM dari semasa ke semasa.
- Menentukan kawalan akses bagi setiap CoP.
- Menyediakan dokumentasi bagi proses CoP KM PNM



Gambarajah 1 : Carta Tadbir Urus Pembangunan KM di PNM 2013

3.2 Carta Pelan Pembangunan

Pelan Pembangunan KM di PNM melibatkan dua (2) fasa merangkumi pembangunan, pelaksanaan dan pembudayaan seperti gambarah di bawah:



Gambarajah 2 : Pelan Pembangunan KM PNM

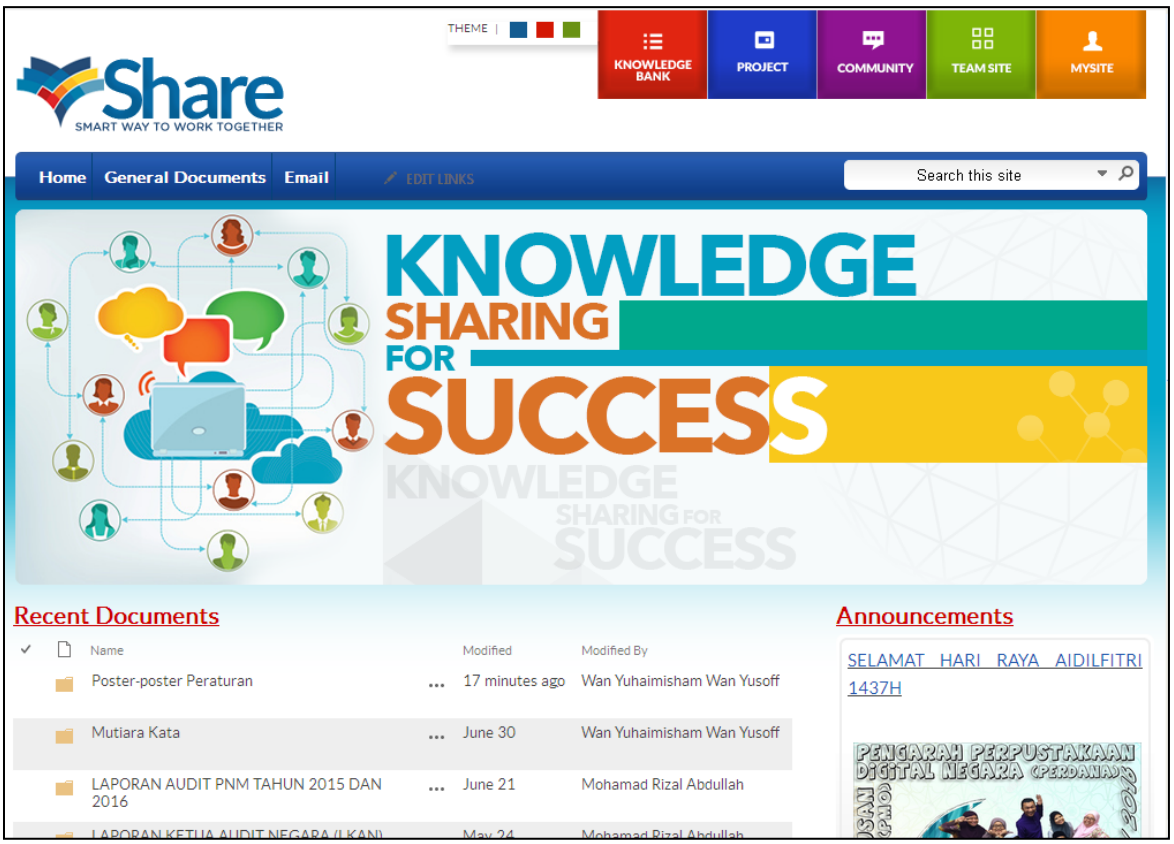
4. PELAKSANAAN KM DI PNM (*PORTAL VSHARE)*

PNM telah membangunkan satu portal khas bagi yang dinamakan VShare bagi membangunkan KM ini.dperkongsian ilmu di antara individu dan jabatan serta bahagian-bahagian di PNM. Simbol V telah direka dengan gambar buku bagi menunjukkan elemen asas di PNM. Logo *Vshare* adalah seperti berikut:

Gambarajah 3 : Logo Portal VShare

Portal *VShare* ini menggunakan platform *SharePoint* (Microsoft) dan portal ini digunakan sebagai salah satu saluran komunikasi formal untuk memudahkan pegawai PNM berkomunikasi secara berkesan di mana-mana sahaja dan pada bila-bila masa.

Portal *VShare* adalah *web-based* yang boleh diakses oleh pegawai PNM yang telah diberikan *log in ID.* Ciri-ciri utama portal ini adalah *cloud based,* tepat, efisyen, mesra pengguna, bersifat peribadi dan mempunyai enjin carian. Kemudahan yang disediakan oleh portal ini adalah *document library,* pengumuman, forum, galeri foto, *newsfeed, task list* dan *blog.* Sekiranya ada dokumen yang dikongsi bersama, notifikasi akan dihantar melalui e-mel. Muka depan utama Portal *VShare* adalah seperti gambarajah di bawah:



Gambarajah 4 : Portal VShare

Terdapat lima (5) modul dalam Portal *VShare* yang membolehkan ahli-ahli berkongsi ilmu dan berinteraksi. Modul-modul tersebut adalah:

(a) *Knowledge Bank* (KB)
Dokumen yang dikongsikan dalam portal ini akan disimpan dalam KB dan dokumen yang disimpan ini telah dibuat taksonomi. Pengguna boleh memuat turun dokumen-dokumen yang terdapat dalam KB.

(b) *Project Site*
Halaman ini digunakan untuk mengurus dan memantau pelaksanaan projek oleh pasukan projek yang ditubuhkan. Setiap *project site* akan memberi kebenaran akses hanya kepada ahli projek yang telah ditentukan. Ahli-ahli boleh berkongsi dokumen projek, merancang pengurusan projek, memantau perjalanan projek menggunakan Carta Gantt dan berinteraksi melalui forum.

(c) *Community Site*
Halaman ini digunakan untuk membincangkan topik, berkongsi dokumen dan merancang aktiviti berkaitan komuniti yang ditubuhkan. Setiap *community site* akan memberi kebenaran akses hanya kepada ahli komunti yang telah ditentukan. Ahli-ahli komuniti juga boleh berinteraksi melalui forum yang terdapat dalam halaman ini.

(d) *Team Site*
Halaman ini digunakan untuk merancang aktiviti, membincangkan topik dan berkongsi dokumen berkaitan kumpulan yang ditubuhkan. Halaman ini juga hanya membenarkan akses kepada ahli kumpulan yang telah ditentukan. Ahli-ahli juga boleh berinteraksi melalui forum yang terdapat dalam halaman ini.

(e) *My Site*
My Site merupakan laman peribadi yang boleh dikongsi dengan individu tertentu dan ianya berfungsi sebagai blog. Pelbagai maklumat boleh dikongsikan dalam halaman ini.

5. STATISTIK

Pada tahun 2014, jumlah dokumen yang dipindahkan dari *Knowledge Bank* sedia ada PNM ke *Knowledge Bank* dalam Portal V*Share* adalah 709. Sehingga hari ini, setelah tiga (3) tahun penggunaan, jumlah dokumen yang telah dimuat naik dan dikongsi oleh pegawai PNM adalah sebanyak 2,916 dokumen. Dalam *KM Gallery* pula sebanyak 138 gambar telah dimuat naik dan

dikongsi dalam portal. Peningkatan ini menunjukkan bahawa pegawai PNM telah dapat menyesuaikan diri dengan perubahan budaya kerja masa kini. Selain daripada itu, jumlah *hits, visitors* dan *page views* Portal *VShare* bagi tahun 2015 dan 2016 adalah *hits* 476,234, *visitors* 1,346 dan *page views* 4,889.

6. STRATEGI PROMOSI KM

Bagi mempertingkatkan penggunaan KM PNM, pelbagai siri promosi KM telah dirancang seperti berikut:

(i) Sesi Perkongsian Ilmu
Perkongsian ilmu di antara personel dari jabatan atau agensi yang mempunyai pengalaman dalam pelaksanaan KM dengan pegawai dalaman PNM yang mempunyai pengalaman atau pengetahuan (setelah menghadiri kursus berkaitan) dan juga personel yang mempunyai kepakaran dalam bidang KM.

(ii) Bahan Promosi
Penerbitan bahan promosi dalam bentuk bercetak seperti poster atau *flyer* untuk edaran dalaman di PNM atau promosi melalui e-mel Jabatan.

(iii) Lawatan Penandaarasan
Mengadakan lawatan penandaarasan ke jabatan atau agensi yang telah berjaya mengamalkan pembudayaan KM dalam organisasi masing-masing.

(iv) Latihan
Sesi latihan *hands-on* Portal *VShare* yang melibatkan pegawai PNM dilaksanakan secara berterusan.

(v) Pengiktirafan/Ganjaran

Pengiktirafan/ganjaran dalaman merupakan perkara terpenting yang menjadi landasan berkesan dalam memastikan warga organisasi menggunakan KM sebagai salah satu saluran komunikasi utama.

7. CABARAN

Cabaran utama dalam mengaplikasikan penggunaan sistem baru ini adalah pembudayaan gaya kerja yang baharu kepada pegawai PNM. Pelbagai program dan aktiviti telah dirancang dan dilaksanakan dalam usaha untuk mencapai hasrat PNM bagi meningkatkan kompetensi pegawai PNM dari aspek pengurusan ilmu. Antara program dan aktiviti yang telah dilaksanakan adalah:

(a) Sesi latihan *hands-on* Portal *VShare* yang melibatkan pegawai PNM.

(b) Sesi Perkongsian Ilmu bersama Jabatan Peguam Negara yang telah melaksanakan *Chambers Virtual Office (CVO)*.

(c) Pelancaran Portal VShare dan Forum Perkongsian Ilmu "Knowledge Management (KM): Change Management" bersama ahli panel jemputan dari PETRONAS dan perunding KM dari syarikat swasta serta moderator dari MAMPU.

(d) Lawatan penandaarasan ke Bank Negara yang telah melaksanakan KM di agensi mereka.

(e) Memberi sijil penghargaan kepada semua Ahli Jawatankuasa yang terlibat dan memberi pengiktirafan kepada pegawai-pegawai yang aktif menggunakan *VShare* semasa perhimpunan bulanan PNM.

8. PENUTUP

Komitmen yang tinggi daripada peringkat pengurusan tertinggi merupakan satu permulaan yang tepat bagi memastikan amalan dan penggunaan yang lebih aktif dan berkesan di kalangan pegawai PNM. Hasrat PNM adalah untuk menjadi penandaaras dalam pelaksanaan sistem pengurusan ilmu bagi semua institusi perpustakaan di Malaysia dan keupayaan Portal *VShare* ini masih boleh dipertingkatkan pada masa hadapan agar penggunaan menjadi lebih mudah dan cepat seperti pembangunan *library virtual office*.

9. RUJUKAN

Ganesh D. Bhatt, (2001). Knowledge management in organizations: examining the interaction between technologies, techniques, and people. *Journal of Knowledge Management*, Vol. 5 Iss 1 pp. 68 – 75

Jinwon Hong, One-Ki (Daniel) Lee, Woojong Suh. 2016. Creating knowledge within a team: a socio-technical interaction perspective. Knowledge Management Research &Practice .

MAMPU: Knowledge Management Blueprint, MAMPU, Putrajaya (2011)

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APPLICATION AND BEST PRACTICES OF MEDIA INTEGRATION STRATEGIES

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ABSTRACT

Libraries are in the business of providing information services and information resources to its users. The implementation of new communication technologies especially new media has built the bonding between users and library staff as there are two ways of communication applied. Once positive attitude is received in accepting new media used by the library, it will definitely produce better outcomes from the users towards using library services. This paper aims to 1) examine the application of media integration strategies among the academic libraries based on QS University Rankings: Asia 2016 regarding the adoption of new media technologies; 2) to identify the media integration strategies used by academic librarians at theUiTMPuncakAlam library when delivering their services. This research will contribute to the extension of knowledge for academic libraries to take full advantage of what new technologies have to offer. These exploratory results can be used as a starting point and for future planning of media integration used in academic libraries.

Keywords: New communication technologies; New media tools; Media integrationstrategies.

1.0 INTRODUCTION

The formations of various media integration content allow interactive user feedback and creative participation where users are able to gain access to any digital content without difficulties or any undue limitations. According to Convertive(2011), various online media integration applications can be utilized by the users such as blogs, wikis, social bookmarking,media-sharing services, social networking, collaborative editing tools, syndication, and modification technologies. Libraries should be able to transform and meet the user demands in the communication of K-Society (Green, 2000). The important component of media integration strategies, allow two-way feedback and communication which result in the passive audience becoming more active users.

An academic library is a unique resource centre which continuously supports the teaching and research needs of the University's staff, students and researchers. Pertaining to the use of technology by users, the academic libraries, and institutions of higher education need to be managed in a coordinated manner in order for all parties to take full advantage of what new technologies have to offer. The main role of a librarian is now to assist end-users in the searching techniques and the use of technologies. From another perspective, the question points back to how we can effectively and efficiently manage these new media channels within the constraints of our time, expertise, and human resources.

2.0 LITERATURE REVIEW

2.1 Developments of ICT and New Media

The development of ICT and new media technologies in libraries during the last quarter of the century has changed the concept of traditional libraries and the library profession as the library user has changed compared to the traditional library. From the academic perspective, academic libraries have experimented with a variety of approaches in providing information resources, and research assistance to their users as a result of the recent shift of technology that have brought changes in the way students use academic libraries and library resources. Thus, librarians also believed that new media tools are suitable not only to communicate with users, but also to facilitate the interaction of librarians with each other (Chu &Meulemans, 2008).

Studies have shown that individual perceptions of information technologies are likely to be influenced by the characteristics of information technologies they use and also by the way people around them evaluate or use the systems (Rogers, 1986; Trevino, Lengel, and Daft, 1987). The introduction of digital libraries during the last two decades had brought about a

change in the concept of libraries, where library services and resources are no longer confined to the walls of the physical libraries. However, for the digital services to be utilized effectively and efficiently, libraries should develop effective media integration strategies to ensure the library end users accept and use them.

2.2 New Media and Libraries Challenges

In the last ten years, the convergence between technologies and communication technologies had shown a remarkable rise of the interactive media. The development of new media represents an emerging suite of applications that are interactive, context-rich, and easy to use. At the same time, the rapid development of new digital media is seen as the nearly rapid response by traditional media (Flew, 2002). With new media technologies and applications, the entire users and audience now have the ability to generate content, making it a more interactive process. The variety of sources of information has grown and it is now easier to find those sources with the powerful search engines available today.

Libraries need to consistently be aware of what their users want and need, so as to help institutions develop ~~a~~ cohesive and comprehensive strategic plans for the implementation of new technologies across campuses. Academic libraries may be perceived as being out of touch if they do not engage with these new media channels to communicate with their users (Bolter &Grusin, 1999). Libraries face new challenges as users' behaviour changes in response these new technological developments. Pertaining to the use of technology by users, the academic libraries, and institutions of higher education need to be managed in a coordinated manner in order for all parties to take full advantage of what new technologies have to offer The formation of new media content allow interactive user feedback and creative participation where users are able to have access to any digital content without difficulties or any undue limitations.

3.0 METHODOLOGY

This study highlighted what are the media integration strategies that had been used by academic librarians at the UiTMPuncakAlamlibrary when delivering their services, as can be seen in Table 1. From the best practices below, this research will contribute to the extension of knowledge for academic libraries to take full advantage of what new technologies have to offer. On the other hand, the study also examined the application of media integration strategies

among the academic libraries based on QS University Rankings: Asia 2016 regarding the adoption of new media technologies. Six academic library web sites were analysed and the survey was conducted in June 2016, and the results are presented in Table 1 below.

4.0 FINDINGS AND DISCUSSIONS

From this study, academic libraries take cognizant that the assessment of library services is an ongoing process which provides the library with the opportunity for continuous improvement of their services. It also is a way to align the library's strategic plans to meet user needs.Moreover, information and best practices provided through this study could be shared among other academic libraries as a basis for further development and improvement of their library services.

There were several key issues and questions highlighted from this study:

- Libraries are posting, but are anyone read it and listen to it? read, listening or watching
- What are the ethical and legal implications of using media integration strategies to disseminate information, i.e. ownership of information, copyright, etc.?
- Librarian skills, strategies and policies that are required?
- How do these go together with traditional library approach? Is the traditional library dead?
- The death of distance? How has the communication revolution changed the roles of the librarians?
- How can we effectively and efficiently manage these new media channels within the constraints of our time, expertise, and human resources?

Table1.Application of New Media in Academic Libraries Based on QS University Rankings: Asia 2016

No.	University Rankings	New Media
1.	UM (27)	Facebook, Twitter, Blog
2.	UPM (46)	Facebook, Instagram, Google Plus, YouTube, Media Streaming Live, uCast (Videos)
3.	USM (51)	Facebook, Twitter, YouTube, Wordpress
4.	UKM (55)	Telegram , WhatsApp
5.	UTM (63)	Facebook, YouTube

6.	UiTM (181)	Facebook, Blog, YouTube, Twitter Instagram, Foursquare, LiveChat

Table 2.Best Practices of Media Integration Strategies: PTAR UiTMPuncakAlam

No.	Media Integration Strategy	Advantages
1.	Library Websites	• Organize information and provide access to collections of quality information resources
2.	Library EZproxy : Ebooks /ejournals / Suscribed online Databases	• Web proxy server used by libraries which allows library users to log in through their library's EZproxy server and gain access to bibliographic databases subscribed by the library
3.	Chat with Librarian@Live Chat	• Librarians are available (online) to answer questions about library services, information resources, and conducting research
4.	Reference Desk Management System (RDMS)	• Online Systems developed to Reporting & Statistics of reference desk services
5.	Facebook PTAR KampusPuncakAlam	• More libraries have created their own library pages on Facebook to create library awareness and to function as a marketing tool.
6.	PTAR KPA@Live Twitter	• Twitter displays connections among library's followers, along with the hashtags they are using. The interface is simple, yet the information it provides can be significant.
7.	PTAR KPA@Instagram	• Featuring a powerful suite of location-aware technologies, Instagram claims more than 80 million registered users who have shared nearly 4 billion photos.
8.	Reference Management Software :Endnote X7 @ Mendeley	• An essential tool for scholars to organize or format references based on a variety of citation styles

9.	Online Networking : • Facebook Group : SembangPustakawan • Mendeley Research Profile • Researchgate Profile	• Platform for other librarians and experts in a particular field to connect and share knowledge / expertise

5.0 CONCLUSION AND RECOMMENDATION

In the light of this study's findings, the researcher recommended the following:

- A similar study can be conducted by implementing the quantitative method in order to get more views from larger number of respondents.
- Questionnaires can be formulated from the implementation of Technology Acceptance Model in order to help the researcher to quantitatively understand user acceptance of media integration strategies used in academic libraries.
- Future studies can help to determine the actual source of problems that occur in media integration strategies from different user perspectives, and can also be used for future library strategic planning.

Such improvisation can help future researchers to determine the actual source of problems that occur in the new media acceptance involving library management and their users, thus deducting the sense of biasness of the current research that had been done initially. Moreover, the capabilities of media integration strategies will allow libraries to engage more closely with their users. This is because the potential of using new media is about active dialogue and engagement, which demands considerable time, resources and library commitment to be successful.

As a conclusion, librarians need to improve their ICT & digital skills to ensure that library services that had been introduced or are planned to be introduced, are well- promoted, marketed and handled. Utilization of the new media applications assist libraries to get closer to their users. Engaging media integration strategies in terms of promoting and marketing library services by using the various mediums will ensure that information is delivered promptly, more organized and effective. Improving knowledge and skills especially digital collections and e-resources will definitely increase discoverability, usage and also analytics. Overtime, academic libraries can develop mutual understanding and collaboration with the other supporting industry (publishers, private sectors and government agencies, etc.).

REFERENCES

Bolter, S. &Grusin, M. (1999). A customer orientation checklist: a model. *Library Review*, Vol. 49 No. 4, pp. 173-8.

Chu, M., &Meulemans, YN. (2008). The problems and potential of MySpace and Facebook usage in academic libraries. *Internet Reference Services Quarterly13*: 69–85.

Convertive. (2011). Using social media in major library systems. Retrieved 5th July, 2016, from http://www.convertiv.com/using-social-media-in-a-major-library-system/

Flew, Terry. (2002). *New media: An introduction*. New York: Oxford University Press.

Green, A. (2000). 'What do we mean by user needs?'.*British Journal of Academic Librarianship*.5(2), pp.65-78.

Migiro, S. O. (2005). Information and Communication Technologies in Small and MediumScale Tourism Enterprises in Durban, South Africa.*Information Development*, 21(4), 283–294. doi:10.1177/0266666905060089

Pesonen, J. A. (2013). Information and communications technology and market segmentation in tourism: a review. *Tourism Review*, 68(2), 14–30. doi:10.1108/TR-02-2013-0006

Raza, M. M. &Nath, A. (2007). Use of IT in university libraries of Punjab, Chandigarh and Himachal Pradesh: a comparative study, *The International Information & Library Review*,39 (3-4), pp.211-227.

Rogers, E. M. (1986). Communication Technology: The new media in society. New York: Free Press.

Taylor, Arlene G. (1999). *The organization of information*. Englewood, CO: Libraries Unlimited.

Trevino, L. K., Lengel, R. H., & Daft, R. L. (1987). Media symbolism, media richness, and media choice in organizations: A symbolic interactionist perspective. *Communication Research*,14(5), 553 -74.

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NURTURING LIBRARY OPERATIONAL INNOVATION USING THE LIBRARY MANAGEMENT SYSTEM FOR OPERATIONAL AND SERVICES EXCELLENCE

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ABSTRACT

The changes in the development of integrated library management systems (ILMS) in year 2012 – 2015, brought about the challenges for the developers to include into the latest features in ILMS according to their customer's needs from the libraries. It should be coordinated with the latest technologies in library systems. Web services, open sources and changes in business strategies, are the factors that contributed to the climate changes in ILMS world. Those factors brought the positive impact for all the people involved in the development and implementation of library systems. This paper captured and interpreted the situation to mutually benefit library business operation and services for users. The transfer of knowledge, innovation, and the openness to content from external resources are among the advantages for the libraries, to nurture the innovation in services and operational excellence.

Keywords: Integrated Library Management Systems (ILMS); Library operations; Library services; Innovations.

1. INTRODUCTION

In year 2007, a research was conducted by JISCon the UK higher, further education and skills sectors' not-for-profit organizations for digital services and solutions, in collaboration with SCONUL (Society of College, National and University Librarians), about the major impact of integrated library management system (ILMS) The research findings released in year 2008, provided remarks and advice for libraries notto purchase a library systemas it was not a good

time to do so. The focus of a library these days has shifted from just having the library system to spend on technologies in discovery services, institutional repositories,etc. Based on observation, many of the system librarians in Malaysia were frustrated on the development of features in their ILMS. The librarians from Princeton University Library also declared that there have beenno changes on library system design for the past two decades. In year 2012, the dramatic changes in library management systems put the computer technology into the design of advanced services, for example the description and discovery rather than further developing the MARC based ecosystem. This phenomena brought forth the idea of taking advantage of the library management system to set up our enhanced operational and services for our library users.

2. THE LIBRARY SYSTEM DEVELOPMENT TRENDS – A LOCAL PERSPECTIVE

The survey had been conducted among twenty (20) academic libraries in Malaysia to obtain feedback on how they managed to overcome the system capability versus operational gaps in their libraries.

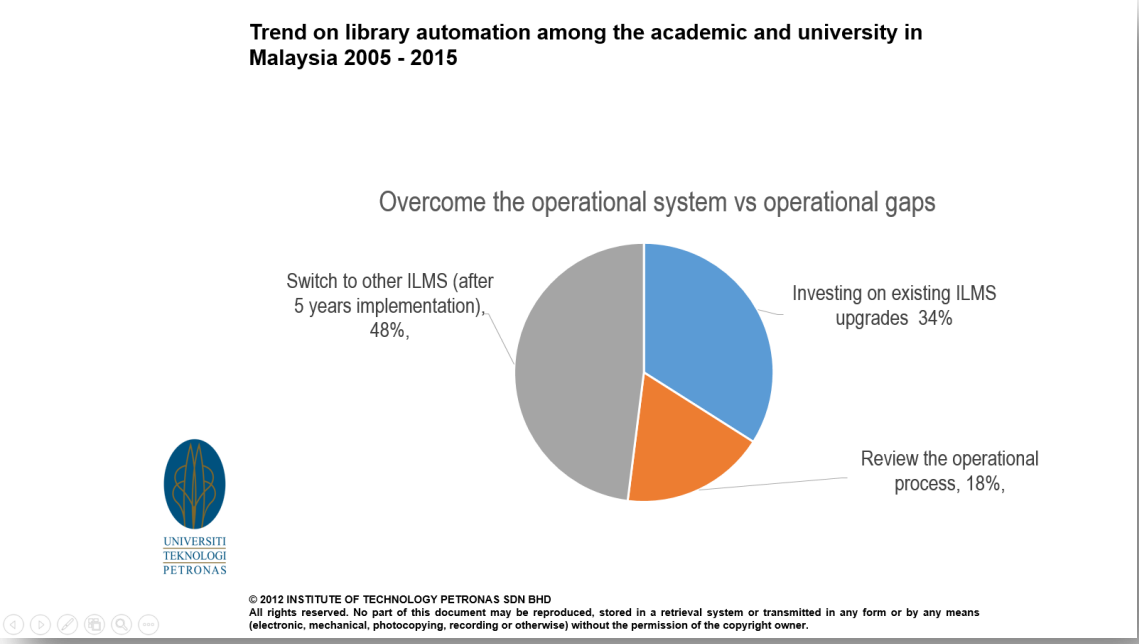

Diagram 1 – Feedback from local universities in Malaysia on how they overcome the operational gaps in their library systems

As can be seen, 48% of the respondents are changing to other library systems, as their current systems are not capable of fulfilling their technical requirements, while the operational flow continues to change rapidly. They require more extended features that do not exist in the current system. Seven (7) academic libraries in Malaysia had changed their library systems in the last ten years (2005-2015), and another three (3) libraries are looking towards the similar strategy in another five (5) years, for similar reasons. Reasons for changing to other library systems are:

- The need of a web-based library system to deal with library resources such as web sites and e-books
- The need for a system that supports and manages non-print materials and social media in an online work environment

Whilst 34% of the library respondents are still working with vendors and developers to enhance their library systems. They put extra efforts in doing R&D in their current library operations for system enhancement. Meanwhile, most of them are preparing the work around solutions in their operations, where the third party software are chosen to resolve constraints in their library systems. However 18% of the library are changing their workflows, according to the solutions provided by the features that exist in the systems.

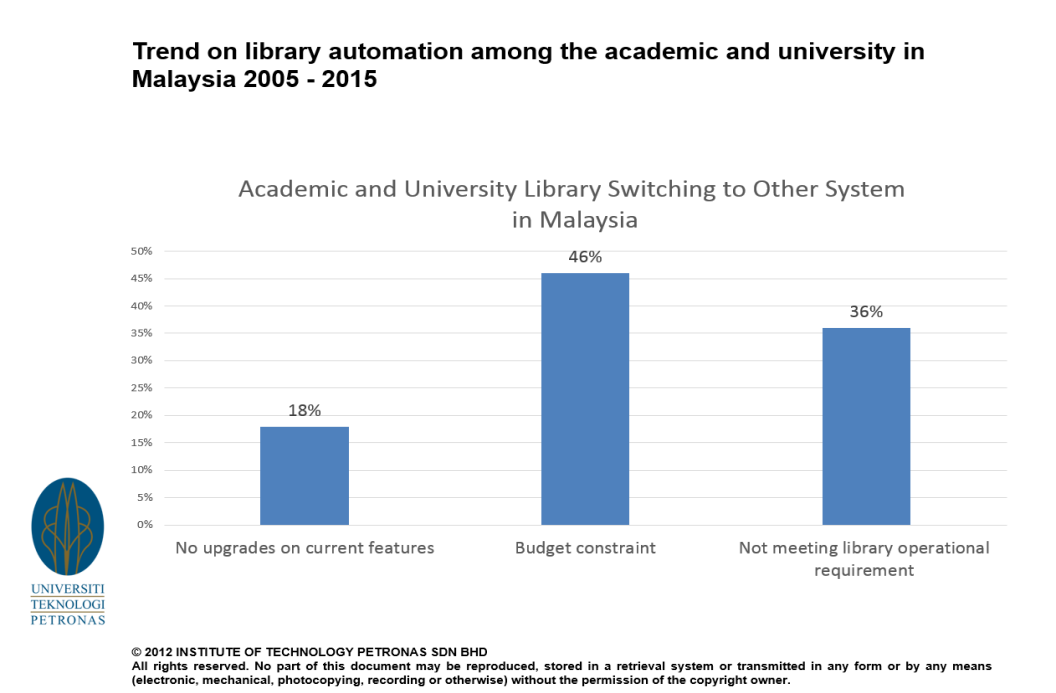

Diagram 2 – Feedback of local university libraries in Malaysia on why they are switching to other library systems

3. NEW SHAPE AND DIMENSION OF THE ILMS INDUSTRY

In year 2015, the new dimension of the ILMS industry emerged with its new set of active implications. The top industry players had consolidated their business strategies and development plans. The significant shift shows that smaller companies expanding their business with additional products and business strategies to the international regions. They are focusing more on the open system concept; the system has regular exchange of feedback with its external environment. Open systems are systems that put all elements such as inputs, processes, outputs, goals, assessment and evaluation, and learning as their major concern. Aspects that are critically important to open systems include the boundaries and external environments. It supports collaboration in the community for the benefit of all, through sharing. The impact of a company's consolidation is the expanding of product capability from the normal library system features to service-based solutions.

The good and healthy open systems are ones that have continuous exchange feedback with their environments, analyze that feedback, adjust internal systems as needed to achieve the system's goals, and then transmit necessary information back out to the environment.

This concept is very important in a library environment to support the current trends in seeking information among the academic and university library users.

The scenario brought the positive impact in expanding services to the library's end users. The library users in university libraries today are 98% generation Y, who arealso known as the digital generation. The network technologies, powerful search engines, social media and digitization are among the major factors that changed the users' expectations of library services. For a decade, the academic library staff and information professionals have to keep on restructuring some of the library services policy to meet the changing expectations, and had thus been able to transform the libraries and its culture successfully. In order to produce the new level of readiness to serve the university's students and researchers of the future, some key functions need to be transformed.

4. COMMITMENT TO SUPPORT EXISTING DEVELOPMENTS IN LIBRARY SYSTEMS

In the recent progress of some library systems players, they are committed to supporting the existing developments carried out by the developers, for example, *Ex Libris* and *Alma*, also *Primo* and *Summons*. *Ex Libris* has committed to support and follow all existing development road maps of both companies' products. *Alma* takes center stage as the flagship library services platform and will be aggressively developed and marketed. *Primo*, which can be paired with *Alma* or used in conjunction with any other integrated library system (ILS), continues as a strategic discovery service. *Summon* joins the fold with equal standing.

The central indexes of *Primo* and *Summon* will be combined, which will extend the *Summon* index to include resources uniquely covered by *Primo Central*. The combined index will power both *Primo* and *Summon*. Up to now, *Primo* has been the exclusive public interface for *Alma*. *Summon* will be enhanced to integrate with *Alma*, possibly increasing the appeal of *Alma* to libraries that prefer *Summon*'s interface to *Primo*'s.

5. FROM STAND-ALONE COMPANIES TO BUSINESS CONSOLIDATION

The Marshall Breeding report on library systems for year-end 2015, reported that traditional ILMS companies continue their growth into larger scale businesses through business consolidation, for example *Innovative* and *Sirsi Dynix*, and other small companies are catering to specific niches. The library will benefit from the combination of expertise from both experiences through their business collaborations.

6. LIBRARY WEB-BASED PLATFORMS

Library systems developers have equipped their clients on the true understanding of software as a service (SaaS). In year 2012, they introduced the concept of cloud infrastructure. Most of the huge library systems companies were looking into the development of web-based systems. They are working on new technical infrastructure, and less dependencies on local servers.

Web services provide technological and business benefits for the library, a few of which include:

i. Catalogue and library items data integration- The interoperability that comes with using vendors, platforms, and language independent XML technologies and the ubiquitous. HTTP enable the communication with any other application using Web services. The library system only requires the WSDL definition to exchange data into the service, and neither part needs to know how the other is implemented or in what format its underlying data is stored. These benefits allow the library to integrate library applications and data in a structured way.

ii. Versatile services via the web services - Web services are versatile by design. They can be accessed by humans via a Web-based client interface, or they can be accessed by other applications and other Web services. A client can even combine data from multiple Web services too, for instance, present a library user with an application to update acquisition of new books, requests and suggestion lists, also the status of books borrowed. All are possible because the systems exchange information via the Web services. A change to the catalogue database, for example, will not affect the service itself.

iii. Code re-use - Code re-use is another positive side-effect of Web services' interoperability and flexibility. One service might be utilized by several clients, all of which employ the operations provided to fulfill different business objectives. Instead of having to create a custom service for each unique requirement, portions of a service are simply re-used as necessary.

iv. Cost savings - All these benefits add up to significant cost savings. Easy interoperability means the need to create highly customized applications for integrating data, which can be expensive, is removed. Existing investments in systems development and infrastructure can be utilized easily and combined to add additional value. Since Web services are based on open standards, their cost is low and the associated learning curve is smaller than that of many proprietary solutions. Finally, Web services take advantage of ubiquitous protocols and the Web infrastructure that already exists in every organization, so they require little if any additional technology investment.

7. OPEN SOURCE LIBRARY SYSTEMS

Systems librarian in the academic and university libraries are looking for less expensive software due to budget constraints. The alternative way is to look towards the open source library software rather than proprietary software by the commercial companies, as long as it can fit in with their functional requirements, needs of the organizations and their services policy. Libraries are free to decide and prioritize the modules that they want to implement according to their requirements.

The well-known benefits that open source could bring to libraries include:

- Minimize costs - Open source offers a lower total cost of ownership than traditional library systems. There is not raditional license costs associated with open source. Libraries are able to take advantage of the reduced costs that cloud technology offers by reducing local support and hosting costs (if it is supported and hosted by a third party).
- Selecting and choosing the system components - Libraries are, in a sense, removed from the traditional lock-in associated with library systems. There is a greater opportunity to pick and choose components, and take advantage of what is, generally, better interoperability with open source solutions. Related to this is also the idea that open source is more sustainable: If a vendor goes out of business, the software may disappear or be sold-on. With open source, it is always available, and there is usually a community involved in it to continue its development.
- Adaptation and Innovation - Connected to the above is the greater capacity that libraries have to innovate with open systems and software. There is no need to wait for the next update or release, instead in either isolation or collaboratively, can develop the functionality required. This enables much more agile services and systems, as well as ensuring user expectations are exceeded. The automation team benefited the transformation of library systems support into the R&D of ILMS.
- A richer library systems ecosystem - A less direct impact of open source is a richer library systems ecosystem. This is both in terms of the library solutions available (a healthier market place with both proprietary and open solutions) and in terms of collaboration and

engagement between libraries themselves. Libraries are able to collaborate and share codes on the functionality and fixes they require. Indeed, there are open source systems such as *Evergreen*, which were developed as an open source library system for a consortia approach.

8. CONCLUSION

We have been standing behind the climate change in ILMS implementation in the past five years. The change had brought about positive impact to the library operations and services as a whole. The scenario had nurtured the strong pillar of library business process excellence that can be enhanced for the betterment of library services. The developers' business trends had significantly provided the greatest value to the library services, with the creation of additional services to the end users.

REFERENCES

Ada Scupola, Hanne Westh Nicolajsen, (2010). Service innovation in academic libraries: is there a place for the customers?. *Library Management*, 31(4/5), 304 – 318.

Aman, M. M. (1975). Computer Application in Library. In Josey, E. J. (Eds.), New Dimension for Academic Library Service, Metuchen, The Scarecrow Press Inc., 86-89.

Breeding, M. (2012). Open Source Integrated Library Systems. *ALA Tech Source*. Retrieved from http://www.alatechsource.org/ltr/open-source-integrated-library-systems.

Bretthauer, David (2001). Open Source Software: a history. *Information Technology and Libraries*.21(1), 3-11. Retrieved fromhttp://www.ala.org/ala/lita/litapublications/ital/2101bretthauer.cfm

Chawner, B. (2004). Free/Open Source Software: new opportunities, new challenges. *12th biennial VALA conference and exhibition*, 3-5 February 2004, Melbourne Convention Centre: conference proceedings

Clarke, K. S. (2000). *Open software and the library community. M.I.L.S*. Research paper, School of Information and Library Science, University of North Carolina - Chapel Hill, Chapel Hill, NC.

Clark, J.R. (2008). The Internet connection: open source library software-ready for prime time? *Behavioral & Social Sciences Librarian*, 27 (3/4), 211-213.

Clinkenbeard, Adrea (2002).*Library Automation: Library Automation Consideration*. Retrieved from http://www.widernet.org

Cohn, J. M., Kelsey, A. L., and Fiels, K. M. (2001).*Planning for Integrated Systems and Technologies.* New York, London: Neal-Schuman Publishers, Inc., pp. 29.

Ukachi, N.B., Nwachukwu V.N. and Onuoha, U. D. (2014).Library Automation and Use of Open Source Software to Maximize Library Effectiveness.*Information and Knowledge Management*, 3(4), 74-82

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MEMARTABATKAN BAHASA MELAYU BAHASA ILMU: DINAMIKA TEKNOLOGI MAKLUMAT MEMACU KESARJANAAN AKADEMIA

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ABSTRACT

Malay language given the status in the Federal Constitution, the National Language Act, the Education Act and the Act of Dewan Bahasa dan Pustaka put status and sovereignity of the Malay language as one of the pillars in developing the nation state. Malay language has become one of the country's important basic construction through three functions, as the national language, the official language and language of knowledge. This paper aims to highlight several efforts in the planning, implementation and achievement to uphold the Malay language as a language of knowledge, in particular involving the national higher education sector. Pelan Tindakan Memartabatkan Bahasa Melayu sebagai Bahasa Ilmu di IPT (2011-2015) (audit action plan to uphold the Malay language as a language of knowledge in higher learning institutions (2011-2015)) to become a platform for higher education institutions to explore opportunities for strengthening Malay language through increased research, publications, disseminate digital collections pertaining to the Malay language-based in driving academia.The phenomenon of globalization, the transformation of knowledge, particularly in the fields of science, information and communication technology, provide a challenge to the Dewan Bahasa dan Pustaka (DBP) to find an effective approach in upholding the Malay language as a language of knowledge and knowledge discourse. DBP's role in developing the planning and implementation of a strategic action plan to develop products and services, such as Pusat Rujukan Persuratan Melayu (one stop center for Malay language portal), Khidmat Nasihat DBP

(Malay Language Consultation Services) E-Borneo, E-Buana, E-Tesis (e-theses), E-jurnal (e-journal), Sistem Korpus Bahasa Melayu (Malay Language Corpus System) dan Gerbang Kata (gateway to dictionary and lexicon)discussed as a precursor to enrich the collection of knowledge across a wide range of resources in developing scholars.Some recommendations were proposed in the paper to increase the potential of institutions of higher learning as contributors to the resources of knowledge in the Malay language and provides high visibility and high impact of Malay language as a language of knowledge. The collaboration of local public universities and DBP are discussed in a win-win situation in propelling the potential product/service both sides and image of the institution as a drive in developing academia.

Keywords: Malay Language Knowledge; Malay Language – The Use of Information Technology; Malay Language Digital Collection.

ABSTRAK

Bahasa Melayu yang diberi taraf dalam Perlembagaan Persekutuan, Akta Bahasa Kebangsaan, Akta Pendidikan dan Akta Dewan Bahasa dan Pustaka meletakkan taraf dan martabat bahasa Melayu sebagai salah satu tonggak pembinaan negara dan jati diri bangsa. Bahasa Melayu telah menjadi salah satu asas pembinaan negara yang penting melalui tiga fungsi iaitu sebagai bahasa kebangsaan, bahasa rasmi dan bahasa ilmu.Kertas kerja ini bertujuan mengutarakan beberapa sorotan dalam perancangan, pelaksanaan dan pencapaian terhadap usaha memartabatkan Bahasa Melayu sebagai bahasa ilmu, khususnya melibatkan sektor pengajian tinggi negara. Pengauditan Pelan Tindakan Memartabatkan Bahasa Melayu sebagai Bahasa Ilmu di IPT (2011-2015) menjadi landasan bagi institusi pendidikan tinggi untuk meneroka peluang mengukuhkan kedudukan bahasa Melayu menerusi peningkatan penyelidikan, penerbitan, menyebarluaskan kepustakaan digital bahasa Melayu dalam memacu kesarjanaan akademia.Fenomena globalisasi, transformasi ilmu pengetahuan, khususnya dalam bidang sains, teknologi maklumat dan komunikasi, memberi cabaran kepada Dewan Bahasa dan Pustaka (DBP) untuk mencari pendekatan berkesan dalam memartabatkan dan menyemarakkan bahasa Melayu sebagai wadah dan wahana bahasa ilmu tinggi. Peranan DBP dalam merangka perancangan dan pelaksanaan Pelan Tindakan Strategik DBP membangunkan produk dan perkhidmatan Pusat Rujukan Persuratan Melayu, Khidmat Nasihat DBP, E-Borneo, E-Buana, E-Tesis, E-jurnal, Sistem Korpus Bahasa Melayu dan Gerbang Kata dibincangkan sebagai langkah memperkayakan kepustakaan ilmu merentas pelbagai sebagai sumber pembinaan kesarjanaan akademia. Cadangan turut dikemukakan untuk meningkatkan potensi IPT sebagai penyumbang sumber kepustakaan bahasa Melayu tinggi yang memberi dampak dan impak tinggi dalam pemartabatan bahasa Melayu sebagai bahasa ilmu.Kolaborasi IPT dan DBP dibincangkan dalam situasi menang-menang dalam melonjakkan potensi produk atau perkhidmatan kedua pihak dan citra institusi sebagai pemacu kesarjanaan akademia.

Kata Kunci: Bahasa Melayu Bahasa Ilmu; Bahasa Melayu – Penggunaan Teknologi Maklumat; Kepustakaan Digital Bahasa Melayu.

1. PENGENALAN

Bahasa Melayu telah diwartakan sebagai Bahasa Kebangsaan dan bahasa rasmi dalam Perkara 152 Perlembagaan Persekutuan.Peranan bahasaMelayu semakin menyerlah dan mengukuh selari dengan kemajuan negara.Kedudukan bahasa Melayu diperkukuhkan lagi menjadi sebagai bahasa pengantar utama pendidikan Negara khususnya di sekolah dan institusi pengajian tinggi. Dasar Pendidikan Negara diperkenalkan pada tahun 1970-an memberi fokus untuk memartabatkan bahasa Melayu sebagai bahasa pengantar utama ilmu di semua peringkat pendidikan.

Ibrahim Komoo (2016) memberikan perspektif bahasa Melayu tinggi (BMIT) membezakan bahasa ilmu yang digunakan sebagai pengantar di sekolah dan kolej kemahiran dengan bahasa Melayu tinggi di peringkat institusi pengajian tinggi, yang merujuk kepada universiti awam.BMIT bermaksud bahasa yang digunakan dalam syarahan di IPT, pembentangan seminar dan persidangan majlis ilmu, penulisan laporan ilmiah, penyelidikan, tesis, penulisan jurnal dan buku ilmiah. Penggunaan bahasa dengan laras yang sesuai dengan bidang membuka "pembangunan bahasa" dalam penerokaan ilmu baharu khususnya dalam disiplin sains, termasuk sains tulen, sains gunaan dan sains ikhtisas.

Bahasa Melayu seharusnya menjadi wahana pelbagai bidang ilmu, pemikiran, teknologi, ekonomi, undang-undang dan sebagainya.Bahasa Melayu digunakan mengungkapkan pemikiran yang teknikal sebagai sarana budaya tinggi.(Nik Safiah Karim, 1986).

1.1 Permasalahan

Kertas ini memberi fokus kepada beberapa permasalahan meliputi;

- Kemajuan BM dalam selepas enam dekad masih perlu diberi perhatian dan apakah tindakan bagi mengukuhkan kedudukan bahasa Melayu sebagai bahasa ilmu?
- Sejauh manakah cabaran globalisasi dan transformasi ilmu pengetahuan yang mengutamakan pembelajaran dan pengajaran dalam bahasa Inggeris, membawa kesan melemahkan peranan bahasa Melayu dalam pengembangan ilmu?
- Apakah peranan UA, perpustakaan dan DBP dalam menggembeleng usaha melonjakkan kepustakaan Melayu dan menyumbang kepada pembangunan academia?

1.2 Objektif

Kertas kerja ini bertujuan;

- Mencerakin isu, cabaran dan masalah mengutarakan terhadap usaha memartabatkan Bahasa Melayu sebagai bahasa ilmu dalam enam dekad, khususnya melibatkan sektor pengajian tinggi negara.
- Membincangkan sorotan dalam perancangan, pelaksanaan dan pencapaian dan peluang untuk memartabatkan Bahasa Melayu sebagai bahasa ilmudalam memacu kesarjanaan akademia lokal dan global.
- Reaksi DBP dalam memartabatkan Bahasa Melayu sebagai Bahasa Ilmu dan memperluaskan pengukuhan pembinaan kesarjanaan akademia menerusi TMK.

2. SENARIO

Kemajuan dan pencapaian Bahasa Melayu sebagai bahasa ilmu dalam sistem pendidikan sepanjang tempoh enam dekad disorot secara kronologi.

1957	Mata pelajaran wajib sekolah rendah dan menengah
1970	Penubuhan Universiti Kebangsaan Malaysia (UKM). Universiti Pertanian Malaysia (1972), Universiti Teknologi Malaysia (1974), Universiti Utara Malaysia (1984), Universiti Malaysia Sarawak (1993). Universiti Malaysa (1957) dan Universiti Sains Malaysia (1984) menukarkan bahasa pengantar kepada bahasa Melayu sevcara berperingkat-peringkat.
1979	Bahasa pengantar Tingkatan VI aliran sastera. Bahasa pengantar tingkatan VI aliran sains (1981)
1980	Bahasa pengantar jurusan sastera tahun 1 di universiti
1982	Bahasa pengantar semua peringkat persekolahan
1983	Bahasa pengantar semua kursus di universiti
2009	Pemansuhan Dasar Pengajaran dan Pembelajaran Sains dan Matematik Dalam Bahasa Inggeris (PPSMI) di sekolah-sekolah dan digantikan dengan Dasar Memartabatkan Bahasa Melayudan Memperkukuhkan Bahasa Inggeris (MBMMBI).
2003 - 2011	Mata pelajaran sains dan matematik diajar dalam bahasa Inggeris di sekolah rendah, menengah dan universiti.

(Sumber: http://www.moe.gov.my/my/hala-tuju-pendidikan)

Menurut Nik Safiah (2008), lima akta diluluskan kerajaan yang memberi kedudukan besar terhadap kedudukan Bahasa Melayu sebagai bahasa ilmu. Antaranya Akta Bahasa Kebangsaan (1963/67), Akta Pendidikan 1996, Akta Universiti dan Kolej Universiti, Akta Institusi Pengajian Tinggi Swasta, Akta Majlis Pendidikan Tinggi 1996 dan Akta Lembaga Akreditasi Negara 1996.

Bahasa Melayu telah menjadi bahasa ilmu di Malaysia lebih daripada 30 tahun dan berjaya melahirkan profesional sains dan teknologi.Sejarah pembangunan bahasa Melayu sebagai bahasa ilmu tinggi dicetuskan oleh rentetan dasar pendidikan;
- dengan penetapan bahasa Melayu sebagai bahasa pengantar pendidikan sekolah menerusi Penyata Razak (1956).
- Penubuhan Universiti Kebangsaan Malaysia (UKM) pada 1970 memulakan sejarah bahasa Melayu bahasa ilmu tinggi negara dengan kejayaan melahirkan graduan, professional, saintis, jurutera, doktor menerusi pengajaran dan pembelajaran bahasa Melayu.
- Dasar Sains dan Teknologi (STEM) pada tahun 2003 memperkasakan pemindahan ilmu di sekolah dan universiti menerusi bahasa Inggeris.
- Pelan Tindakan Memartabatkan Bahasa Melayu Sebagai Bahasa Ilmu Tinggi Di IPTA dilancarkan pada tahun 2011.
- Dasar Memartabatkan Bahasa Melayu Memperkasa Bahasa Inggeris (MBMMBI).

Faktor globalisasi dan kemajuan teknologi maklumat dan komunikasi dikuasai bahasa Inggeris dikatakan memberi kesan kepada perkembangan budaya masyarakat juga memberi ancaman terhadap fungsi dan kedudukan bahasa Melayu dalam aspek perkembangan ilmu, khususnya di IPT.Limpahan pengaliran maklumat terutamanya dalam bidang sains dan teknologi melihat sebahagian besar penyampaian ilmu menggunakan bahasa Inggeris mencabar keupayaan bahasa Melayu (Noresah Baharum, 2006).

3. PELAN MEMARTABATKAN BAHASA MELAYU SEBAGAI BAHASA ILMU DI IPT 2011-2015

Gerakan memperkasakan bahasa Melayu di IPT bagi tempoh lima tahun telah diperkenalkan pada tahun 2011. Pelan Memartabatkan Bahasa Melayu Sebagai Bahasa Ilmu di IPT dilancarkan oleh Dato' Seri Khaled Nordin, mantan Menteri Pengajian Tinggi Negara (2011) dalam empat strategi utama mempersadakan bahasa Melayu sebagai bahasa ilmu, iaitu; 1) mengukuhkan Bahasa Melayu dalam pembelajaran dan pengajaran; 2) mengukuhkan Bahasa Melayu dalam penyelidikan dan penerbitan; 3) meningkatkan pengiktirafan akademia Bahasa Melayu dalam pelbagai disiplin ilmu; dan 4) meningkatkan pengantarabangsaan Bahasa Melayu. 25 inisiatif strategik bagi IPT disenaraikan dalam memenuhi empat strategi utama.

Sebagai nadi jantung universiti, di manakah kedudukan perpustakaan, peranan dan sumbangan sebagai sebuah kepustakaan ilmu dalam memartabatkan dan memperkasakan bahasa Melayu

di IPT menerusi pelan tersebut?Kekurangan dan kelemahan penghasilan kepustakaan Bahasa Melayu oleh para akademia di IPT perlu diberikan perhatian pihak perpustakaan untuk mengimbangi sumber rujukan dan bacaan bercetak mahupun digital.

3.1 Sejauh Manakah Pelan Memartabatkan Bahasa Melayu Sebagai Bahasa Ilmu di IPT 2011-2015Mencapai Kejayaan?

Dalam tempoh 2011-2015 beberapa kajian awal telah memperoleh dapatan awal.Hasil penilaian dapatan ke atas penerbitan ilmiah difokuskan kepada tiga kategori utama iaitu penerbitan buku (buku, monograf, bab dalam buku), artikel dalam jurnal dan artikel dalam prosiding. Kajian kes yang melibatkan 13 Kluster di bawah Majlis Profesor Negara (MPN) dalam tahun 2014 memberikan gambaran penerbitan ilmiah bagi semua kluster diungguli oleh penerbitan berbahasa Inggeris. Manakala, bahasa Melayu tidak menjadi pilihan atau keutamaan dalam kalangan ilmuwan untuk melaksanakan penerbitan ilmiah mereka.Hal ini memberi gambaran IPTA di Malaysia tidak mengambil peranan untuk memartabatkan bahasa Melayu dalam bidang penerbitan sungguhpun penerbitan berbahasa Melayu merupakan agen terpenting dan berupaya mengangkat bahasa ibunda ke peringkat global (Noraien Mansor, Noor Rohana Mansor, 2015).

Menurut Noraien Mansor & Noor Rohana Mansor (2013), dominasi penerbitan ilmiah berbahasa Melayu di IPTA bagi tempoh tiga tahun penelitian dari 2010 hingga 2012 disimpulkan seperti Jadual 1 yang menunjukkan pencapaian penulisan artikel jurnal, penerbitan jurnal dan buku ilmiah di IPTA.

Jadual 1. Pencapaian Penulisan Artikel Jurnal, Penerbitan Jurnal dan Buku Ilmiah di IPTA

Bidang	Artikel jurnal bahasa Melayu	Penerbitan jurnal bahasa Melayu	Karya buku ilmiah bahasa Melayu
Sains Sosial	66%	40%	88%
Sains dan Teknologi	27%	47%	8%
Kejuruteraan	4%	9%	2%
Perubatan	3%	4%	2

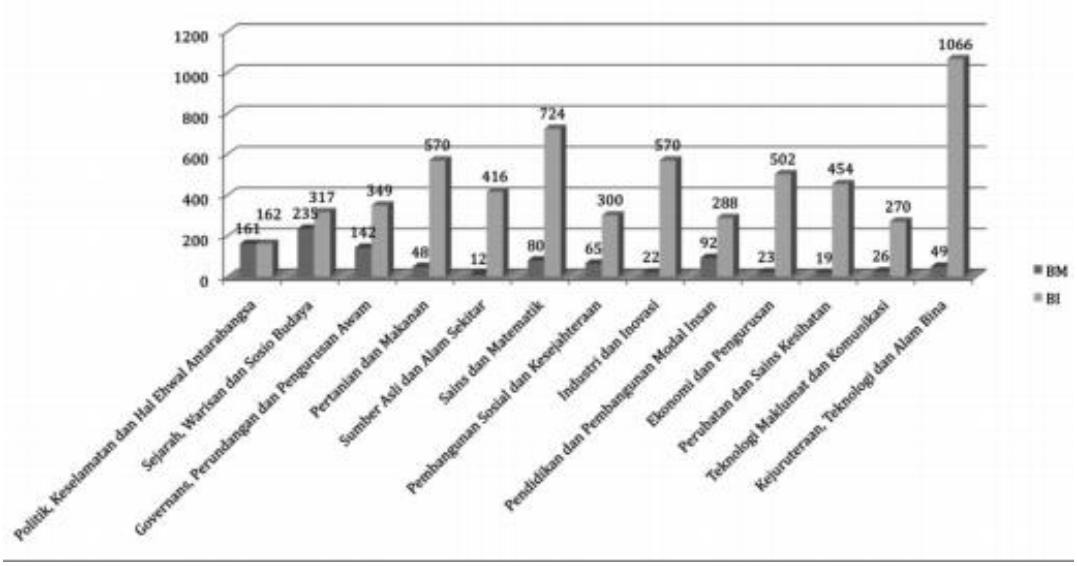
Beberapa penerbitan jurnal menyumbang kepada makalah berbahasa Melayu dalam bidang linguistik, sastera, kebudayaan dan tamadun Melayu, antaranya, Jurnal Dewan Bahasa, Malay Literature, Jurnal Bahasa dan Jurnal Jendela Alam; Jurnal Sari, Jurnal Filologi Melayu Perisa, Jurnal Peradaban Melayu dan Melayu, Antarabangsa Dunia Melayu (Roosfa Hashim, 2011). Justeru bahasa Melayu sebagai wahana komunikasi dan pemikiran jelas memainkan peranannya secara ilmiah bagi mengangkat kesarjanaan akademia Melayu ke tahap global.

Menurut Noraien dan Noor Rohana (2015), penerbitan ilmiah para akademia didominasi oleh bahasa Inggeris.Keadaan ini jelas menjejaskan usaha untuk meningkatkan kepustakaan intelektual usaha memartabatkan Bahasa Melayu Ilmu Tinggi.

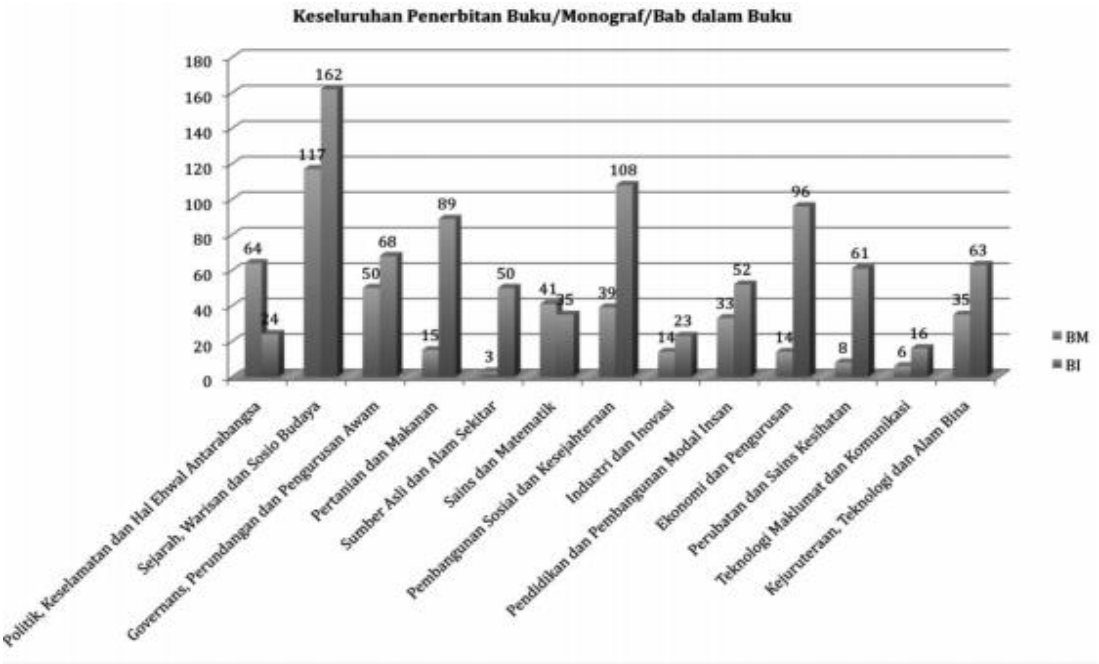
Jadual 2.Penerbitan Ilmiah Para Akademia

Kategori	Bahasa Inggeris	Bahasa Melayu
Keseluruhan	86%	14%.
Buku	66%.	34%
Jurnal	92%	8%
Prosiding	89%	11%

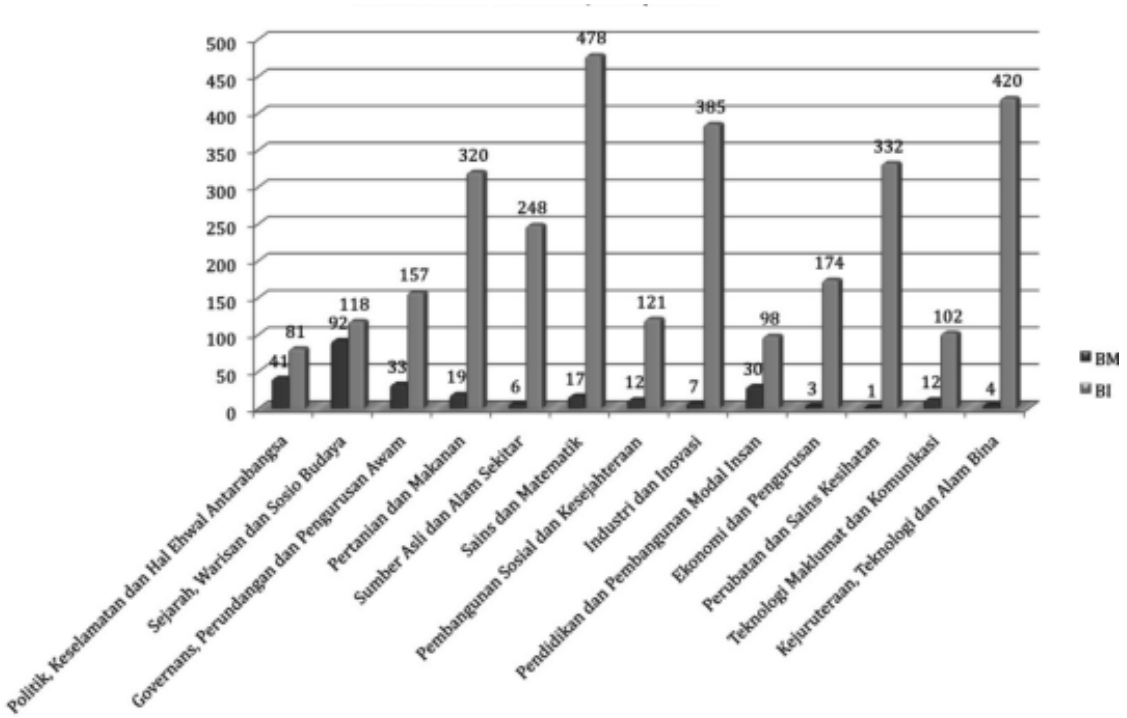
Hasil kutipan data oleh Noraien dan Noor Rohana (2015) menunjukkan prestasi penerbitan oleh para akademia seperti Rajah 1, Rajah 2 dan Rajah 3 berikut;



Rajah 1. Keseluruhan Penerbitan



Rajah 2. Keseluruhan Penerbitan Buku/Monograf



Rajah 3. Keseluruhan Penerbitan Artikel Dalam Jurnal

Kajian pemantauan dalam kalangan tenaga akademik dalam bidang sains dan teknologi di IPTA dan IPTS (Noor Rohana Mansor, Hamdan Azmi Abd. Aziz, 2014) membawa kepada analisa berikut;

- tenaga akademik mempunyai keyakinan terhadap Bahasa Melayu sebagai bahasa pengantar utama di IPT berada pada tahap tinggi, walaupun berlaku perubahan dasar oleh pihak kerajaan di IPT sejak 1993.
- Peratusan yang tinggi, (2.17%) responden menggambarkan sumber rujukan utama dalam pengajaran dan pembelajaran adalah dalam bahasa Inggeris, pensyarah turut memberi galakan penggunaan buku rujukan Bahasa Melayu. Hanya 27.83% responden menggalakkan pelajar menggunakan sumber rujukan dalam bahasa Inggeris yang memberi gambaran sumber rujukan bagi sains dan teknologi mudah diperoleh dalam bahasa Inggeris berbanding rujukan Bahasa Melayu.

Kajian turut mengemukakan cadangan untuk memartabatkan penggunaan bahasa Melayu di IPT untuk mempergiatkan jumlah penerbitan buku-buku rujukan dalam bahasa Melayu, serta memperkasakan kepustakaan ilmu dalam bahasa Melayu dengan berkesan dan bersepadu bagi mengurangkan kebergantungan terhadap bahasa Inggeris.Turut disarankan sinergi antara IPT dan DBP sebagai platform kepada tenaga akademik negara untuk menyokong program penerbitan BMIT (Abdullah, 2008).

3.2 Pengauditan Pelan Tindakan Memartabatkan Bahasa Melayu sebagai Bahasa Ilmu di IPT (2011-2015)

Pengauditan yang dilaksanakan pada bulan November - Disember 2015 memperoleh dapatan yang berikut;

i. Penggunaan bahasa Melayu dalam laporan penyelidikan dan penerbitan artikel adalah sangat minimum.
ii. Penerbitan buku akademik berbahasa Melayu adalah sederhana.
iii. Penerbitan berbahasa Melayu tidak diambil kira untuk perjawatan dan kenaikan pangkat.
iv. Universiti tidak memberikan sebarang penganugerahan dan pengiktirafan kepada ahli akademik yang membudayakan bahasa Melayu.
v. Penerbitan berbahasa Melayu tidak diambil kira untuk perjawatan dan kenaikan pangkat.
vi. Program pengantarabangsaan yang melibatkan mobiliti Pengajian Melayu tidak berkesan dan tidak memuaskan.

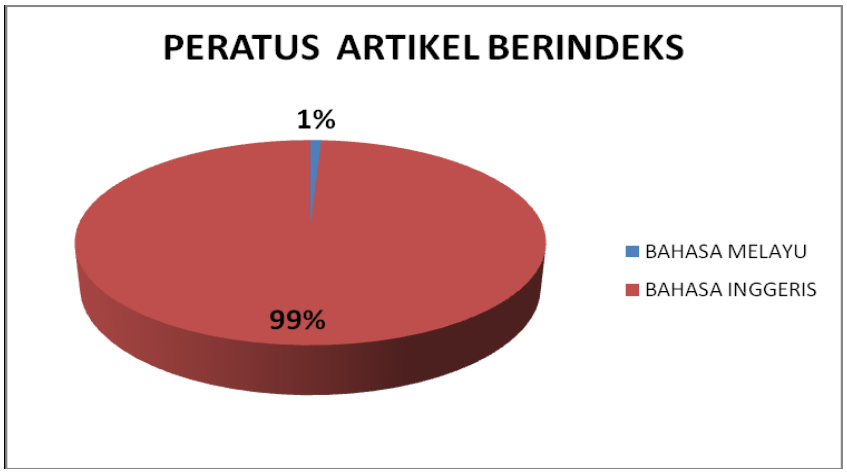
Pengauditan terhadap strategi 2.“Mengukuhkan Bahasa Melayu dalam Penyelidikan dan Penerbitan” menunjukkan kecenderungan penyediaan laporan penyelidikan dalam bahasa

Inggeris didorong oleh matlamat pengantarabangsaan universiti yang mengutamakan bahasa Inggeris dalam hal penyelidikan dan pembangunan.

Rajah 4. Laporan Penghasilan Penyelidikan.

Sebagai saranan dalam memastikan penyebaran pelbagai disiplin ilmu melalui laporan penyelidikan kepada pelbagai lapisan masyarakat di negara ini, pihak universiti perlu mengambil inisiatif untuk menerbitkan laporan dalam dwibahasa.

Hasil pengauditan terhadap strategi “Menambahkan bilangan artikel berindeks dalam bahasa Melayu”, penulisan jurnal lebih banyak dihasilkan dalam bahasa Inggeris disebabkan oleh syarat-syarat yang menetapkan bahawa jurnal-jurnal dalam bahasa Inggeris akan mendapat kedudukan (ranking) utama Q1 atau Q2.



Rajah 5. Penghasilan Artikel Berindeks

Sasaran pada tahun 2013: sebanyak 750 bilangan artikel berindeks dalam bahasa Melayu.

Responden juga menyatakan bahawa jurnal dalam bahasa Melayu yang berwibawa dan bertaraf "SCOPUS" dan "ISI" tidak wujud, ini menjadi kekangan untuk menghasilkan penulisan artikel atau jurnal dalam Bahasa Melayu.

3.3 Pelan Memartabatkan Bahasa Melayu sebagai Bahasa Ilmu di IPT 2016-2020

Teras penyelidikan akademik dan memenuhi keperluan industri, persoalan tentang bahasa, budaya dan kearifan setempat sepatutnya turut menjadi kayu ukur pencapaian universiti. Kedua-dua Kementerian Pendidikan Malaysia dan Kementerian Pengajian Tinggi akan tetap meneruskan usaha memantapkan penggunaan bahasa Melayu sebagai bahasa ilmu dengan mengatur pelbagai program dari segi pendidikan, akademik dan gagasan menyemarakkan penggunaan bahasa Melayu di seluruh dunia.

Objektif Pelan Memartabatkan Bahasa Melayu sebagai Bahasa Ilmu di IPT 2016-2020 telah digariskan sebagai;

1.	Memartabatkan Bahasa Melayu sebagai Bahasa Ilmu di IPT
INISIATIF	• Membanyakkan bahan rujukan ilmiah dalam bahasa Melayu • Menghasilkan laporan penyelidikan dalam bahasa Melayu. • Meningkatkan penerbitan ilmiah dalam bahasa Melayu (karya asli, suntingan dan terjemahan). • Menaik taraf jurnal berbahasa Melayu/dwibahasa ke taraf jurnal berindeks dan berimpak tinggi. • Penerbitan jurnal artikel berwasit sebagai syarat pengesahan jawatan • Mewujudkan anugerah untuk mengiktiraf usahamemartabat bahasa Melayu di IPT.
2.	Menghasilkan Graduan yang Berketerampilan dalam Bahasa Melayu
INISIATIF	• Penulisan tesis dan laporan dalam bahasa Melayu serta kursus dan bimbingan keterampilan.
3.	Merealisasikan Bahasa Melayu sebagai Wadah Pembangunan Negara
4.	Mengantarabangsakan Malaysia sebagai Pusat Rujukan tentang Ilmu Alam Melayu
INISIATIF	• Memperkasa pusat rujukan ilmu Alam Melayu dalam bahasa Melayu mengikut tujahan bidang di IPT. • Mewujudkan kerjasama penyelidikan dan penerbitan dengan universiti luar negara.

	• E-Pembelajaran • Menyediakan sumber rujukan berbahasa Melayu tentang alam Melayu dalam bentuk digital.

4. MEMARTABATKAN BAHASA MELAYU SEBAGAI BAHASA ILMU: CABARAN DAN PERANAN DEWAN BAHASA DAN PUSTAKA.

Dewan Bahasa dan Pustaka (DBP) yang ditubuhkan pada tahun 1956 untuk menjaga keutuhan bahasa Melayu di samping merangka langkah-langkah proaktif mampu mengambil peranan bahasa Inggeris sepenuhnya sebagai bahasa pengantar utama ilmu disekolah bermula 1970, dan di IPT. Menurut Nor Rohana dan Hamdan, (2014), langkah kerajaan mengubah dasar yangtelah dijalankan DBP selama 54 tahun mengakibatkan bahasa Melayu hanya berfungsi sebagai lambang sahaja.

DBP juga telah bergerak seiring dengan perkembangan dunia teknologi maklumat dengan menyediakan prasarana teknologi maklumat dan komunikasi untuk capaian mudah khidmat rujukan bahasa dan persuratan secara atas talian.Perkara yang perlu dilakukan ialah meningkatkan kuantiti dan kualiti kandungannya.Istilah, kamus, ensiklopedia, dan bahan rujukan bahasa dan persuratan perlulah diperbanyakkan dan dipelbagaikan.

Antara matlamat penubuhan Dewan Bahasa dan Pustaka sebagaimana yang tercatat dalam Akta DBP (semakan tahun 1978, pindaan dan peluasan 1995) termasuklah untuk membina dan memperkaya bahasa kebangsaan dalam semua bidang termasuk sains dan teknologi.Oleh itu, dalam usaha memartabatkan bahasa Melayu termasuklah dalam bidang sains dan teknologi ratusan istilah dibentuk dan disebarkan kepada masyarakat pengguna Bahasa.

Pelan Strategik DBP (2016-2020) sekaligus menyempurnakan strategi Pelan Tindakan Memartabatkan Penggunaan Bahasa Melayu Sebagai Bahasa Ilmu Di IPT (2016-2020). PTS DBP 2016-2020 memberi fokus terhadap usaha untuk memperkasakan bahasa Melayu sebagai bahasa ilmu, meluaskan kelompok dan penggunaan bahasa Melayu, membangunkan karyawan, memperkasakan produk penerbitan, memantapkan khazanah ilmu serta mengantarabangsakan bahasa Melayu.

Kegiatan fungsi pembinaan bahasa dan sastera yang dijalankan meliputi penyelidikan, pengumpulan, penyebaran dan pengemaskinian khazanah ilmu pelbagai bidang serta maklumat bahasa, sastera dan budaya Alam Melayu secara berterusan dengan memanfaatkan teknologi maklumat dan komunikasi.

Dalam tumpuan meningkatkan kepustakaan ilmu berbahasa Melayu beberapa langkah dikenalpasti;

1. DBP merangka perancangan dan pelaksanaan Pelan Tindakan Strategik DBPmembangunkan produk dan perkhidmatan: BKU 5.
2. Produk/perkhidmatan dan analisis penggunaan; Pusat Rujukan Persuratan Melayu, Khidmat Nasihat DBP, E-Borneo, E-Buana, E-Tesis, E-jurnal, Sistem Korpus Bahasa Melayu dan Gerbang Kata dibincangkan sebagai langkah memperkayakan kepustakaan ilmu merentas pelbagai sebagai sumber pembinaan kesarjanaan akademia.
3. Pemerhatian turut serta dalam pelaksanaan produk dan perkhidmatan TM Bahasa, sastera dan penerbitan.

Perkembangan bahasa dan persuratan Melayu yang meskipun memperlihatkan kemajuan yang meyakinkan sesudah lebih setengah abad negara kita merdeka, ternyata masih memerlukan perhatian dan perencanaan yang lebih rapi dan serius, terutama untuk memastikan bahasa negara kita dihormati, dimuliakan, dan didaulatkan dengan pelaksanaan penggunaannya seluas-luasnya dalam semua sektor – pentadbiran, pendidikan, media am (cetak dan elektronik), undang-undang, tempat awam, ekonomi, dan perhubungan awam.

Untuk makluman, kemajuan teknologi maklumat tidak akan memperkasakan bahasa Melayu tetapi dengan mengetahui kelebihan teknologi maklumat seperti kemampuan menyampaikan maklumat dengan cepat dan pantas, tanpa halangan masa dan sempadan benua maka bahasa Melayu boleh diperkasakan dengan menggunakan kelebihan teknologi maklumat. Tiga pendekatan perlu dikenalpasti, pertama, memahami bagaimana kita boleh menerbitkan bahan-bahan berbahasa Melayu dengan pantas menggunakan teknologi.Kedua, memahami kelebihan penyebaran maklumat menggunakan teknologi berbanding dengan menggunakan kaedah tradisional dan ketiga memikirkan kaedah dan pendekatan bagaimana penggunaan teknologi ini boleh memperkasakan dan memasyarakatkan bahasa Melayu.

Seterusnya dengan menggunakan teknologi kita boleh menyebarluaskan bahan tersebut tanpa sempadan dunia dengan pantas dan bahan tersebut juga boleh dicapai diseluruh dunia tanpa mengira waktu (pagi atau petang, siang atau malam).

4.1 Teknologi Bahasa

Teknologi maklumat dan komunikasi merupakan antara sarana paling efisien yang digunakan oleh DBP untuk menyebarkan bahasa Melayu kepada setiap lapisan masyarakat, dan ke peringkat global.Bidang Keberhasilan Utama (BKU) DBP ke-5 menetapkan keberhasilan khazanah ilmu tersedia sebagai bahan rujukan perdana bahasa, persuratan dan tamadun Melayu yang dapat dimanfaatkan oleh pengguna penyelidikan dan penulisan, dan khazanah ilmu mudah dan cepat diakses.Cabaran besar untuk menjayakan BKU ke-5 DBP ialah

penyediaan kandungan yang komprehensif dari pelbagai sumber, mentranformasi kandungan dalam bentuk maklumat dan seterusnya diakses dalam bentuk khazanah ilmu yang hibrid.

Usaha penyusunan kamus istilah selari dengan tuntutan perkembangan dalam pelbagai bidang. Antaranya ialah Kamus Undang-undang Antarabangsa, Kamus Sains Makanan, Kamus Sains Marin: Ekologi Laut dan Oseanografi Fizikal, Kamus Perubatan: Psikiatri, Kamus Seni Bina, Kamus Reka Bentuk Dalaman, Kamus Teknologi Ujian Tanpa Musnah: Radiologi dan Ultrasonik, Kamus Teknologi Maklumat: E-Pembelajaran, Kamus Teknologi Maklumat: E-Kesihatan, Kamus Herba: Pemiawaian/Standardisasi, Kamus Herba: Peraturan dan Pemasaran, dan Kamus Herba: Fitoterapi.Bagi memastikan istilah yang digubal bergerak seiring dengan perkembangan ilmu dan kehendak pengguna semasa, DBP turut menangani penggubalan istilah semasa. Kesemua istilah yang digubal dan diterbitkan oleh DBP boleh dicapai melalui laman sesawang DBP, iaitu melalui portal Pusat Rujukan Persuratan Melayu http://www.prpm.dbp.gov.my.

Pembinaan kepustakaan ilmu bahasa Melayu menerusi inisiatif kerjasama strategik dan sinergi kebahasaan dengan pelbagai pihak di dalam dan di luar negara melalui aktiviti kebahasaan, dan menyediakan khidmat kepakaran bahasa terutamanya bidang peristilahan dan leksikologi digiatkan. Antaranya ialah kerjasama dengan Kementerian Pengajian Tinggi, Unit Pemodenan Tadbiran dan Perancangan Pengurusan Malaysia (**MAMPU**), Jabatan Ukur dan Pemetaan Malaysia (JUPEM), Jabatan Perancangan Bandar dan Desa, Pusat Infrastruktur Data Geospatial Negara (MaCGDI), Jabatan Standard Malaysia, SIRIM Berhad, Institut Kimia Malaysia, Pusat Hidrografi Nasional, Institut Penyelidikan Perikanan, dan Institut Penyelidikan Perhutanan Malaysia (FRIM).

4.2 Leksikologi

Dalam usaha untuk memperkaya khazanah perbendaharaan kata bahasa Melayu, DBP menggiatkan usaha melaksanakan projek kajian leksikal bagi mengumpul, merakam dan mendokumentasikan data leksikal bahasa daerah dan sukuan. Hasil projek ini akan dimanfaatkan dalam kerja-kerja penggubalan istilah, penyusunan kamus dan ensiklopedia.

Pada tahun ini, projek kajian leksikal bahasa daerah dan sukuan telah dijalankan melalui Program UNESCO: Melestarikan Bahasa Sukuan dan Bahasa Daerah, yang merupakan program kerjasama antara DBP dengan Kementerian Pendidikan Malaysia.

Penyertaan pelajar dari institusi pengajian tinggi awam ini, bertujuan untuk memberikan pendedahan tentang kaedah penyelidikan bahasa di lapangan dan kesedaran kepada generasi muda khususnya tentang kepentingan untuk melestarikan bahasa ibunda. Program meliputi empat lokasi kajian telah dipilih, iaitu Kampung Pendiat, Bota, Perak; Kampung Kuala Medang, Lipis, Pahang; Kampung Siwak Jaya, Miri, Sarawak; dan Kampung Taun Gusi, Kota Belud, Sabah.

Program ini berjaya mengumpul 3800 kata dialek atau bahasa sukuan, dan hasil kajian telah didokumentasikan melalui portal Gerbang Kata Dewan Bahasa dan Pustaka (GKDBP) di http:e//ekamus.dbp.gov.my.

5. KEPUSTAKAAN DIGITAL DAN PERKHIDMATAN ATAS TALIAN

DBP telah membina Sistem Bahasa Melayu Bersepadu (SBMB) yang menyepadukan kesemua sistem meliputi, pengurusan kamus, sistem korpus, sistem pengurusan peristilahan, sistem pembinaan dan pengurusan ensiklopedia, sistem bahasa sukuan, dan sistem sehenti perkhidmatan kebahasaan. Pengguna bebas dan mudah berinteraksi dengan pegawai DBP.Pusat Rujukan Persuratan Melayu (PRPM) menjadi laman sesawang kebahasaan yang terkenal di Malaysia,http://prpm.dbp.gov.my/.Sebagai pusat sehenti perkhidmatan maklumat kebahasaan, pengguna bahasa Melayu boleh mengemukakan carian dan dan memperoleh jawapan menerusi enjin carian yang direka.

Kedudukan semasa dan sasaran kandungan dalam pustaka ilmu DBP menjelang tahun 2020 seperti dalam Jadual 3.

Jadual 3. Pustaka Ilmu DBP Menjelang Tahun 2020

Bil	Jenis Kandungan	Status Semasa	Sasaran Tahun 2020
1	Judul Buku	829 judul	10,000 judul
2	Entri (istilah, kamus, ensiklopedia, bahasa sukuan, dialek dan bahasa orang asli)	1,244,182 entri	1,030,000 entri
3	Makalah (artikel majalah, laporan penyelidikan, kertas kerja dan prosiding)	343 makalah	41,000 makalah
4	Bidang/sub bidang ilmu	140 bidang 97 sub bidang 8 sub sub bidang	215 bidang/sub bidang
5	Data teks korpus	103,426,820 kata	125,000,000 kata

DBP telah menghasilkan pelbagai produk dan perkhidmatan dalam talian untuk menyebarkan khazanah ilmu sedia ada. Antara produk dan perkhidmatan dalam talian yang tersedia ialah:

5.1 Pusat Rujukan Persuratan Melayu (PRPM)

PRPM merupakan pusat sehenti rujukan bahasa dan persuratan yang yang menggabungkan istilah, kamus, ensiklopedia, Bahasa sukuan, dialek, pantun, peribahasa, thesaurus, daftar ejaan, khidmat nasihat, pengesahan Bahasa, makalah dan kertas kerja. PRPM yang berkonsep enjin carian, memulakan perkhidmatan pada tahun 2009 akan memberikan maklumat berdasarkan pangkalan data yang tersedia. Purata bulanan kenaan (*hits*) pada tahun 2015 ialah 20.12 juta kenaan, dengan purata pelawat bulanan seramai 595,042 pelawat.

PRPM boleh diperluaskan dengan menggabungkan pangkalan data dari luar DBP melalui kerjasama pintar dengan pelbagai agensi di luar DBP.

5.2 Khidmat Nasihat DBP

Khidmat Nasihat DBP (KNDBP) merupakan kemudahan yang disediakan oleh DBP untuk mendapatkan nasihat dari DBP yang berkaitan dengan fungsi DBP.Pada peringkat awal perkhidmatan ini disediakan, transaksi perkhidmatan agak tinggi.Bagaimanapun apabila perkhidmatan PRPM disediakan, transaksi KNDBP menurun disebabkan rujukan boleh terus dibuat dalam PRPM.Sejarah soalan dan jawapan dalam KNDBP boleh dirujuk dalam PRPM.

Perkhidmatan dalam talian KNDBP bermula tahun 2005 hingga Jun 2016, telah merekodkan 41,033 transaksi. Perkhidmatan yang dilaksanakan secara manual seperti urusan di kaunter, surat, e-mel dan sistem pesanan sebahagian besar data belum direkodkan dalam pangkalan data.

5.3 Pantau Tegur Bahasa

Pantau Tegur Bahasa (PTB) merupakan kemudahan yang disediakan oleh DBP untuk membolehkan masyarakat membuat aduan kepada DBP isu yang berkaitan fungsi DBP. DBP akan mengambil tindakan berdasarkan aduan masyarakat. Untuk tempoh 2005-2016, 207 transaksi direkodkan.Transaksi manual belum direkodkan dalam pangkalan data.

5.4 Pengesahan Bahasa

Pengesahan Bahasa (PB) merupakan khidmat nasihat yang diberikan oleh DBP untuk mengesahkan aspek Bahasa dalam iklan, nama jalan dan lain-lain. DBP berkerjasama dengan Pihak Berkuasa Tempatan (PBT) untuk menjayakannya.Untuk tempoh 2011 hingga 2016, 179,860 transaksi telah direkodkan.Perkhidmatan PB yang dilaksanakan secara manual belum direkodkan sepenuhnya dalam pangkalan data. Rujukan pengesahan Bahasa boleh juga dirujuk dalam PRPM.

5.5 E-Borneo

E-Borneo merupakan merupakan Gedung Khazanah Bangsa yang mengumpulkan khazanah **kearifan tempatan** Borneo yang meliputi pelbagai bidang mengikut pengkelasan Dewey Decimal Classification (DDC), iaitu Karya Umum, Falsafah & Psikologi, Agama, Sains Sosial, Bahasa, Sains Tulen, Teknologi & Sains Gunaan, Kesenian, Kesusasteraan dan Geografi/Sejarah. e-Borneo mengelompokkan ilmu dan maklumat yang terakam dalam bentuk imej, kertas kerja, bahan penerbitan dan lain-lain kepada kelompok bahasa, sastera dan budaya. Bahan yang berkait langsung dengan bahasa atau sastera akan dikelompokkan dalam kumpulan bahasa atau sastera, manakala bahan yang di luar daripada kelompok bahasa atau sastera akan dimasukkan dalam kumpulan budaya.

Portal yang dilancarkan pada tahun 2015, telah merakamkan 502 bahan yang boleh diakses untuk manfaat masyarakat.

5.6 E-Tesis

e-Tesis merupakan pusat sehenti rujukan tesis. E-tesis akan mengindekskan kandungan tesis dan menempatkannya dalam e-Tesis. Kandungan asal tesis tidak dipindahkan ke dalam e-tesis.Setakat ini DBP telah bekerjasama dengan Perpustakaan UPM dan telah menandatangan persefahaman dengan UKM. DBP akan meneruskan kerjasama dengan semua pusat pengajian tinggi untuk menjayakan e-Tesis.

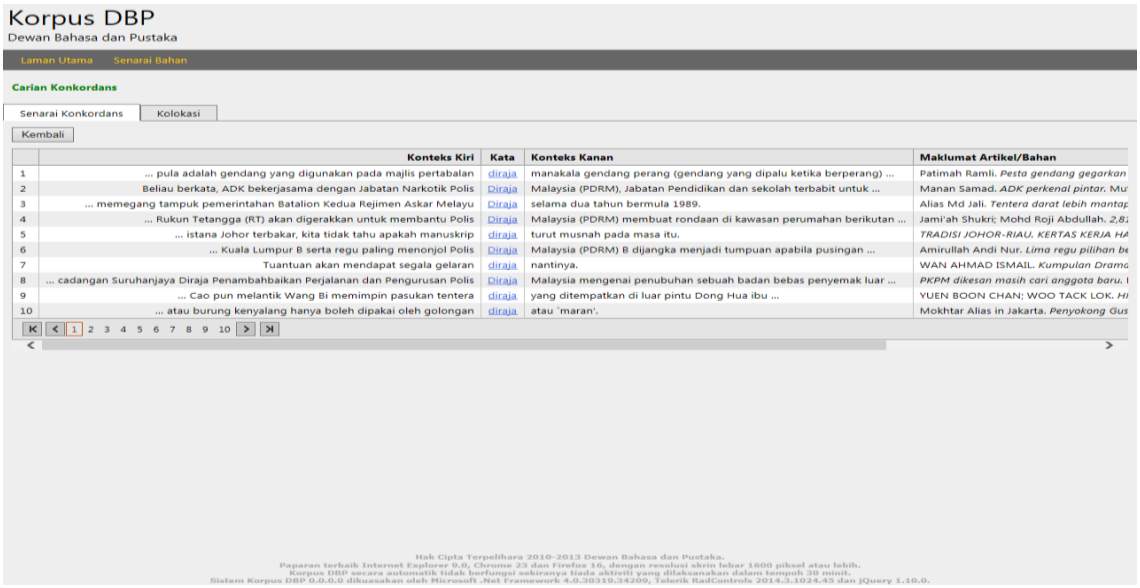
5.7 Gerbang Kata

Gerbang Kata (GB) merupakan kemudahan yang disediakan oleh DBP untuk membolehkan masyarakat memberikan cadangan kata dan makna baharu.GB menggunakan Kamus Dewan Edisi 4 sebagai data asas.Masyarakat boleh mencadangkan makna baharu berdasarkan entri dalam Kamus Dewan Edisi 4 atau pun mencadangkan entri baharu.GB yang dilancarkan pada tahun 2013 telah dimanfaatkan oleh 2,836 pengguna berdaftar dengan 100,143 transaksi.

Rajah 6. Gerbang Kata

5.8 Korpus Bahasa Melayu

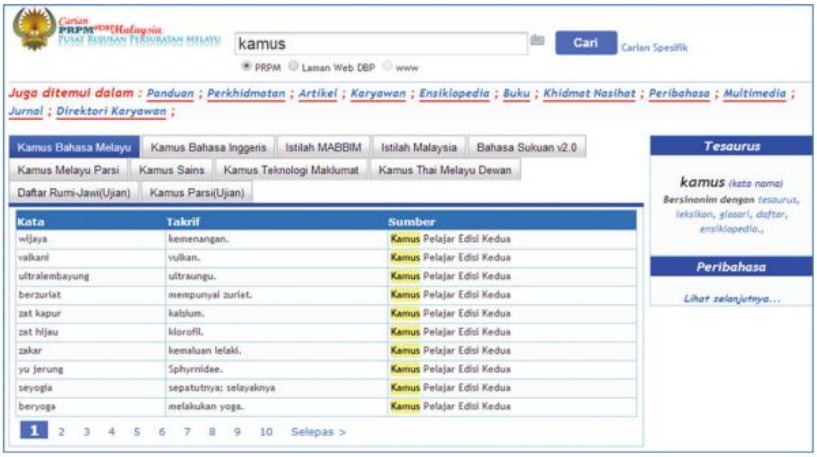
Di Malaysia, DBP adalah organisasi yang mula menggerakkan usaha pembinaan korpus dalam pengurusan dan pembinaan kamus pada tahun 1980. Korpus digunakan dengan meluas dalam perancangan dan pembinaan bahasa Melayu yang boleh diakses melalui http://prpm.dbp.gov.my/ (Ghani et. al.; 2008). Korpus berfungsi sebagai input kepada penyelidik, ahli leksikografi, academia untuk memperoleh data yang berwibawa, serta maklumat leksikon, kata dasar, frasa, terbitan berasaskan analisis konkordans (Baharom 2007).



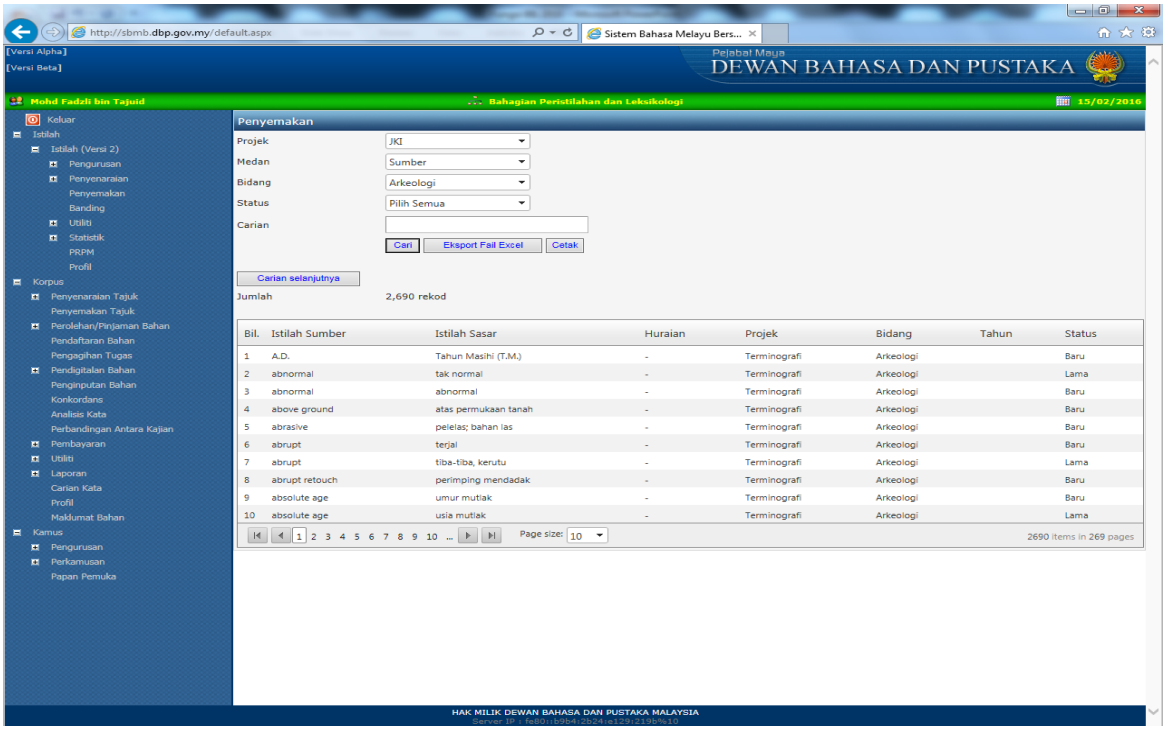
Rajah 7. Sistem Korpus DBP

Korpus Bahasa Melayu merupakan kemudahan yang disediakan oleh DBP untuk analisis konkordans dan analisis kata Bahasa Melayu.Penyelidik boleh memanfaatkan mengikut keperluan penyelidikan.Sehingga Jun 2016, kandungan korpus DBP meliputi 103,426,820 kata dengan 117,150 bahan korpus. Melalui kerjasama dengan pusat pengajian tinggi, DBP akan memanfaatkan bahan dalam domain awam untuk dimasukkan dalam pangkalan data korpus DBP.

Jumlah data korpus yang terkumpul pada tahun 2015 ialah 2.5 juta kata, yang merangkumi teks daripada pelbagai koleksi seperti buku, majalah, kertas kerja, teks sastera, dan akhbar. Jumlah kumulatif data korpus yang terkumpul sehingga kini ialah sebanyak 135 juta kata.



Rajah 8. Laman sesawang PRPM - Kamus



Rajah 9. Sistem Pembinaan dan Pengurusan Istilah (SPPIstilah)

6. SARANAN

Universiti dan perpustakaan memperbanyakkan kepustakaan bahasa Melayu ilmu tinggi menerusi bahan penyelidikan, pengajaran dan pemindahan ilmu menerusi pelbagai inovasi dan aplikasi teknologi**.**

1. Jaringan dan kerjasama akademik melibatkan institusi, pusat penyelidikan, penerbit buku dan jurnal serta perpustakaan khususnya universiti awam diperluaskan untuk memperkaya kepustakaan ilmu bahasa Melayu menerusi aplikasi teknologi masa kini bagi memenuhi keperluan pembelajaran dan meningkatkan kecekapan komunikasi bahasa Melayu para pelajar, ilmuwan, ahli akademik dan masyarakat umum.
2. Perjanjian persefahaman dan kontrak boleh dibuat dengan penerbit dan perpustakaan terlibat untuk kesepakatan yang erat dalam bentuk penyelidikan, penerbitan, kemahiran, penyebaran dan promosi berkaitan dengan bahasa, sastera, budaya, sains,teknologi, perhubungan antarabangsa dengan negara-negara di dunia dalam mengukuhkan pengajaran dan pemelajaran,

3. Memperteguh dan menyebarkan bahasa Melayu, kebudayaan Melayu dan segala bentuk khazanah ilmu dan persuratan Melayu dalam pelbagai bidang ilmu pengetahuan untuk menyokong pusat pengajaran dan pembelajaran BM di negara utama dunia.
4. Dalam memastikan kelangsungan penerbitan artikel berindeks berbahasa Melayu, dicadangkan penyemakan semula struktur penerbitan artikel berindeks di institusi pengajian tinggi supaya satu saluran yang jelas dan tuntas dapat diwujudkan bagi menempatkan artikel berindeks berbahasa Melayu yang berimpak tinggi

Memetik kata Datuk Seri Najib Tun Razak Perdana Menteri (Utusan Online, 2015), kerajaan tetap menjadikan Bahasa Melayu sebagai bahasa utama dalam pendidikan dan pengantaraan rasmi di negara ini.Lantaran perkembangan dan ledakan ICT, bahasa Melayu perlu meneroka cabaran untuk memasuki alam siber dan seterusnya bersaing dengan bahasa-bahasa lain yang lebih.Datuk Seri Mahdzir Khalid, Menteri Pendidikan Malaysia dalam ucapannya menegaskan Kementerian Pendidikan dengan kerjasama Kementerian Pengajian Tinggi menerusi program Perancangan Strategik Memartabatkan Bahasa Melayu 2016-2025 sentiasa berusaha memperhebat penggunaan bahasa Melayu serta meneruskan usaha memantapkan penggunaan bahasa Melayu sebagai bahasa ilmu dengan mengatur pelbagai program dari segi pendidikan, akademik dan gagasan menyemarakkan penggunaan bahasa Melayu di seluruh dunia (Utusan Online).

DBP akan terus meningkatkan lagi jumlah produk dan perkhidmatan sedia ada. Pelbagai kaedah capaian juga sedang diusahakan. Kerjasama dengan Pusat Pengajian Tinggi, Agensi Kerajaan dan pelbagai pihak lain akan diteruskan dengan pendekatan menang-menang bagi mengoptimumkan manfaatkan segala khazanah ilmu yang telah tersedia.

BM mempunyai kedudukan dan potensi sebagai bahasa ilmu dalam sektor pendidikan tinggi menerusi pelbagai aplikasi teknologi maklumat.Sinergi bestari menjadi landasan bagi institusi pendidikan tinggi untuk meneroka peluang mengukuhkan kedudukan bahasa Melayu menerusi peningkatan penyelidikan, penerbitan, menyebarluaskan kepustakaan digital bahasa Melayu dalam memacu kesarjanaan.

RUJUKAN

Deny Arnos Kwarya and Nor Hashimah Jalaluddin. *International Handbook of Modern Lexis and Lexicography.*Chapter · January 2015.

*Gerbang Kata.*http://prpm.dbp.gov.my/

Ghani, R. A., Husin, N. M., & Chin, L. Y. (2008). Pangkalan data korpus DBP: Perancangan, pembinaan dan pemanfaatan. Dalam Z. Ahmad (Ed.), *Nahu Praktis Bahasa Melayu*. Bangi: Penerbit UKM.

Ibrahim bin Komoo (2006). Pemerkasaan Bahasa Melayu Di Institusi Pengajian Tinggi. Dalam *Seminar Penyelidikan Bahasa; Merealisasikan Sains Dan Teknologi Melalui Bahasa Kebangsaan*. 2 Jun 2016. Kuala Lumpur: Dewan Bahasa dan Pustaka.

Kementerian Pengajian Tinggi Malaysia (2011). *Pelan Memartabatkan Bahasa Melayu Sebagai Bahasa Ilmu di IPT 2011-2015*.

Mohd. Khuzairi Ismail (2015). Bahasa Melayu Terus Dimartabat. *Utusan Online*, 04 November 2015. Diakses pada 8 Mei 2016 daripada http://www.utusan.com.my/pendidikan/kampus/bahasa-melayu-terus-dimartabat-1.154097#sthash.6BpKJvfp.dpuf.

Nik Safiah Karim (1986). Ke Arah Penguasaan dan Penghayatan Bahasa Melayu Tinggi: Matlamat Pengajaran Bahasa dan Sastera Melayu. Dalam *Seminar Bahasa dan Sastera Dalam Pendidikan ke-2, 8 – 10 April 1986, Persatuan Linguistik Malaysia.*Kuala Lumpur: Dewan Bahasa dan Pustaka.

Noor Rohana Mansor, Hamdan Azmi Abd. Aziz (2014).*Bahasa Melayu Dalam Bidang Sains Dan Teknologi Di Institusi Pengajian Tinggi Negara*. Kuala Terengganu: Universiti Malaysia Terengganu.

Noraien Mansor, Noor Rohana Mansor (2015). Penerbitan ilmiah bahasa Melayu dalam kalangan ilmuwan negara.*Journal of Business and Social Development,* 3(1), 25-32.

Noresah Baharum, (2006). DBP Lima Dekad, Globalisasi dan Gelombang Baru Memperkasakan Bahasa Melayu. Kertas Kerja dalam *Kongres Bahasa dan Persuratan Melayuke VII di Kuala Lumpur pada 6-8 November 2006*.

Pelan Memartabatkan Bahasa Melayu Sebagai Bahasa Ilmu di IPT 2016-2020 (Dilancarkan pada 13 Oktober 2016 sempena Majlis Sambutan Bulan Bahasa Kebangsaan Sektor Pendidikan).

Pusat Rujukan Persuratan Melayu. http://prpm.dbp.gov.my/

Thomas Chong. Tubuh Lebih Banyak Kursi Pengajian Melayu. *Utusan Online*.09 Ogos 2015.Diakses pada 9 Mei 2016 daripada http://www.utusan.com.my/pendidikan/kampus/tubuh-lebih-banyak-kursi-pengajian-bahasa-melayu-1.122302.

Proceedings of
5th PERPUN International Conference:
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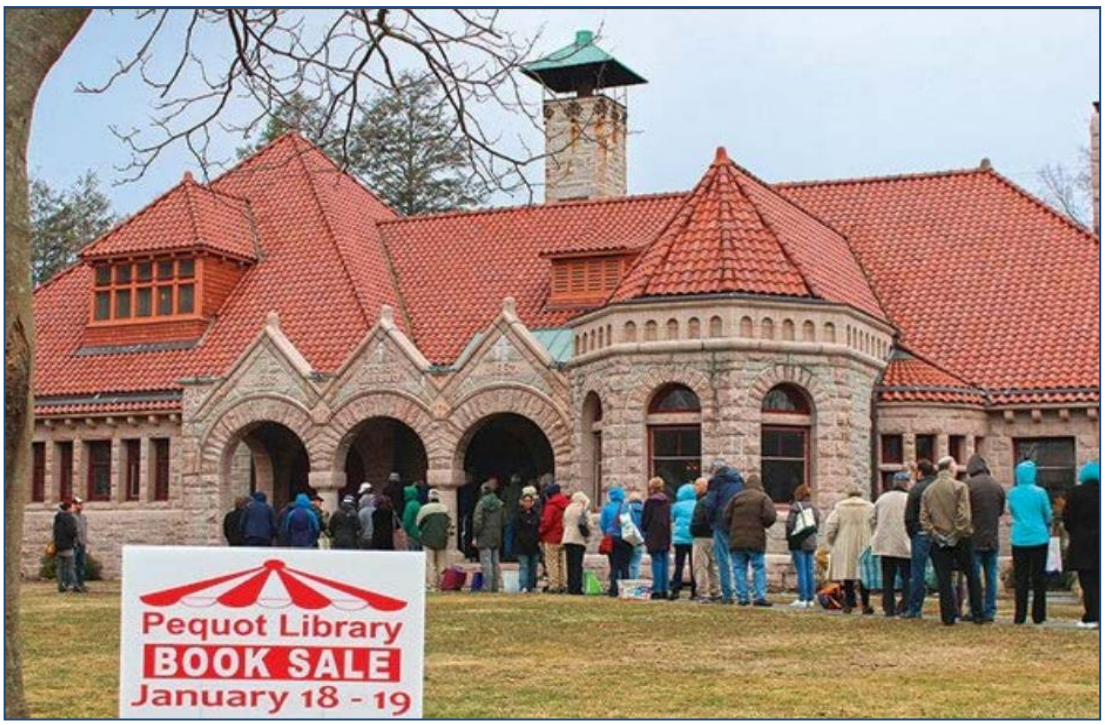
MOOCs AND THE FUTURE OF LIBRARIES

Adam Brimo

Chief Executive Officer
Level 2, 332 Kent Street, Sydney NSW 2000
Australia.
adam@openlearning.com

ABSTRACT

More students *worldwide are adopting MOOCs, online learning and open educational resources; how will the next generation of students view libraries? Students no longer differentiate between 'online' and 'offline' – their lives are enhanced by technology and libraries have become a destination, a sanctuary and a place for reflection. In this talk, I will explore some of the trends in online learning and the way a new generation of students may interact with libraries in their community and at university.*


Pequot Library
BOOK SALE
January 18 - 19


BOWEN LIBRARY
Library


UNSW

openlearning

" Without libraries what have we?
We have no past and no future."

–Ray Bradbury

openlearning

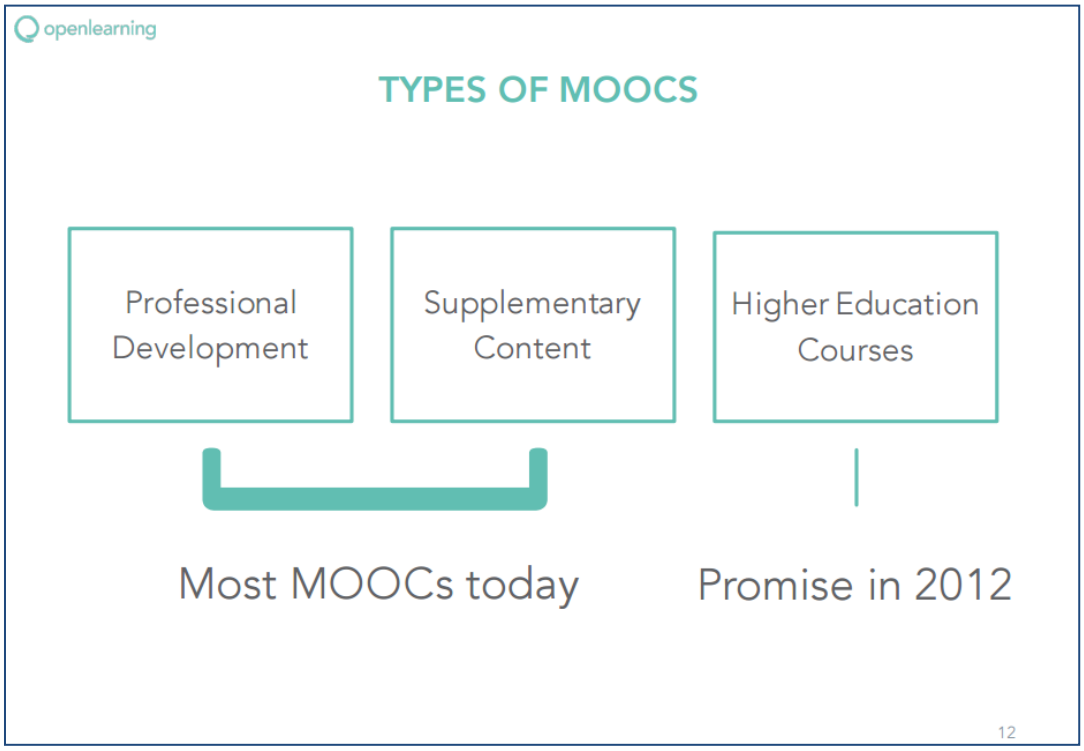
Massive

Open

Online

Course

11


openlearning
TYPES OF MOOCS
Professional Development
Supplementary Content
Higher Education Courses
Most MOOCs today
Promise in 2012
12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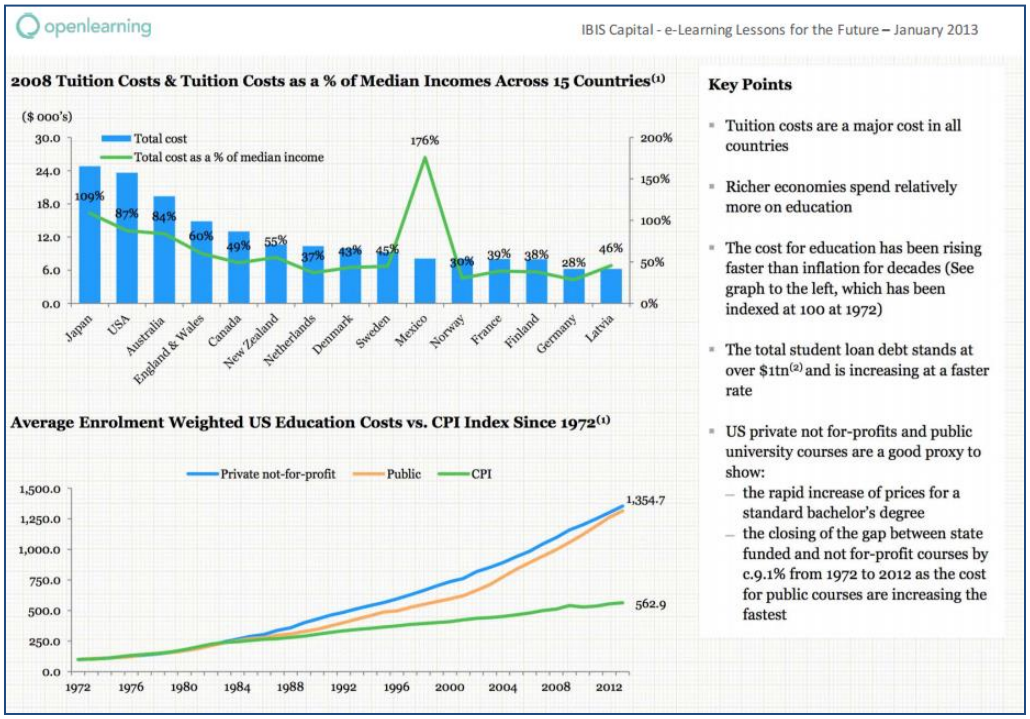
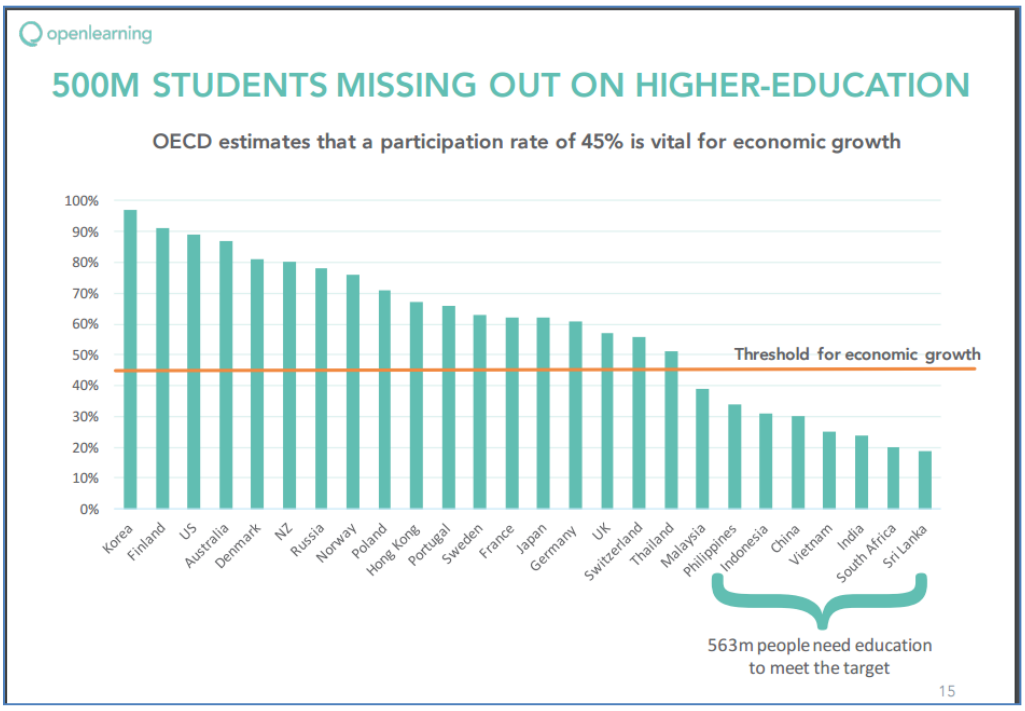
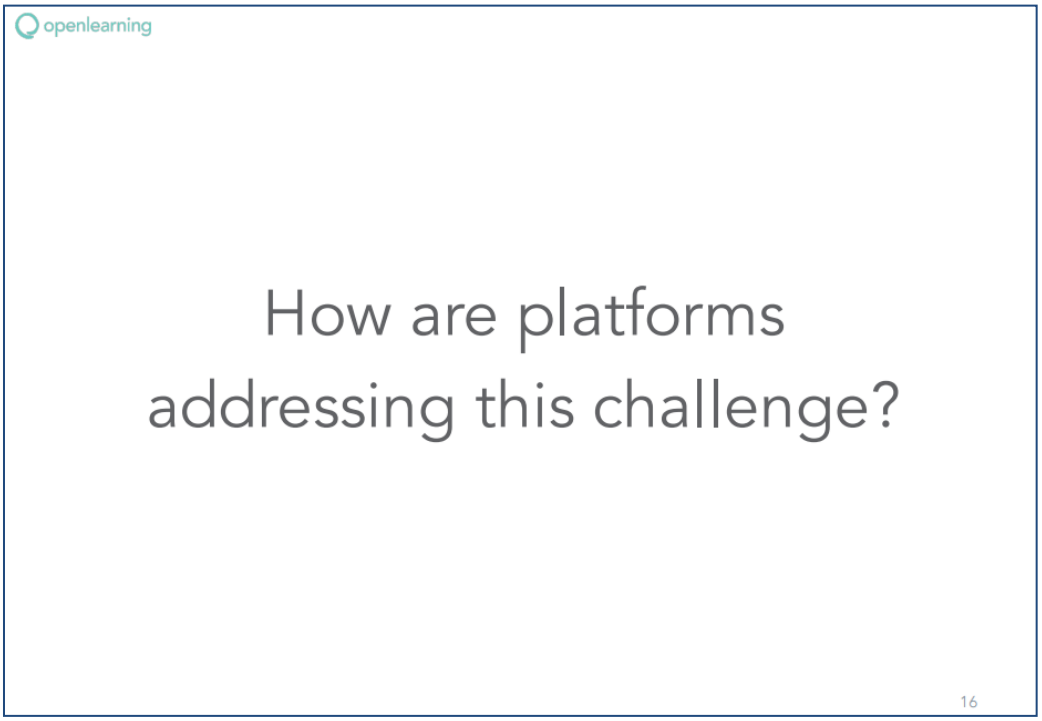
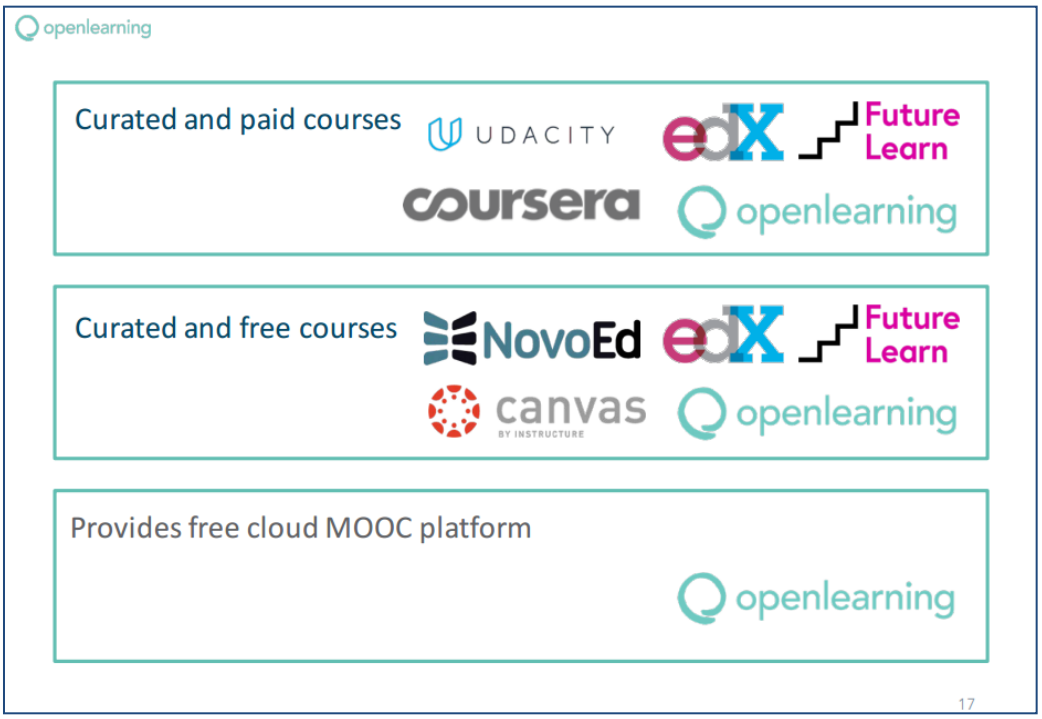
Delivering high-quality accredited education cost-effectively is one of society's greatest challenges.


openlearning
IBIS Capital - e-Learning Lessons for the Future – January 2013
2008 Tuition Costs & Tuition Costs as a % of Median Incomes Across 15 Countries(1)
($ 000's)
Total cost
Total cost as a % of median income
Japan
USA
Australia
England & Wales
Canada
New Zealand
Netherlands
Denmark
Sweden
Mexico
Norway
France
Finland
Germany
Latvia
Average Enrolment Weighted US Education Costs vs. CPI Index Since 1972(1)
Private not-for-profit
Public
CPI
1,354.7
562.9
Key Points
Tuition costs are a major cost in all countries
Richer economies spend relatively more on education
The cost for education has been rising faster than inflation for decades (See graph to the left, which has been indexed at 100 at 1972)
The total student loan debt stands at over $1tn(2) and is increasing at a faster rate
US private not for-profits and public university courses are a good proxy to show:
the rapid increase of prices for a standard bachelor's degree
the closing of the gap between state funded and not for-profit courses by c.9.1% from 1972 to 2012 as the cost for public courses are increasing the fastest


openlearning
500M STUDENTS MISSING OUT ON HIGHER-EDUCATION
OECD estimates that a participation rate of 45% is vital for economic growth
Threshold for economic growth
Korea
Finland
US
Australia
Denmark
NZ
Russia
Norway
Poland
Hong Kong
Portugal
Sweden
France
Japan
Germany
UK
Switzerland
Thailand
Malaysia
Philippines
Indonesia
China
Vietnam
India
South Africa
Sri Lanka
563m people need education to meet the target
15


openlearning
How are platforms addressing this challenge?
16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Curated and paid courses
UDACITY
edX
Future Learn
coursera
openlearning
Curated and free courses
NovoEd
edX
Future Learn
canvas
openlearning
Provides free cloud MOOC platform
openlearning
17

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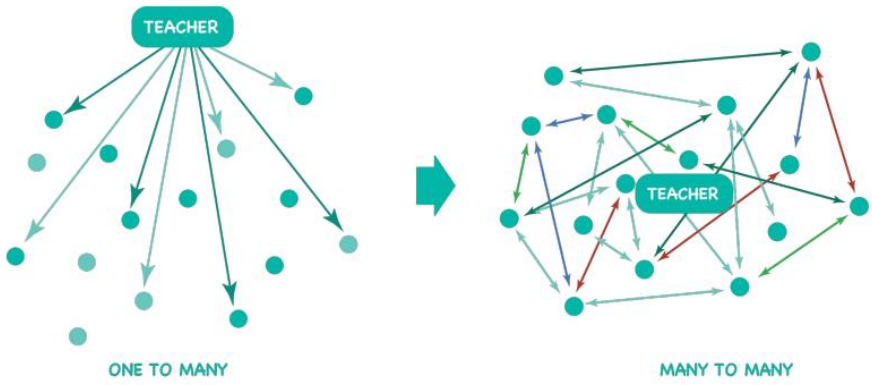
SHIFT TOWARDS STUDENT CENTRED LEARNING



Student-centred learning scales with MOOCs

18

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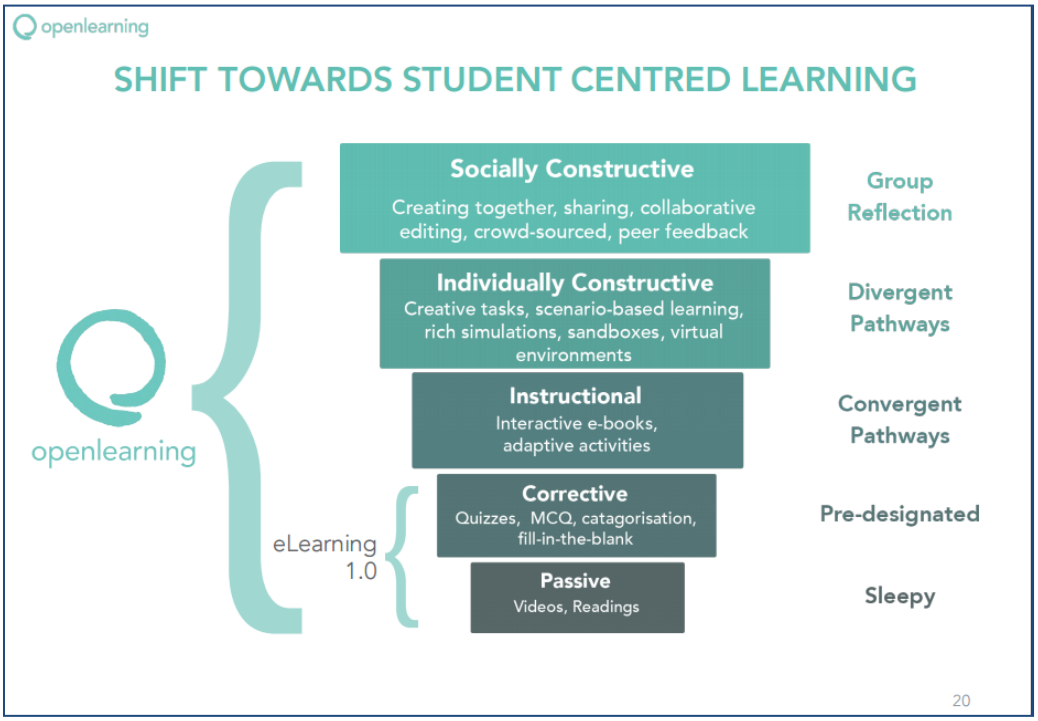
TYPES OF MOOCS

		Activities
	Community	Community
Content	Content	Content

19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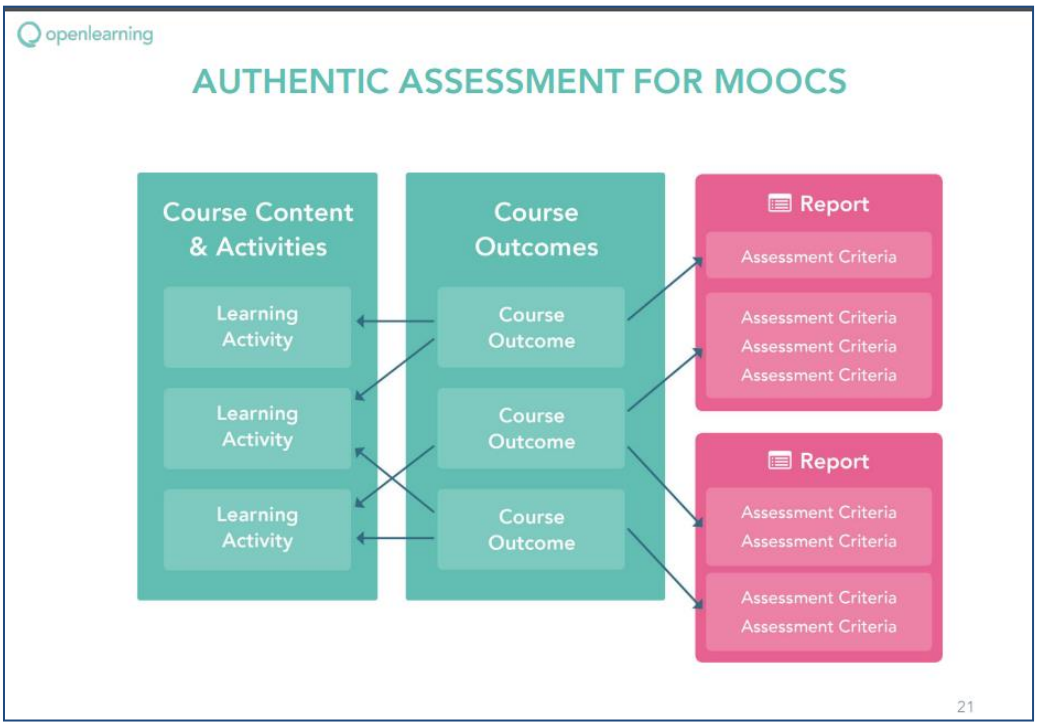
SHIFT TOWARDS STUDENT CENTRED LEARNING
Socially Constructive
Creating together, sharing, collaborative editing, crowd-sourced, peer feedback
Group Reflection
Individually Constructive
Creative tasks, scenario-based learning, rich simulations, sandboxes, virtual environments
Divergent Pathways
Instructional
Interactive e-books, adaptive activities
Convergent Pathways
Corrective
Quizzes, MCQ, catagorisation, fill-in-the-blank
Pre-designated
Passive
Videos, Readings
Sleepy
openlearning
eLearning 1.0
20


openlearning
AUTHENTIC ASSESSMENT FOR MOOCS
Course Content & Activities
Learning Activity
Learning Activity
Learning Activity
Course Outcomes
Course Outcome
Course Outcome
Course Outcome
Report
Assessment Criteria
Assessment Criteria
Assessment Criteria
Assessment Criteria
Report
Assessment Criteria
Assessment Criteria
Assessment Criteria
Assessment Criteria
21

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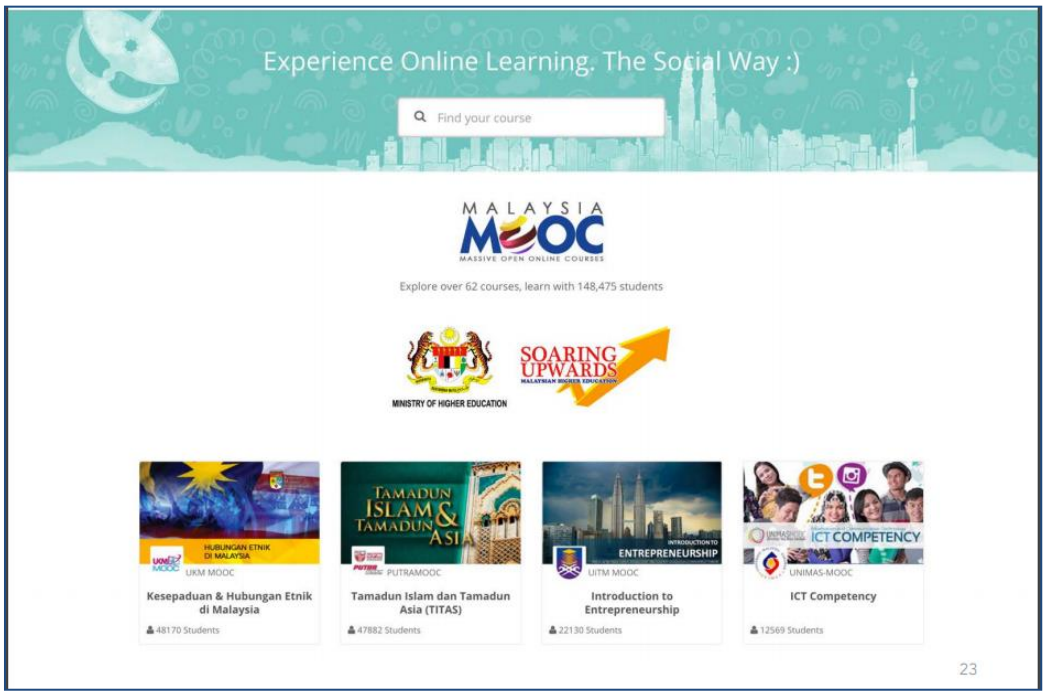
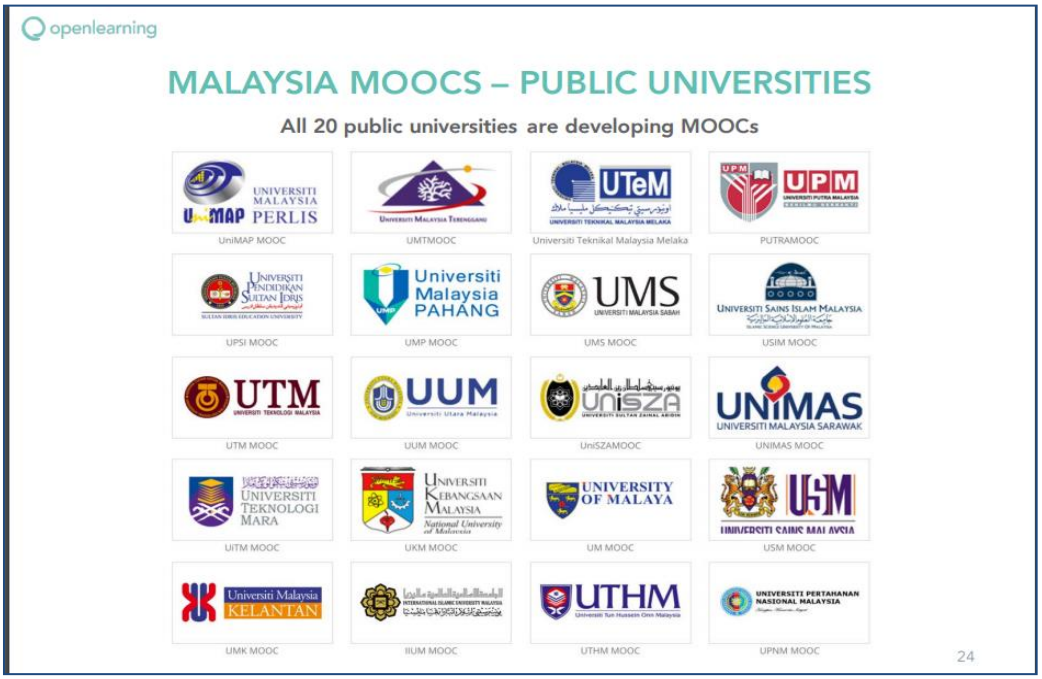
Examples of accredited higher education as a MOOC

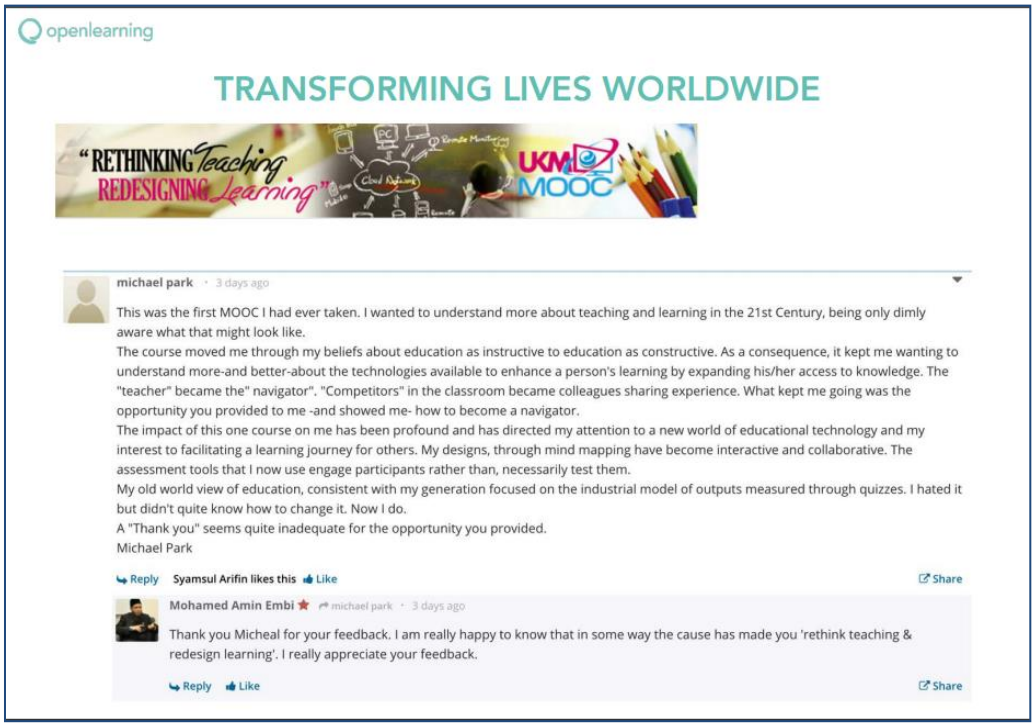
22

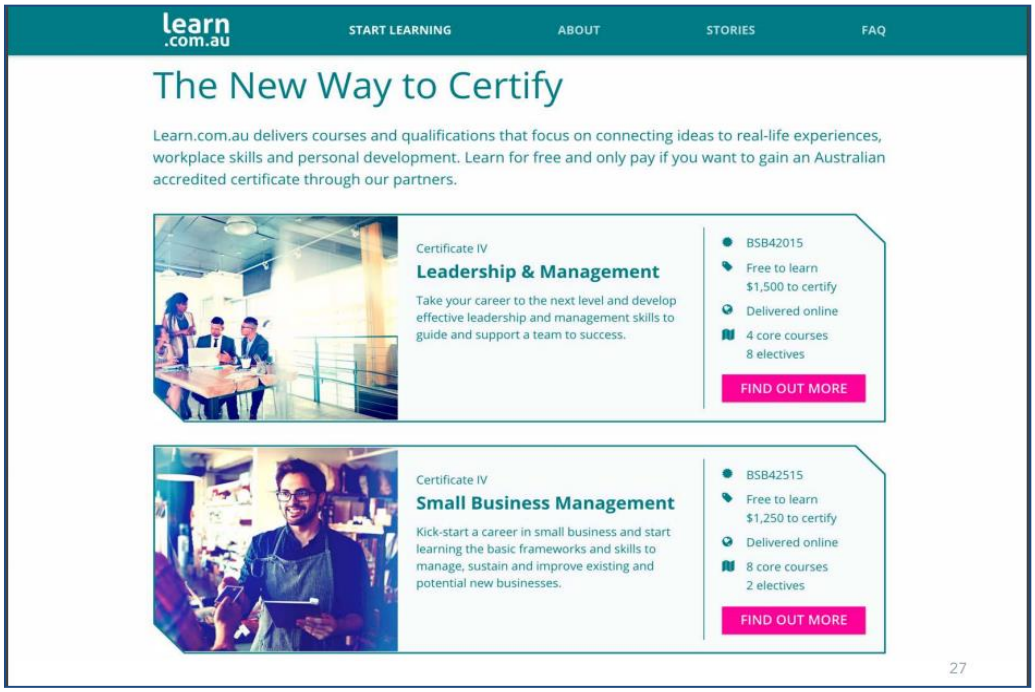


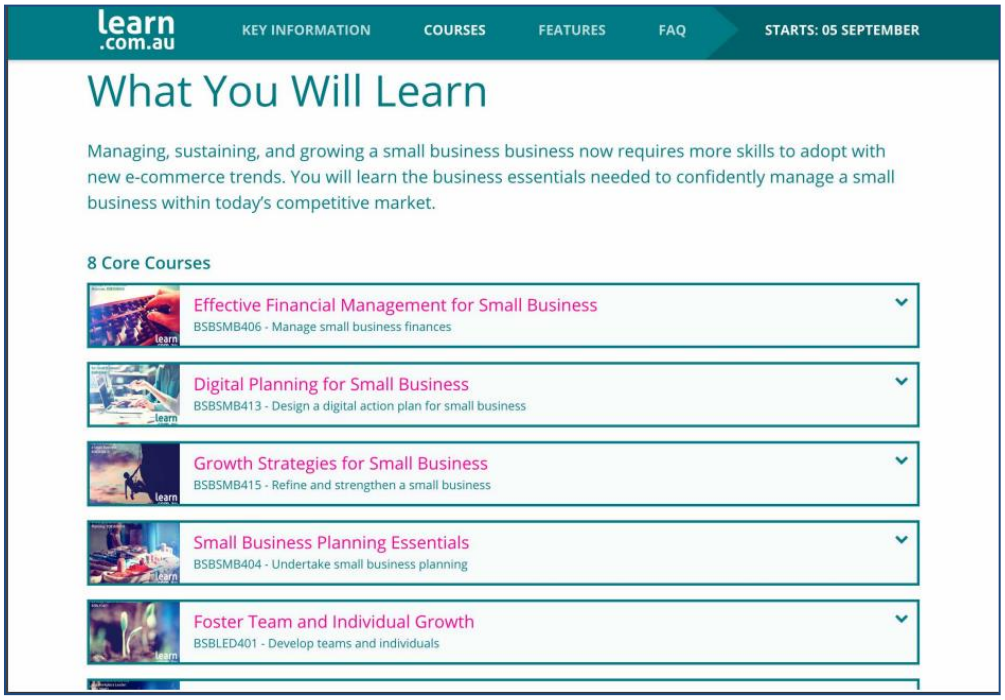
23

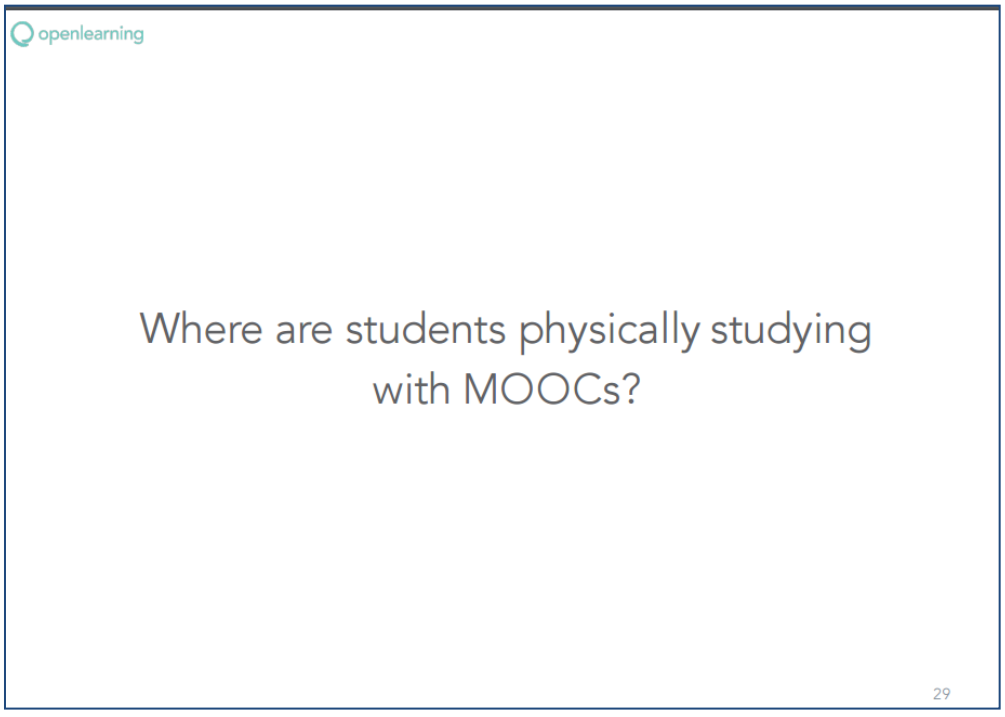

openlearning
MALAYSIA MOOCS – PUBLIC UNIVERSITIES
All 20 public universities are developing MOOCs
UniMAP MOOC
UMTMOOC
Universiti Teknikal Malaysia Melaka
PUTRAMOOC
UPSI MOOC
UMP MOOC
UMS MOOC
USIM MOOC
UTM MOOC
UUM MOOC
UniSZAMOOC
UNIMAS MOOC
UITM MOOC
UKM MOOC
UM MOOC
USM MOOC
UMK MOOC
IIUM MOOC
UTHM MOOC
UPNM MOOC
24


RETHINKING TEACHING, REDESIGNING LEARNING
OPEN EDUCATION CONSORTIUM
The Global Network for Open Education
The OEC announces 2016 winners of site, course and project Awards for Open Education Excellence
OPEN MOOC
Rethinking Teaching; Redesigning Learning / Universiti Kebangsaan Malaysia / Prof. Dr. Mohamed Amin Embi
Learning to (Re)Use Open Educational Resources / The Open University / ExplOERer project, Department of Languages
Pre-University Calculus / Delft University of Technology / Bart van den Dries
RETHINKING TEACHING REDESIGNING LEARNING
Mohamed Amin Embi
Rethinking Teaching; Redesigning Learning
2080 Students
On now
25

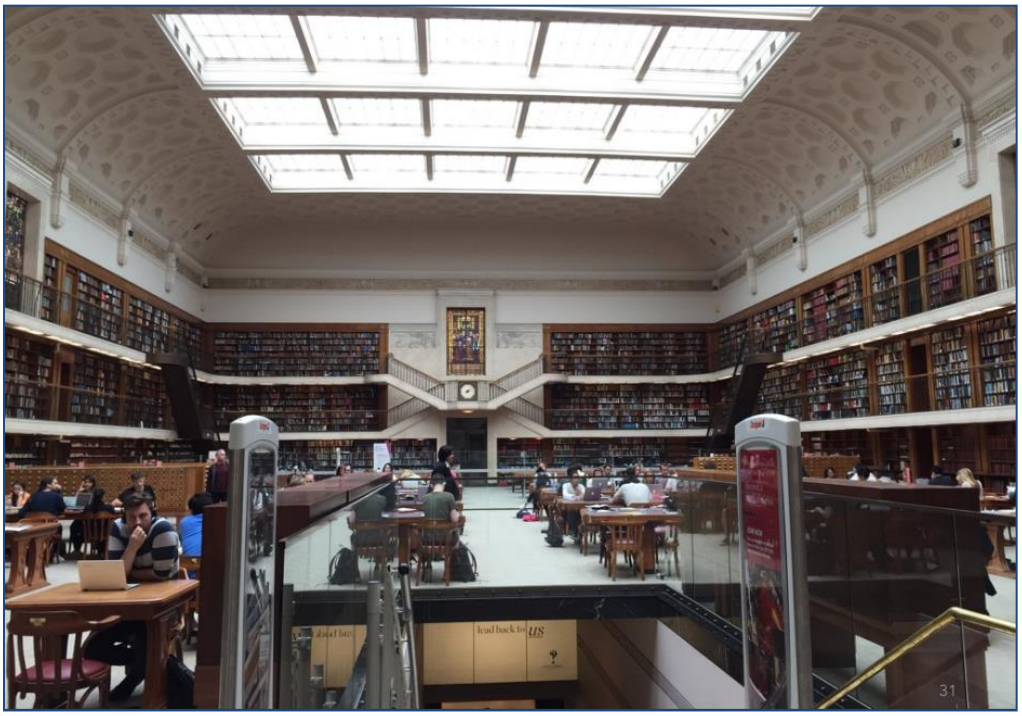

openlearning
TRANSFORMING LIVES WORLDWIDE
"RETHINKING Teaching REDESIGNING Learning"
UKM MOOC
michael park · 3 days ago
This was the first MOOC I had ever taken. I wanted to understand more about teaching and learning in the 21st Century, being only dimly aware what that might look like.
The course moved me through my beliefs about education as instructive to education as constructive. As a consequence, it kept me wanting to understand more-and better-about the technologies available to enhance a person's learning by expanding his/her access to knowledge. The "teacher" became the" navigator". "Competitors" in the classroom became colleagues sharing experience. What kept me going was the opportunity you provided to me -and showed me- how to become a navigator.
The impact of this one course on me has been profound and has directed my attention to a new world of educational technology and my interest to facilitating a learning journey for others. My designs, through mind mapping have become interactive and collaborative. The assessment tools that I now use engage participants rather than, necessarily test them.
My old world view of education, consistent with my generation focused on the industrial model of outputs measured through quizzes. I hated it but didn't quite know how to change it. Now I do.
A "Thank you" seems quite inadequate for the opportunity you provided.
Michael Park
Reply
Syamsul Arifin likes this
Like
Share
Mohamed Amin Embi
michael park · 3 days ago
Thank you Micheal for your feedback. I am really happy to know that in some way the cause has made you 'rethink teaching & redesign learning'. I really appreciate your feedback.
Reply
Like
Share

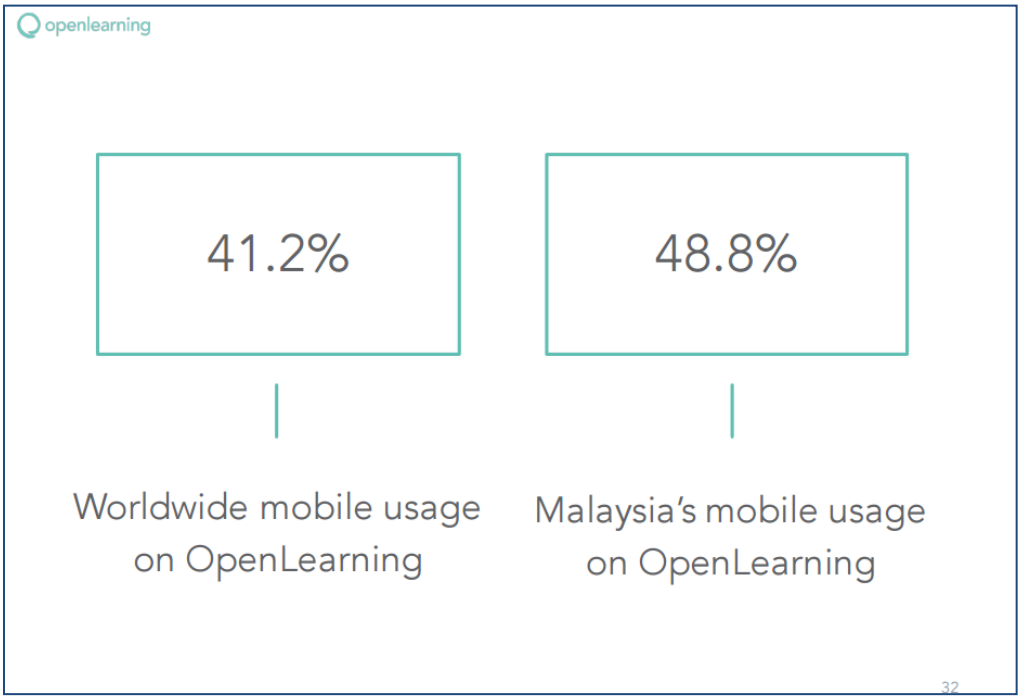

learn .com.au
START LEARNING
ABOUT
STORIES
FAQ
The New Way to Certify
Learn.com.au delivers courses and qualifications that focus on connecting ideas to real-life experiences, workplace skills and personal development. Learn for free and only pay if you want to gain an Australian accredited certificate through our partners.
Certificate IV
Leadership & Management
Take your career to the next level and develop effective leadership and management skills to guide and support a team to success.
BSB42015
Free to learn
$1,500 to certify
Delivered online
4 core courses
8 electives
FIND OUT MORE
Certificate IV
Small Business Management
Kick-start a career in small business and start learning the basic frameworks and skills to manage, sustain and improve existing and potential new businesses.
BSB42515
Free to learn
$1,250 to certify
Delivered online
8 core courses
2 electives
FIND OUT MORE
27


learn .com.au
KEY INFORMATION
COURSES
FEATURES
FAQ
STARTS: 05 SEPTEMBER
What You Will Learn
Managing, sustaining, and growing a small business business now requires more skills to adopt with new e-commerce trends. You will learn the business essentials needed to confidently manage a small business within today's competitive market.
8 Core Courses
Effective Financial Management for Small Business
BSBSMB406 - Manage small business finances
Digital Planning for Small Business
BSBSMB413 - Design a digital action plan for small business
Growth Strategies for Small Business
BSBSMB415 - Refine and strengthen a small business
Small Business Planning Essentials
BSBSMB404 - Undertake small business planning
Foster Team and Individual Growth
BSBLED401 - Develop teams and individuals


openlearning
Where are students physically studying with MOOCs?
29


Malaysian Flavours
PHOTOGRAPHY


31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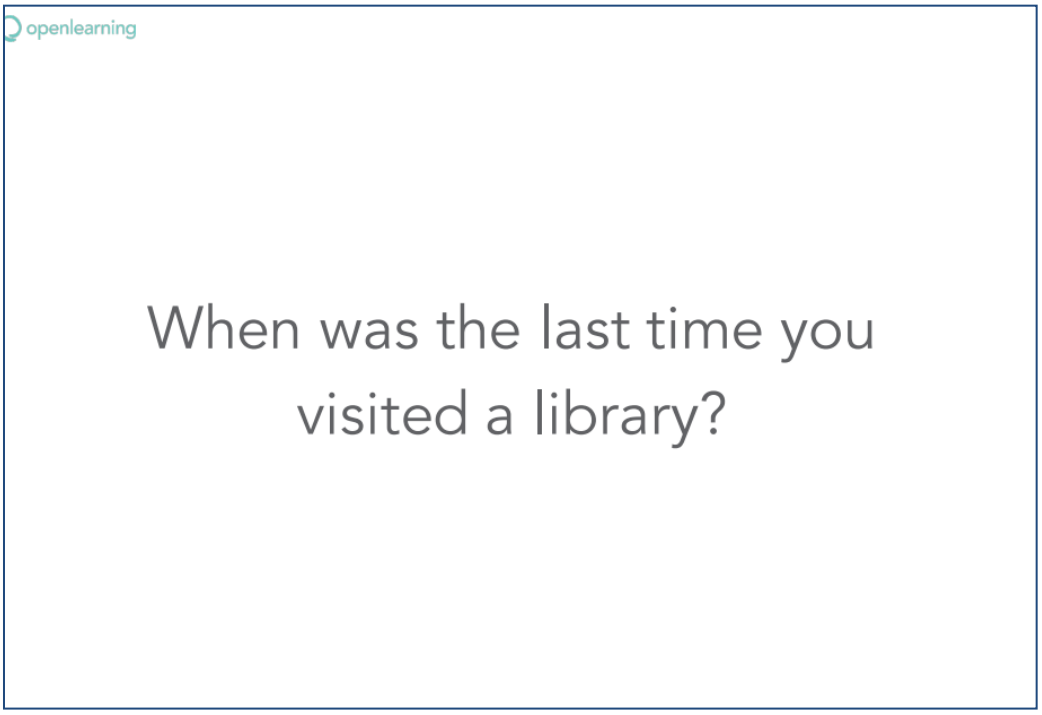
41.2%
48.8%
Worldwide mobile usage on OpenLearning
Malaysia's mobile usage on OpenLearning
32


openlearning
When was the last time you visited a library?

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Gen Z view on libraries

34

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LIBRARIES AS STUDENT HANGOUTS

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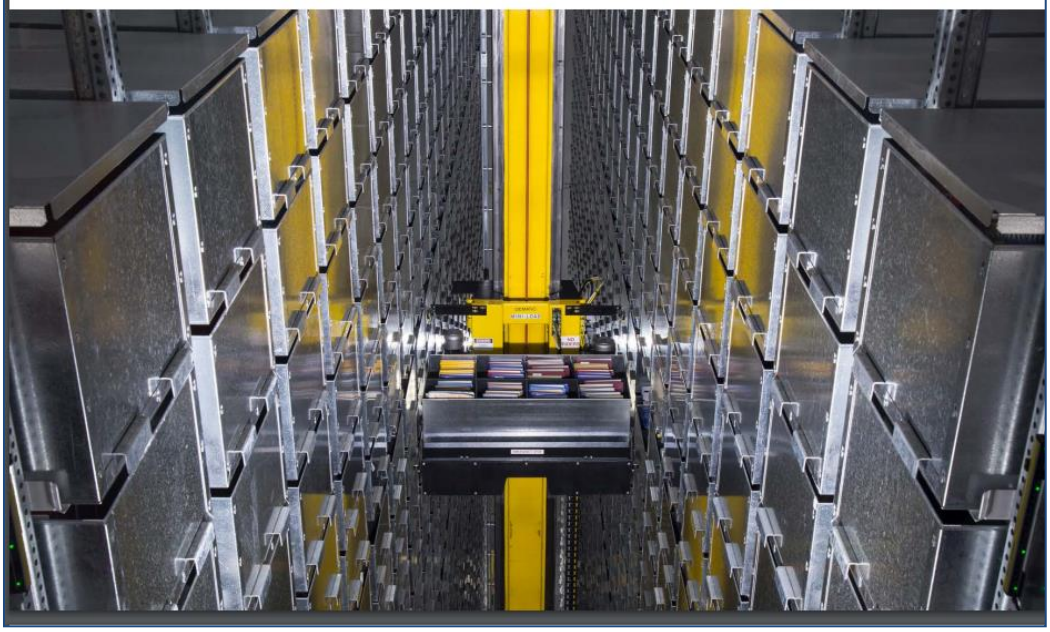
LIBRARIES AUTOMATING BOOK RETREIVAL



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LIBRARIES AS RESEARCH CENTRES


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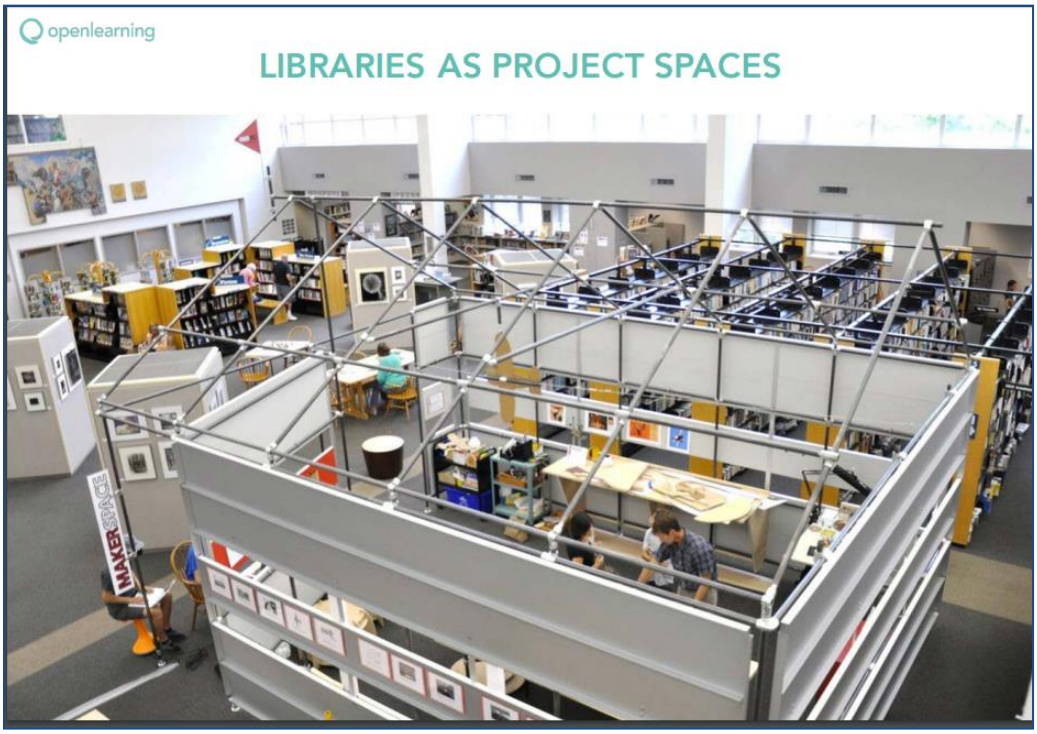
LIBRARIES AS COMMUNITY CENTRES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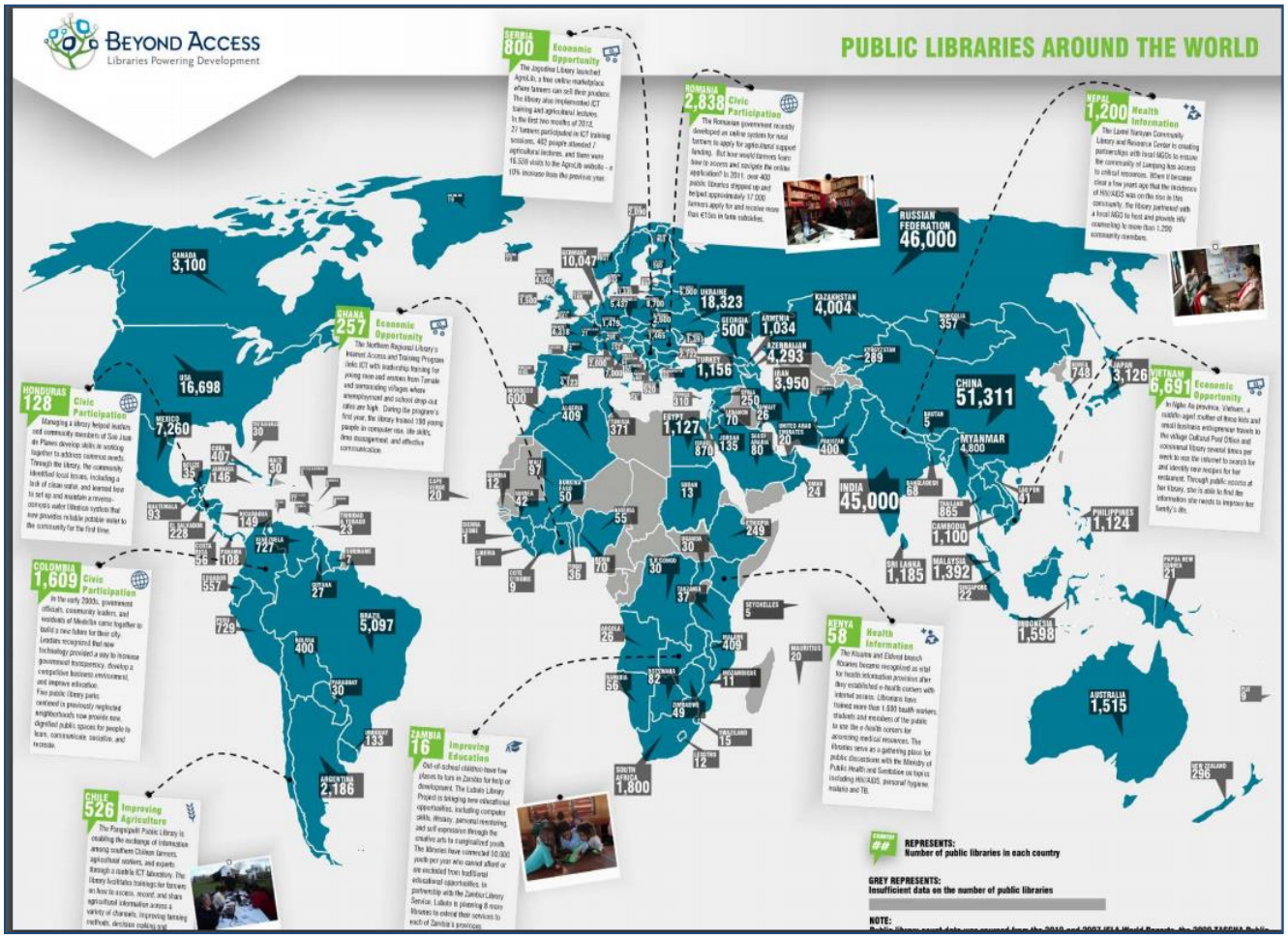
LIBRARIES AS PROJECT SPACES
MAKERSPACE


BEYOND ACCESS
Libraries Powering Development
PUBLIC LIBRARIES AROUND THE WORLD
SERBIA 800 Economic Opportunity
ROMANIA 2,838 Civic Participation
NEPAL 1,200 Health Information
GHANA 257 Economic Opportunity
HONDURAS 128 Civic Participation
VIETNAM 5,691 Economic Opportunity
COLOMBIA 1,609 Civic Participation
KENYA 58 Health Information
ZAMBIA 16 Improving Education
CHILE 526 Improving Agriculture
CANADA 3,100
USA 16,698
MEXICO 7,260
RUSSIAN FEDERATION 46,000
UKRAINE 18,323
KAZAKHSTAN 4,004
CHINA 51,311
INDIA 45,000
BRAZIL 5,097
ARGENTINA 2,186
SOUTH AFRICA 1,800
AUSTRALIA 1,515
JAPAN 3,126
MYANMAR 4,800
PHILIPPINES 1,124
INDONESIA 1,598
REPRESENTS:
Number of public libraries in each country
GREY REPRESENTS:
Insufficient data on the number of public libraries
NOTE: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COLLABORATIVE INNOVATION, COMMUNITY ENGAGEMENT : THE STORY OF PUSTAKA NEGERI SARAWAK

[1]Rashidah Bolhassan&[2]Fairul Azli Banchit

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ABSTRACT

The purpose of this presentation is to share the story of Pustaka Negeri Sarawak's (Sarawak State Library) continuous improvements in transforming its services and collections through collaborative innovation and community engagement. Impediments such as budgetary constraints, human capacity and capability, out-of-reach user segments, limitations to in-depth information collection, knowledge accessibility, are amongst some of the challenges faced that require working out-of-boundary strategies. Pustaka's collaborative innovation, working across Pustaka's boundaries, and through community engagement, allow the sharing of ideas, leveraging on cumulative knowledge expertise, and arriving at opportunities beyond expectations.


COLLABORATIVE INNOVATIONS
COMMUNITY ENGAGEMENT
The Story of Pustaka Negeri Sarawak
TABLE of CONTENTS

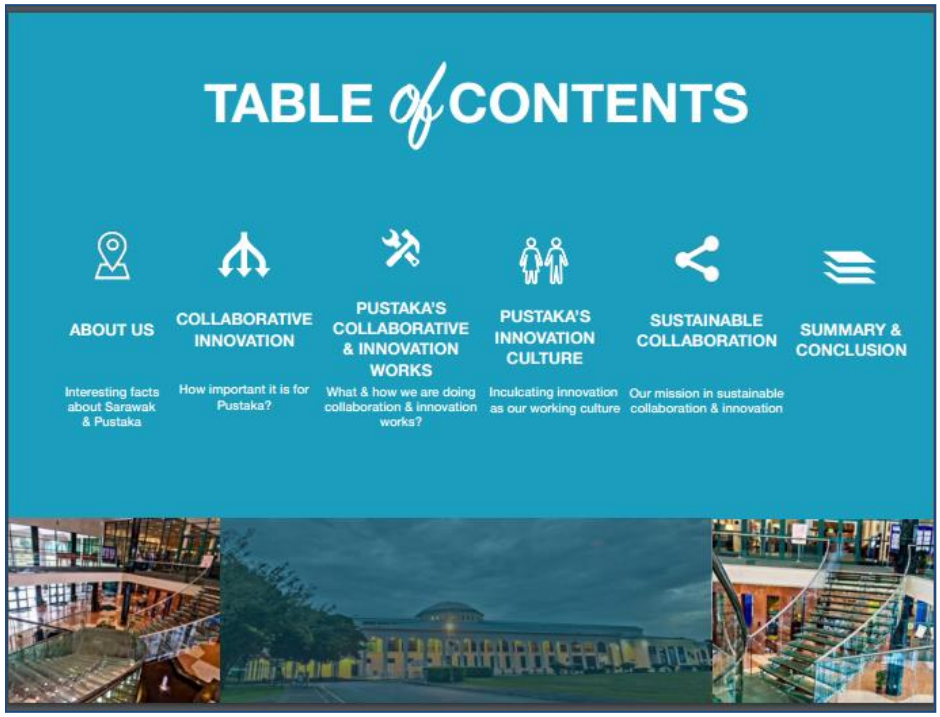
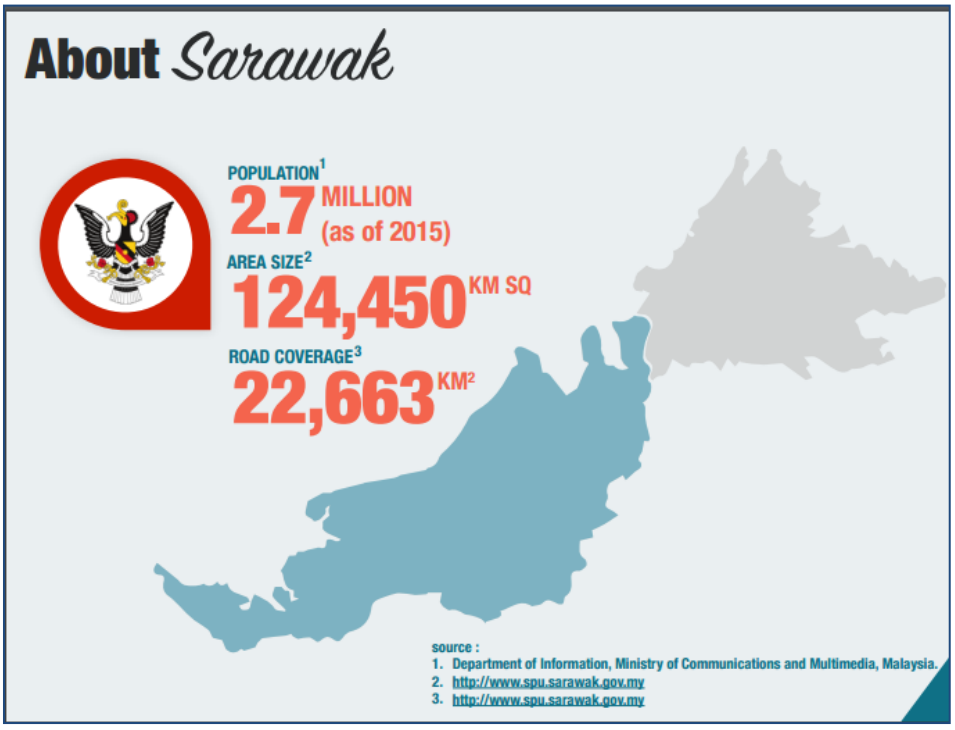
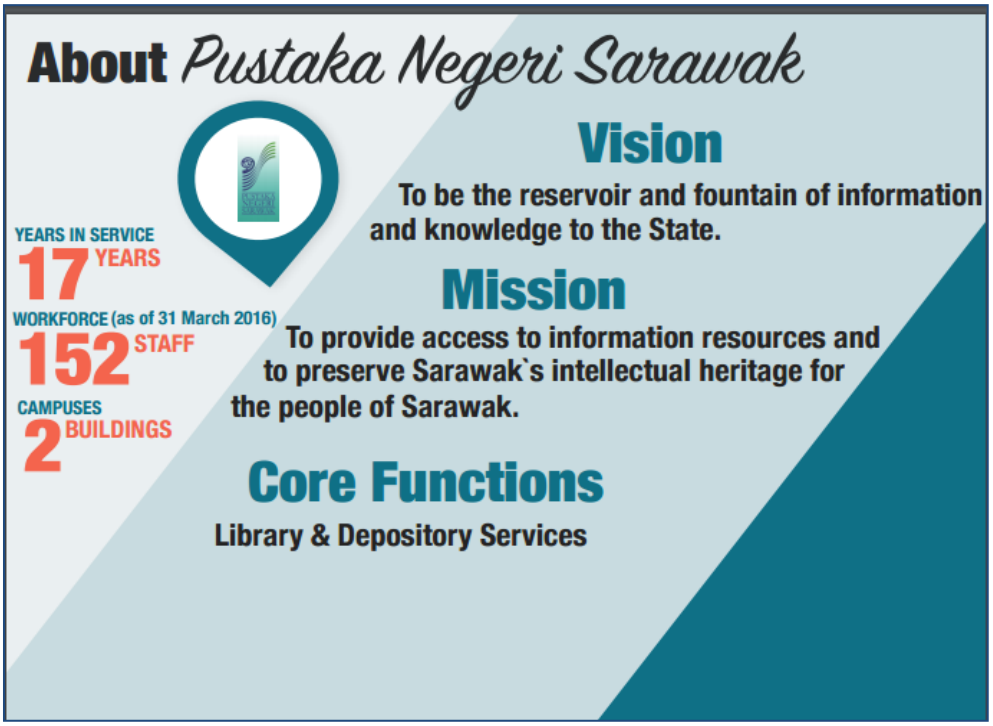


TABLE of CONTENTS
ABOUT US
Interesting facts about Sarawak & Pustaka
COLLABORATIVE INNOVATION
How important it is for Pustaka?
PUSTAKA'S COLLABORATIVE & INNOVATION WORKS
What & how we are doing collaboration & innovation works?
PUSTAKA'S INNOVATION CULTURE
Inculcating innovation as our working culture
SUSTAINABLE COLLABORATION
Our mission in sustainable collaboration & innovation
SUMMARY & CONCLUSION


About Sarawak
POPULATION[1]
2.7 MILLION
(as of 2015)
AREA SIZE[2]
124,450 KM SQ
ROAD COVERAGE[3]
22,663 KM²
source :
1. Department of Information, Ministry of Communications and Multimedia, Malaysia.
2. http://www.spu.sarawak.gov.my
3. http://www.spu.sarawak.gov.my


About Pustaka Negeri Sarawak
YEARS IN SERVICE
17 YEARS
WORKFORCE (as of 31 March 2016)
152 STAFF
CAMPUSES
2 BUILDINGS
Vision
To be the reservoir and fountain of information and knowledge to the State.
Mission
To provide access to information resources and to preserve Sarawak`s intellectual heritage for the people of Sarawak.
Core Functions
Library & Depository Services

Collaborative *Innovation*

… is the creation of innovations across firm (and perhaps industry) boundaries through the sharing of ideas, knowledge expertise, and opportunities.[1]

… an innovation process in which members of a group or community share ideas, information and work to achieve common goals.[2]

[1] Miles RE, Miles G, Snow CC. 2005. Collaborative Entre- preneurship: How Communities of Networked Firms Use Continuous Innovation to Create Economic Wealth. Stanford University Press: Stanford, CA.

[2] Ict4d. (n.d.). Retrieved July 10, 2016, from http://www.ict4dc.org/blog/andrea-jiménez-cisneros/attempt-define-collaborative-innovation-thoughts-fieldwork

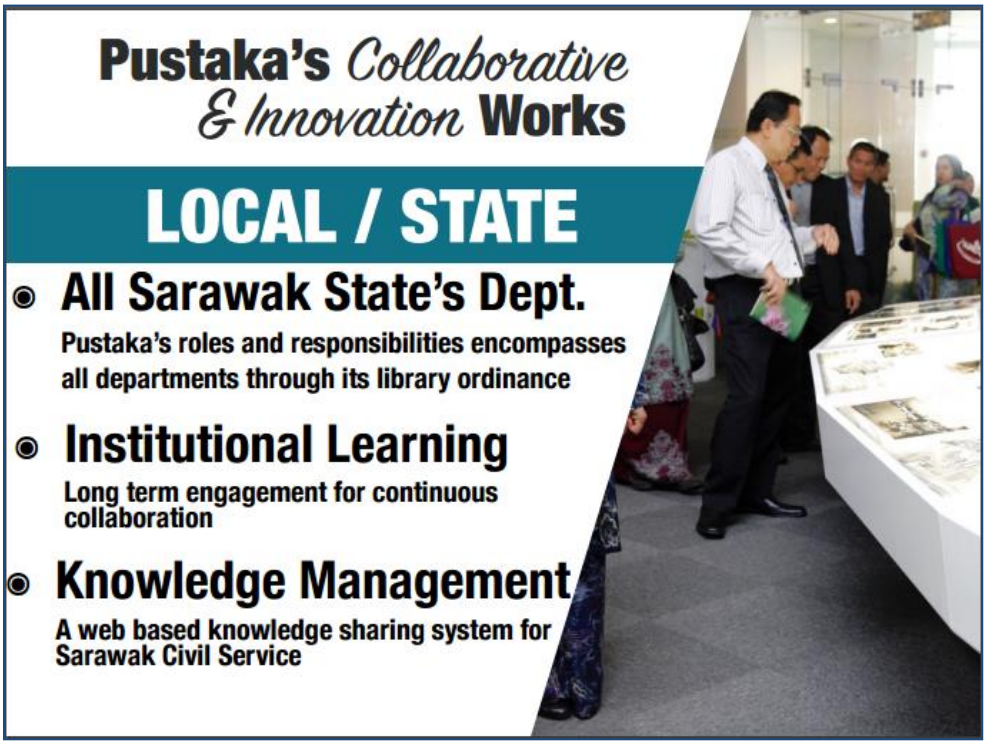
Pustaka's *Collaborative & Innovation* Works

INTERNAL

- **Quality Initiatives**

  Innovation becomes one of the management agenda

  - Continuous Improvement Programs
  - Innovative Creative Circle
  - Key Focus Activities
  - Slogan and Suggestions
  - Customer Satisfaction Survey

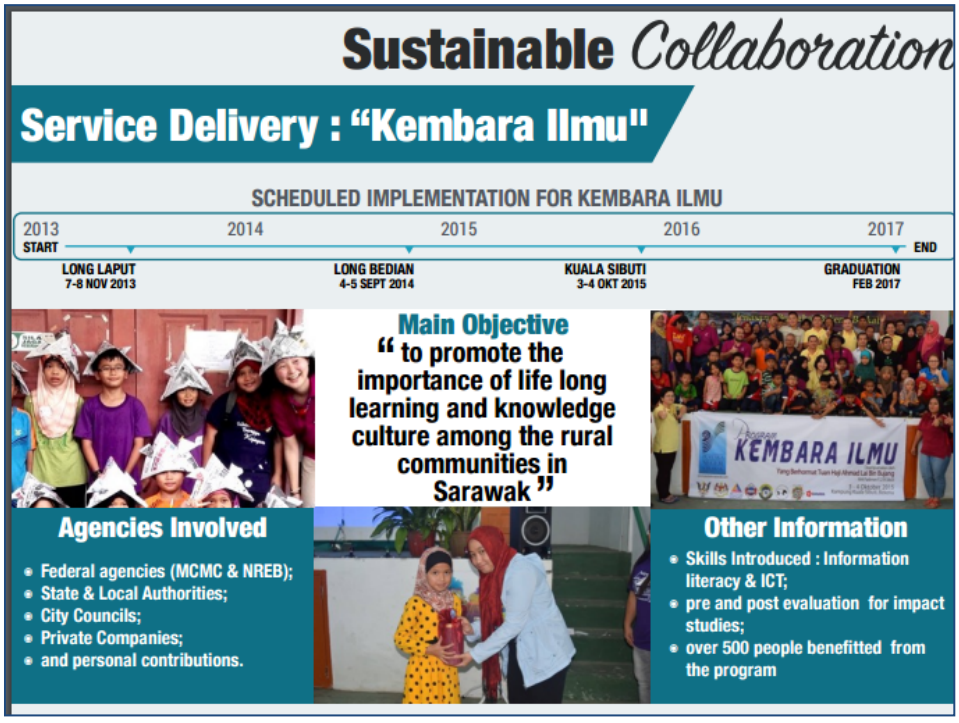

Pustaka's Collaborative & Innovation Works
LOCAL / STATE
All Sarawak State's Dept.
Pustaka's roles and responsibilities encompasses all departments through its library ordinance
Institutional Learning
Long term engagement for continuous collaboration
Knowledge Management
A web based knowledge sharing system for Sarawak Civil Service


Pustaka's Collaborative & Innovation Works
NATIONAL
PNM (Perpustakaan Negara Malaysia)
Close collaboration for more dynamic and wholistic achievement
Nat. Archives of Malaysia
Memorandum of Understanding for a sustainable partnership in knowledge transfer
MCMC (Malaysian Communications & Multimedia Commission)
Federal Govt. of Malaysia's funded projects for libraries in Sarawak


Pustaka's Collaborative & Innovation Works
INTERNATIONAL
Westport Library, USA
3 months working attachment
Nat. Archives of Australia
3 months working attachment
NLB, Singapore
Memorandum of Understanding for a sustainable partnership in knowledge transfer
Brooke Heritage Trust, UK
Memorandum of Understanding for collection development on Brooke's materials about Sarawak


Pustaka's Innovation Culture
Innovation inculcating activities
Balance Score Card
ISO standards
Continuous Improvement Programs
Innovative Creative Circle
Key Focus Activities
Slogan and Suggestions
Customer Satisfaction Survey


Sustainable Collaboration
USA
Concerted Collaborative Actions
Service Delivery
Collection Development
SG
BR
ID


Sustainable Collaboration
Service Delivery : "Kembara Ilmu"
SCHEDULED IMPLEMENTATION FOR KEMBARA ILMU
2013
START
2014
2015
2016
2017
END
LONG LAPUT
7-8 NOV 2013
LONG BEDIAN
4-5 SEPT 2014
KUALA SIBUTI
3-4 OKT 2015
GRADUATION
FEB 2017
Main Objective
" to promote the importance of life long learning and knowledge culture among the rural communities in Sarawak "
KEMBARA ILMU
Agencies Involved
• Federal agencies (MCMC & NREB);
• State & Local Authorities;
• City Councils;
• Private Companies;
• and personal contributions.
Other Information
• Skills Introduced : Information literacy & ICT;
• pre and post evaluation for impact studies;
• over 500 people benefitted from the program

Sustainable *Collaboration*

Collection Development : e-Gazette

- **Sarawak Gazette : an essential source of historical information on Sarawak affairs**
  earliest gazette available dated January 4, 1907
- **Collections of 39 years**
  and still growing
- **Missing Link : 1942 - 1946**
  requires all effort to track, locate and identify
- **e-Gazette Enhancement**
  continuous improvement for better service delivery

Sustainable *Collaboration*

Collection Development : e-Gazette

1942 - 1946
Missing Gazettes

e-Gazette
Improvement

Crowd Sourcing
reaching to everyone , anywhere in the world to track and fill the missing gap

Smart Collaboration
working with UNIMAS to better enhance Sarawak Gazette's digital surrogate - OCR


Sustainable Collaboration
Collection Development : k@Borneo
A collective effort to collaborate internationally on identification and preservation of Borneo materials
Participating Countries
Brunei Darussalam, Indonesia & Malaysia
Methods of Preservation & Dissemination
Digitisation & Online


Summary


Conclusion
It takes great collaborative innovations from all state, federal and any relevant agencies to enable Pustaka achieves its vision and mission.
We are calling any governmental or non-governmental organisations to work hand in hand building our collections or enhancing our service delivery for the betterment of the society as a whole.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Websites :
freepik.com
kepkas.sabah.gov.my
PUSTAKA'S
Vision
& Mission
are achievable
through
SMART
COLLABORATIVE
INNOVATION


Thank You

AUTHOR'S INDEX

A

Aidatul Hasnida Abdul Rani, 69

B

Brimo, Adam, 127

F

Fairul Azli Banchit, 149

K

Kamariah Abu Samah,105
Khasiah Zakaria, 47
Kia, Siang Hock, 9

L

Levy, Richard, 1

M

Mazmin Mat Akhir, 37
Md Nizam Azid, 37

N

Nurul Nadia Jasni, 89

R

Rashidah Bolhassan, 149
Razman Abd. Rani, 77

S

Saripah Abdullah, 59
Sharifah Fahimah Saiyed Yeop, 97
Shazlin Azni Shaharudin Shah, 77
Siti Aishah Sheikh Kadir, 69:77
Siti Sumaizan Ramli, 23
Sulaiman Kaiat, 105

T

Tan, Wee Hoe, 23

PROCEEDINGS COMMITTEE

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IT Officer	:	Khairul Asyrani Sulaiman

EXHIBITORS

iii innovative

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Kenanga Permai Sdn. Bhd.

PHOTOS

Arrival of distinguished guests

Conference registration & official opening

Keynote Speaker - Adam Brimo (Australia)

Keynote Speaker - Richard Levy (Australia)

Keynotes Speakers & Chief Librarians

Mr. Kia Siang Hock (NLB Singapore)

Ass. Prof. Dr. Tan Wee Hoe (UPSI)

Mr. Gerard George (U.S. Embassy, K.L)

Dr. Khasiah Zakaria (UiTM, Selangor)

Mdm. Sarifah Abdullah (IIUM, K.L)

Mdm. Mazmin Mat Akhir (UNIMAP)

Conference Speakers

Mdm. Nurul Diana Jasni (UiTM, Selangor)

Mr. Razman Abd. Rani (Nasional Library)

Mdm. Sharifah Fahimah Saiyed Yeop (UTP)

Aidatul Hasnida Abdul Rani (Nasional Library)

Dr. Basri Hassan (IIUM, K.L)& Speakers

YM Engku Razifah Engku Chik (USM)& Speakers

Conference speakers & Chairpersons

Mr. Fairul Azli Banchit (Pustaka N. Sarawak)

Mdm. Kamariah Abu Samah (DBP)

Haji Sulaiman Kaiat (DBP)

Mr. Ben Sng (Emerald Group Publishing)

Dr. Nor Edzan Che Nasir (UM)& Speakers

Dr. Khasiah Zakaria (UiTM)& Speakers

Conference speakers & Chairpersons

Exhibitions

Audience

Q & A sessions

Organizing committee


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SULTAN IDRIS EDUCATION UNIVERSITY