

Digitalising Knowledge: Education, Libraries, Archives

Abstract

All over the world, the ubiquitous growth of digital technologies have brought massive changes to the ways information is collected, stored and accessed—thus significantly implicating various education institutions, libraries, and archives that have been traditionally associated as gatekeepers of information storage and access. Whereas recording might be easier and cheaper, preservation and archiving are subjected to rapid technical obsolescence and physical decay, thus bringing difficult, expensive cost in ensuring interoperability and longevity. This paper presents an overview of digitalising knowledge, specifically in relation to education, libraries, and archives in Indonesia. I begin by briefly laying down how the contexts of tropical, humid climate of its archipelagic geography, and the historical contexts of colonial and autocratic regimes implicate libraries and archives in Indonesia. I then present snippets of various empirical and theoretical works in “digitalising knowledge” processes that has started around the turn of the century, not only within the library and information science (LIS) profession in the higher education and government sector, but also outside—involving open source, visual arts, music initiatives, among others. I conclude by highlighting historical precedent and urging for more socio-political analysis on the (digitalising) knowledge construction in libraries and archives, particularly as we are entering its transitional stage.

Introduction

Over the past two decades, the ways we learn, access, exchange and interact with information have changed dramatically. All over the world, the ubiquitous growth of digital technologies have brought massive changes to the ways information is collected, stored and accessed—thus significantly implicating various education institutions, libraries, and archives that have been traditionally associated as gatekeepers of information storage and access. This has been accompanied by a massive growth of academic and popular publications about the future of learning (Davidson & Goldberg 2009), the changing functions of libraries (e.g. Palfrey 2015; Lankes 2012), and archiving in digital age (Xing et al. 2011; Herr-Stephenson et al. 2011). There are plenty of discussions on the rapid technological advances along with lowering cost, to world wide web, multi-functional mobile phones, digital cameras, and other portable devices, but the recording ease frequently lull people to archival complacency. Whereas digital recording might be easier and cheaper, preservation and archiving are subjected to rapid technical obsolescence and physical decay, thus bringing difficult, expensive cost in ensuring interoperability and longevity.

The increased use of—and reliance on—digital resources has also blurred traditional boundaries between (previously, seemingly distinct) information organizations. This has led to what some has called as a digital convergence of libraries, archives, museums (LAM), and the need to build collaborations among these different institutions to overcome “the silos of the LAMs” (Zorich et al. 2008). Others, however, have reminded longer historical precedents, and argued that this could rather be considered as a *reconvergence* (Given & McTavish 2010). Common throughout the discussions are the increasingly porous boundaries and overlapping functions between libraries, archives, museums, and various institutions, thus defying easy classification.

More scholars from a diverse range of disciplines—anthropology, literary and cultural studies, history, sociology, political science, law, and other fields—have started studying archives and

libraries as sites of knowledge production (Manoff 2004). There is more awareness about the relations between information, knowledge, ideological construction and power, particularly through high-profile legal cases as well as postmodern and post-structural scholarship (e.g. Foucault 1972; Derrida 2009). Post-colonial and cultural studies scholars have also highlighted the relations between knowledge structures and (colonial or imperial) state power, a situation even more keenly felt in post-colonial countries (see Said 2001), Southeast Asia (Anderson 2013) and Indonesia included. Stoler (2002; 2009), for instance, has shown how significantly the archives implicate the act of governance as the seemingly-neutral, value-free forms, taxonomies, and classification systems of the archives defines and codifies connections between secrecy, law, and power. Along with the growing recognition of the intertwined personal and political, the scope of archival works have widened to include the more “intimate”, personal documents, from family photographs, recipes, medical guides, folk songs, sharing space with government documents, court proceedings, and classified state papers.

These contribute to a broadening notion of how records could be used (their functions and practices) and what they represent (their authenticity, reliability, authority). The use, storage, classification, and circulation of information through archives and libraries therefore have very significant social, legal, political, economic, cultural consequences, as each standard and category brings visibility and advantages to some points of view, and silences another. As Indonesia gears itself toward the global, transnational circuit of information and digital technologies, there is more urgency to critically consider the foundation of knowledge construction in education, libraries, and archives.

This paper presents an overview of digitalising knowledge, specifically in relation to education, libraries, and archives in Indonesia. I begin by introducing the geographical and historical contexts that implicate libraries and archives in Indonesia. I present snippets of various empirical and theoretical works in “digitalising knowledge” processes that has started around the turn of the century, not only within the library and information science (LIS) profession in the higher education and government sector, but also outside. At this stage, I also have to mention my position and limitation: while I have my own long-standing interests in these issues, I have never undergone any formal training in LIS. My encounters, instead, have been facilitated by my position in founding an independent library in 2008, which put me in contact with different interlocutors working in various archiving processes, from within and outside the LIS profession. LIS, and technical systems in general, require very careful attention to mechanisms and specifics. Readers interested in more in-depth discussions about education, libraries and archives in Indonesia are therefore encouraged to follow up on the works of the people mentioned in the references, particularly since in Indonesia, the “great divide” (Bowker et al. 1997) between social sciences or cultural studies, and the more technical systems in general, and LIS in particular, is even wider.

Geographical and historical contexts

The libraries and archives in Indonesia, like in many places around the world, are deeply intertwined with the geographical and historical conditions of the nation. The tropical, humid climate in itself already makes preservation much more demanding. The dizzyingly diverse cultures of more than 300 ethnic groups and 600 languages, stretching across more than 13,000 islands with highly intermittent infrastructural development, bring further complications and extremely daunting challenges in archiving, preserving, or building inter-operability and classification standards.

The statistics on the number of libraries in Indonesia are highly divergent. The National Library

Mapping (see Illustration 1¹) shows 1,105 public libraries and 499 special libraries. Citing Perpustakaan Nasional as its source, Ismail Fahmi², the current consultant of Indonesia OneSearch.id, stated that there are 25,728 libraries, composed by about 22,375 school libraries, 845 higher education institution libraries, 1,506 public libraries, and 1,002 special libraries³. The number of the certified librarians, in contrast, has remained merely around 2,500-3,500.

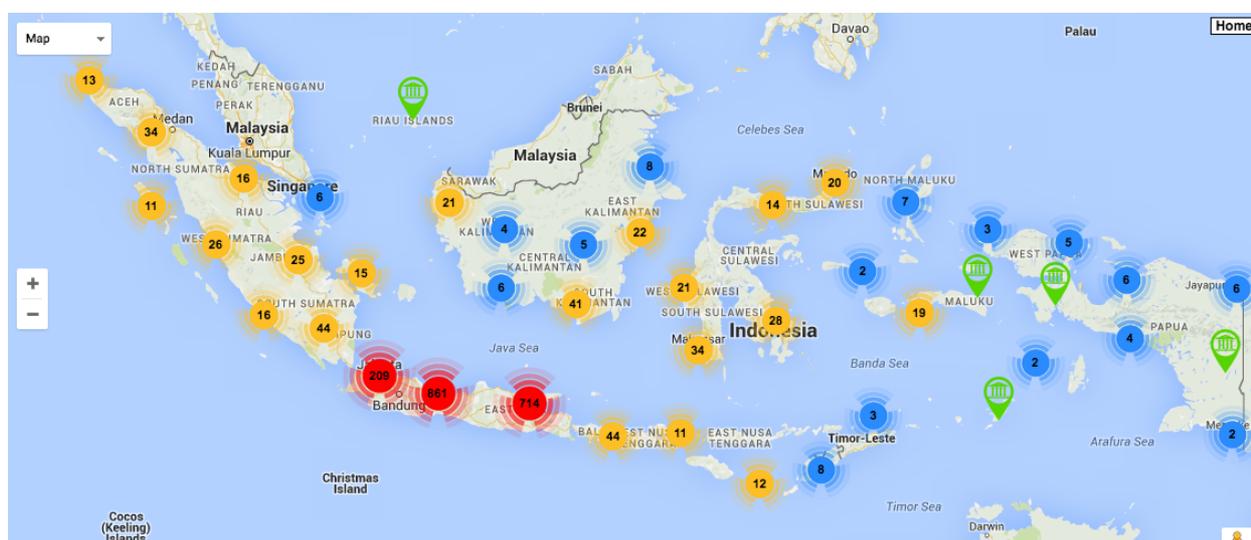


Illustration 1: Map of library distribution in Indonesia by the National Library, available online with adjustable zooms from the Pemetaan Perpustakaan Berbasis Wilayah at <http://pemetaan.perpusnas.go.id>. Screenshot taken on 19 July 2016. The map seems to be still ongoing, with plenty of wrong legends (e.g. identifying school libraries as district libraries, etc.).

It is not surprising that the numbers differ, but we can discern a number of patterns: Firstly, the number of certified library workers⁴ is much smaller than the stated number of libraries. Secondly, the school libraries contribute the highest, but also the most volatile, number (from 22,000 to 66,267 within a year)—again, not surprising, considering the lack of clarity of what constitutes “a library” in school⁵. Fourthly, the public libraries number actually hovers merely at around 1,000 – 2,400. Lastly, mirroring infrastructure distribution, the numbers are concentrated in Java, highly uneven outside of Java (see Illustration 1).

Despite frequent rhetorics lambasting Indonesians for our supposedly lack of “*minat baca*”, lack of

1The website Pemetaan Perpustakaan Berbasis Wilayah (<http://pemetaan.perpusnas.go.id>) presents very useful data, but since the website had only been recently launched, at the time of my visit (19 July 2016), the data seems to be still in progress, with many legends still wrongly placed. For example, libraries belonging to hospitals and schools were still marked as Perpustakaan Kecamatan. Ensuring and maintaining the integrity of the data down to the *kelurahan* level will be a long, arduous process indeed.

2Fahmi's presentations for Lokakarya Pengembangan Perpustakaan Digital Nasional Indonesia bagi Perpustakaan Perguruan Tinggi dan Instansi se-Jawa (dated 29 October 2015), in SLIMS Commet in Malang (7 November 2016). Available from: <http://www.slideshare.net/IsmailFahmi3/presentations>

3In my personal e-mail communication with Fahmi (19 July 2016), he stated that there have been some updates, showing the numbers to be 66,267 libraries, containing: 61,621 school libraries, 1,106 higher education institution libraries, 2,354 public libraries, and 1,186 special libraries. Whereas the report of the 2016 Rapat Koordinasi Perpustakaan Umum, published in the official magazine of the National Library, *Warta*, stated 1,495,238 libraries, though only 149,132 (9.97%) received supports.

4The certification of competence processes has for long been decried as problematic, and does not necessarily demonstrate the number of those working in LIS profession (see Priyanto n.d. for discussions about LIS profession and effect of continuing education).

5While there are growing reports of improvement, common throughout most schools in Indonesia, with decades of highly uneven development and bad education policy, is the lack—or undefined existence—of libraries.

“*budaya arsip*”, and the need to “*mencerdaskan bangsa*” (particularly for our low PISA scores and the coming of AEC), libraries and archives in Indonesia suffer from persistent, deep-seated problems: poorly staffed in terms of quantity and professional knowledge or skills; very limited LIS schools and teaching staffs (see Priyanto 2016 for an overview of LIS education in Indonesia) with fragmented and under-resourced LIS education⁶; grave lack of resources and funds; low self-esteem and poor public image of the library and information profession (usually considered merely as administrative or clerical work, or even worse, where corrupt, incompetent staffs or civil servants are punished as outcast); poor remuneration, salary levels, and career paths; reference services and libraries are rarely introduced or used in schools and academia (if the libraries exist), and inter-library loans between libraries or institutions rarely exist (see e.g. Liauw 2008; Maesaroh & Genoni 2013).

The history of the national library and the archive, like in many places around the world, was deeply intertwined in the practical day-to-day needs of bureaucratic government administration, and in legitimising authority through historical and identity construction. However, the resources on the history of libraries and archives in Indonesia is rather limited. Although Perpustakaan Nasional was only inaugurated in 1980, its precursor dated back to the colonial period, in the library of the National Museum, which originated in the Batavian Society of Arts and Sciences (1778)⁷. The Arsip Nasional, meanwhile, originated in Landsarchief, established by the Dutch colonial government in 1892, a decade earlier than the establishment of the Algemeen Rijksarchief in Netherlands, which was itself also influenced by the change in government systems from monarchy to parliamentary monarchy (Basuki et al. 1996).

This colonial dimension therefore needs to be critically taken into account in discussing the so-called stunted, painful growth of LIS in Indonesia. Anderson (2013) had raised up how “archive is sequestered by a basic change in the language of state and of the citizenry,” and how huge numbers of documents in Dutch language—illegible to many—were “leaked” in bundles, peddled out in flea markets, used to light up stoves, insulate windows, or as we in Indonesia say, *bungkus kacang*, to wrap peanuts. He further raised up how “the rise of autocratic regimes, military or communist, during the height of the Cold War in Asia made for much more state secrecy than hitherto,” the politicisation creating the conditions that indeed promoted inaccessibility and distrust of the national archives⁸—along with the institutions (the colonial government, or the autocratic regimes) and the “fact” production that they served (see also Stoler 2002).

An outcome of this distrust of the state, is the growth of (quasi) public collections initiated by privates (notable examples include Pusat Dokumentasi Sastra (PDS) HB Jassin, Sinematek

⁶Currently, LIS institutions in Indonesia include: 15 universities with diploma, bachelor’s and master’s degree in LIS programs; libraries and other institutions with library practitioners; government and the Indonesian library associations, consisting of Indonesian Librarian Association (IPI) and Indonesian LIS Scholars Association (ISIPII) (Basuki 2004b; Basuki 2013; Laksmi & Wijayanti 2015).

⁷More specifically, Perpustakaan Nasional was founded in 1980 from the integration of four institutions: the library of the National Museum; two departments of the Library Development Centre—the library of Political and Social History (1952) and the Department of Bibliography and Deposits (1953); and the library of the territorial office of the Department of Education and Culture of the capital city of Jakarta (1958) (Massil 1989, p.476). Arguably, before the colonial period, the precursors of the government-run libraries could be found in the courts and kingdoms in Java, Sumatra, Bali and Sulawesi, which provided a very limited access to collections of manuscripts for a select few (Håklev 2008, chap.3).

⁸For example, Arsip Nasional changed through five departmental status between 1961 and 1967 (Basuki et al. 1996): under Menteri Pertama (1961-1962), under Menteri Pertama Bidang Khusus—with more attention on historical research (1962-1963), whose name then changed into Kementerian Kompartimen Hubungan dengan Rakyat (1963-1966). In 1966, its status changed again, positioned under Wakil Perdana Menteri Bidang Lembaga-lembaga Politik, and in 1967 until today, it was turned into a non-departmental government organisation, directly under President.

Indonesia, Perpustakaan Bung Hatta, Perpustakaan Idayu, Medayu Agung) and funded privately or collectively (through families, friends, membership systems, or a mix of grants). Typically, these collections were organised with their own filing and classification systems, usually subjectively—even if meticulously—developed by the founder (who is usually not formally trained in LIS). Typically, too, the collections develop some sort of dependency on the founder—they decline with age, and rarely last beyond the founder's lifetime. The suspicion that documents handed to the national libraries or archives would likely be damaged or neglected—whether for ideological or lack of (professional, technological, or financial) maintenance resource—or damage reputations and bring reprisals, still remains and recurs, even if it has considerably subsided.

Considering the long decades of militaristic control on the production of history and control of information, with military personnels in libraries and archives⁹, and the installment of multimedia diorama inside the ANRI in 2008, further research would need to seriously consider the politics and history of the archives and libraries, and to take archive not only as source but as subject of knowledge construction¹⁰.

Digitalisation attempts from 1998 onwards

The turn of the century coincided with the fall of the New Order authoritarian regime and the growth of Internet (Hill & Sen 2005). Since the beginning of millennium, there have been various sporadic attempts to build digital networks. According to Basuki (2004a), in 1998, the Computer Network Research Group, the Knowledge Management Research Group, and the Central Library of Institut Teknologi Bandung (ITB), started working together to develop the Ganesha Digital Library (GDL). GDL later developed into the Indonesian Digital Libraries Network (IDLN, later IndonesiaDLN), which by 2003 comprised of 87 partners, consisting of 73 institutions, 11 individuals and three *Warung Internet* (*warnet*) (see also Fahmi 2002; Fahmi 2005). Petra Christian University also initiated an Indonesian Christian University Virtual Library (InCU-VL) in 1999, which later evolved into the SPEKTRA Virtual Library. Kantor Menteri Negara Riset dan Teknologi (State Ministry of Research and Technology) also issued Docushare software (produced by Xerox for digital library development), and awarded it to various universities in 2002. Other universities such as Universitas Indonesia, Universitas Gajah Mada, State Islamic Institutions, Universitas Brawijaya, also started digitising research documents and thesis. In 2006, DIKTI released Indonesia Higher Education Network (InherentDL), as part of their long-term plan for higher education 2003-2010 to better accommodate communication among different higher education institutions in Indonesia. By now, however, most of these portals have become inaccessible, or moved to a different address. After all, globally links rot and sources evaporate very quickly online (Zittrain et al. 2014), and the “inventors of the Internet” still struggle in devising a decentralised, permanent web¹¹.

⁹ANRI's collection, though scattered, is very interesting, stretching back to the 17th century, offering many undiscovered, rich sources that can shed light on not only the regional, but also transnational (such as Chinese, Arab) histories. However, after the colonial period, largely due to the tumultuous period of 1940s-1960s, and the mass violence and censorship that followed after 1965-66, materials are much less rich and coherent (see Jaquet 1979; Basuki et al. 1996; Liu & Tagliacozzo 2008; Zhou 2015; Minarchek 2015 for histories and overviews of ANRI).

¹⁰See Basuki's (2004b) criticism on the historical accounts of Perpustakaan Nasional and librarians for *Kiprah Pustawakan*. In general, he mentioned four main issues with regards to difficulties in making historical accounts of libraries and archives in Indonesia: (1) the failures to cite and build on previous work (here Basuki raised questions whether this is related to the recent regime change); (2) lack of primary sources from written documents; (3) did not sufficiently engage with the first-hand witnesses (*saksi sejarah*), and the closing window of time (as the witnesses and actors involved are going senile, or dying).

¹¹<http://www.wired.com/2016/06/inventors-internet-trying-build-truly-permanent-web/>

In December 2009, a different portal, Garuda (Garba Rujukan Digital, <http://garuda.dikti.go.id>) for academic and scientific references was launched by DIKTI Kemendiknas RI in collaboration with PDII-LIPI. Garuda provides an online union catalog, with metadata collected from various higher education institutions, as well as server space and Internet bandwidth—things that not many higher institutions in Indonesia can afford or maintain. The Ministry of National Education then released Act No. 17/2010, mandating in Chapter 7 Clause 2 to “upload electronically all scholarly works by students/lecturers/researchers/staff of any higher education institution.” The year after, DIKTI further emphasised and operationalised the role of Garuda by issuing Circular 2050/E/T/2011, “Kebijakan Unggah Karya Ilmiah dan Jurnal (Policies on the Uploading of Scholarly Works and Journals)” (see Liauw & Genoni 2016), and making it related for moving up the ranks. There is also a different Portal Garuda (<http://portalgaruda.org>), initiated by the Institute of Advanced Engineering and Science Indonesia Section (IAES) Indonesia as an Indonesian Publication Index (IPI), thus specifically indexing scientific journals in Indonesia. Up to 1 August 2016, it has indexed up to 3,677 journals and 350,086 articles. Meanwhile, LIPI also has its own Indonesian Scientific Database Journal (ISDJ, <http://isjd.pdii.lipi.go.id/>).

Indonesia OneSearch

More recently, initiated by Fahmi again as the consultant and supported by Perpustakaan Nasional, Indonesia OneSearch was formally launched in March 2016 in Perpustakaan Nasional. Technically it has been initiated since May 2015, with Fahmi as the consultant. In a way this can be considered as the continuation of the GDL and IDLN, which he had to abandon when he had to pursue his master and doctoral degrees in Information Science in the University of Groningen, Netherlands, where he studied computational linguistic. These studies seemed to have contributed significantly in allowing his ideas and experimentations to develop further¹². OneSearch is the only portal that uses OAI-PMH (Open Archive Initiatives - Protocol for Metadata Harvesting, a low-barrier mechanism for repository interoperability) that integrates different kinds of repositories. Some of the library and archiving softwares that have already been integrated include INLIS Lite, Senayan Library Management Systems (SLiMS) and its union catalog servers (UCS SLiMS), Koha (open source Integrated Library Systems originated from New Zealand), Dspace (open source repository software package, typically used for publishing scholarly and/or published digital content), Eprints, OJS (Open Journal System), and OMP (Open Monograph Press)—many have been implemented in Indonesia, albeit in ad hoc, scattered fashions.

Compared to previous portal (like Portal Garuda DIKTI, Garuda, ISJD), Fahmi stated that OneSearch had considerable advantages: (1) it indexed all sorts of collections (journals and existing integrated library systems or institutional repositories); (2) mobile friendly—very crucial in Indonesia where most people access the Internet through mobile; (3) interoperable and easy to update; (4) attractive user interface and features; (5) search engine optimised—indeed, many results from OneSearch appear on Google, something that most journal and library catalogs in Indonesia fail to do; (6) rich in author's data and metadata; (7) supported by a system that allows the portal to scale in future. Registering a repository is relatively technically simple, especially if the library already has a library system installed, though being legally registered seems to be a prerequisite. Once it is registered, then OneSearch will start harvesting, the catalog indexed and accessible from Indonesia OneSearch¹³. Indonesia OneSearch therefore attempted to address three main issues: disjointed and lack of integration of information repositories; the high cost and time of accessing

¹²See a video of Fahmi's presentation online <https://www.youtube.com/watch?v=rkdzZCrFuTM>

¹³ See the presentation about Indonesia OneSearch in Seminar Jaringan Perpustakaan by Fahmi: <https://www.youtube.com/watch?v=rkdzZCrFuTM> [accessed 1 July 2016].

these fragmented (and underused) documents; and unequal access to information.

Difussion across the silos of the LAMs

Beyond Perpustakaan Nasional¹⁴, there are also many dynamic, interrelated changes. For example, there is Jogja Library for All (JLA), a collaborative network of libraries was established in 2005 based on an agreement between the regional government and a number of universities in Yogyakarta. After some shaky starts and many changes of address¹⁵, it has now seemed to settle into jogjalib.com. In 2010, a community of Senayan Library Information Management Systems (SLiMS, <http://slims.web.id>) users based in Yogyakarta also initiated a different Jogjalib.Net. Compared to jogjalib.com, jogjalib.net extended its coverage beyond formal higher education institutions, which Surachman (2011) stated to include 15 higher education libraries, 14 school libraries, 6 community or NGO libraries, 3 research institution libraries, and 2 private libraries, compiling 83,880 records. Arguably, Jogjalib.net functions more as an umbrella organisation (*paguyuban*) for SLiMS users and a testing ground for them in building a network of digital information.

Open Source Library Management Systems

SLiMS is a free and open source library management system that automates many library functions such as bibliography database, circulation, membership, built on free and open source technology like PHP and MySQL¹⁶. According to SLiMS history page, it was initially developed in November 2006 for the library of National Education Department, since the license of its existing library management system, Alice, had expired, and the department could not afford the cost of extending the license. (The initial license of the Alice software, created by Softlink, was donated to the department library by the British Council.)

Additionally, as a proprietary software, it could not be freely distributed even within the department, and the library staffs faced difficulties in learning and tinkering with the program. A team co-ordinated by Hendro Wicaksono and Arie Nugraha then suggested creating a new program to replace Alice, developed under General Public License, free and open source, with the aim that this software would then be free for anyone to use, learn, modify, and distribute. While there are plenty other existing open source library management systems such as PHP MyLibrary, OpenBiblio, or Koha, there were constraints—such as more challenging computing language of Perl and C++, and lack of active user base or updates—that made creating new software preferable. After some beta testing with limited users, the first “stable” version was launched in November 2007, to coincide with the 3rd anniversary of the library of the National Education Department.

Up to 2016, SLiMS has reached its 8th version. It has also implemented mechanism to accommodate electronic files, pictures, videos, and developed a Union Catalog Server. Since the software is free, we are not sure of the exact number of SLiMS downloads and installations, but its website stated at least 250,000 downloads, and listed 391 (379 Indonesia, 11 overseas) libraries using SLiMS. Its free and open source license have contributed to wider use and larger community bases. Other than

14Arsip Nasional RI (ANRI) seems to be slower in moving towards digital. On my last visit to ANRI on 20 May 2016, the staff still recommended manual search requests for them to process (since the online system was not available then). In his useful overview of the holdings, obtaining materials, and access at ANRI, Minarchek (2015) also reported that search oftentimes ends in “no items found” for even the most broad topic.

15Surachman (2011) mentioned <http://jogjalibraryforall.blogspot.com>, <http://jogjalibraryforall.wordpress.com>, <http://jogjalibraryforall.multiply.com>, <http://jogjalib.gamatechno.com>, <http://jogjalib.jogjakarta.go.id>.

16Other than SLiMS, there is actually also INLISLite (<http://inlislite.perpusnas.go.id/>), another open source library management system, this one released by Perpustakaan Nasional. However, SLiMS seems to have a more active community base of developers.

Jogjalib.Net mentioned previously, there are plenty other local-scale SLiMS communities, such as SLiMS Banten, SLiMS Kudus, SLiMS Makassarlib, Ambonlib, and so on. There is also an annual SLiMS Community Meetup (SLiMS ComMeet) where users, developers, and enthusiasts from across Indonesia gather. There is, however, a conspicuous lack of female participation. I do not have the statistics on the gender of SLiMS users, but browsing the photos and the discussion forums of the more “backend” technical people, the gender gap becomes highly visible. Of course, the massive gender gap in ICT profession and education has received numerous theoretical and empirical attention, but this point still needs to be raised and addressed more seriously, since in Indonesia, high proportion of those working in libraries, *taman bacaan*, PAUD are female.

Visual arts and culture

The Indonesian Visual Art Archive (IVAA, ivaa-online.org), had its origin in the Cemeti Art Foundation documentation centre. It was founded in 1995 in response to the lack of library or accessible documentation on arts, despite the growing contemporary arts scene. Merdikaningtyas (2007) has written how it has evolved, from the stages of: (1) hunting for documentary materials, building trusts (from partners, artists, users) and conceptualisation (1995-2000); (2) collection development, system formation, and network expansion (2000-2002); (3) collection utilisation and optimisation (2003-2005). Since 2008, IVAA started building the digitalisation of its archives and publishing them online for public access through archive.ivaa-online.org, while also continuing building partnerships with various arts and cultural organisations for archive preservations.

Through a program funded by Ford Foundation, a Jaringan Arsip Budaya Nusantara (JABN) was created to develop digital archiving capacity and networks, consisting of IVAA (Indonesian Visual Art Archive), DKJ (Dewan Kesenian Jakarta), Tikar Media Budaya Nusantara, SAV Puskat (Studio Audio Visual Puskat), Institut Dayakologi, and Museum Nusa Tenggara Timur. IVAA has also published a bilingual anthology titled *Arsipelago* (Mariana et al. 2014), inviting people from different backgrounds to discuss their diverse concepts and practices of archiving (of clippings, dancing, music, films, action poster, etc.), that may not neatly fit the standard archiving methods and classification (disclosure: I also write on this book).

Indeed, outside the development of LIS in government and higher education sector, there are various initiatives in digitalising knowledge, using diverse methods, formats, and resources (a combination of some self- or collectively-funded, government of funding institution grants, selling etc.). For example, Indonesia Boekoe, also known in its shortened name as I:boekoe, has initiated Warung Arsip (warungarsip.co), digitising various clippings, books, newspaper, video, then publishing and selling them online. They cobbled up a digitising table using a digital camera instead of a scanner, though this also affects the scan quality (and difficulties in rendering it for OCR). As stated on the website, it is a “small and medium economic showroom for collections that have been collated in the past three decades.”

Music

More recently, we also see the growth of music archives. Irama Nusantara (<http://iramanusantara.org>) is a digital archive of Indonesian popular music, initiated in 2013 by music practitioners, David Tarigan, Christoforus Priyonugroho, Toma Avianda, Alvin Yunata, Norman Illyas, dan Dian Wulandari, and their friends¹⁷. It started from their own hobbies of hunting

¹⁷I write the section on Irama Nusantara and Lokananta based on the pages in Irama Nusantara <<http://iramanusantara.org/>>, Lokananta website <<http://lokanantamusik.com/>>, and articles in Rolling Stone Indonesia <<http://www.rollingstone.co.id/article/read/2016/01/28/140506035/1093/lokananta-luncurkan-perpustakaan-digital-arsip-musik>> and Tirto.ID <<https://tirto.id/20160723-41/jalan-sunyi-para-pengarsip-musik-279779>>

and collecting Indonesian music in vinyls, cassettes, compact discs. Reportedly, David started digitising music since 2008 when he started a playful project called Kentang Radio. Previously, he had started buying vinyls of Indonesian music since secondary school, and was finding it difficult to learn further information about past Indonesian music and musicians. David and his friends started documenting the “raw data” of the release (the audio, text, and visual information), starting from their own private collections, then to other private collectors. They then tried secondhand music market (*lapak musik* bekas), and radio, particularly RRI. Their recent collaboration with Badan Ekonomi Kreatif helped in opening up access to RRI, and in the last few months, they have been touring RRI stations to document the archives in the radio stations.

There is also Lokananta, founded in 1956, which initially produced and distributed materials for Radio Republik Indonesia (RRI), then in the forms of vinyls. Lokananta then evolved into a record label specialising in regional songs (*lagu daerah*), arts performance, book and magazine publishing, while also keeping historical audio records. It reached its golden age in the 1970s-1980s, but since 1999-2000, it stopped production. In 2004, it was liquidated and became part of Perum PNRI, with tasks including multimedia, recording, remastering, development of supporting printing and graphics. Recently, through Lokananta Project (LP), diverse photographers, writers, designers, and curators were involved in evaluating the music archive of Lokananta, and helped in disseminating the archive through lokanantamusik.com. Supported by the Djarum Foundation, the website reported that there are now 5,000 reel masters that have been transferred into digital archives.

Both websites give a delightful taste of the richness of Indonesian music. In tackling the tricky issue of copyright, Lokananta only uploaded the songs partially as samples on the website, whereas Irama Nusantara used the lowest bitrate. Lokananta also seemed to be checking possibilities of building streaming of the record catalogs, and using services such as iTunes, Deezer, and Spotify.

Even further into the grey undefined area, we see plethora of initiatives in documenting using existing platforms and social media like Instagram or Facebook. As many has noted, the growth of social media and its searchability has also prompted increasing desire to use them as a way for *exhibiting* and *archiving*, despite the systems' initial focus on social communication purposes. Rather than a systematic archiving with strict classification and metadata, social media brings “archives” that are more fluid, transient, fragmented, and highly subjective, thus simultaneously exhibiting social, archival, and performative dimensions. Indonesian Street Art Database (ISAD), for example, self-described as “a guerrilla initiative of street art archiving in Indonesia,” used Instagram, Facebook, and Tumblr to document street art in Indonesia, making calls for submission with hashtags¹⁸. Not suprisingly, this has raised some critical questions about relinquishing control and privacy to an external “archivist” or “curator”, whether changing algorithms or server, that can unexpectedly or unintentionally modify, reconfigure, or delete the submitted data (Hogan 2010). One wonders about its relation to the real-life ephemeral conditions of street art, subjected to unexpected erasure and modification anytime, and the desire to have a platform to raise awareness and documentation.

With more diverse formats and “intangibility”, there are more challenges in developing archiving and classification systems. The challenges of digitisation of collections in academic libraries in Indonesia that Basuki (2004a) elaborated are generally also shared by libraries and archives from different sector: (1) Lack of budget. For academic libraries, the guidance issued by DIKTI (1998) stated that the academic library budget should be at least 5 per cent of the university budget, but on top of the highly uneven condition of education in Indonesia, many also doubt that institutions

¹⁸ISAD has once attempted to build a website <<http://indonesianstreetartdatabase.org/>>, as part of the output of ISAD project in 2012, funded by Cipta Media Bersama and Wikimedia Indonesia. At the time of this writing, the website has turned defunct.

abide by the rule; (2) Technical: limited ICT facilities and infrastructures unable to support document digitisation projects since many universities were not equipped with stable Internet or telephone landlines; (3) Human resources: In relation to the problems of LIS education and profession described previously, many library staffs in Indonesia lack the training in ICT use, although more recent research has indicated rising interests (Laksmi & Wijayanti 2015); (4) publishing policy: while publishing policy for digitisation of documents among university chancellors in Indonesia has been defined through the Act and Circular, they have been arbitrarily implemented. There is now more attention from universities to digital repositories, particularly because the “web presence and impact” including webometrics Ranking Web of Repositories has since 2006 been taken as a tool to assess and rank Indonesian higher education higher education institutions¹⁹; (5) Cultural: Not every school or department in universities has access to ICT, “gaptek”, also wariness of plagiarism; (6) Digital divide: although Indonesia has seen a rapid uptake of mobile Internet, it still only has very limited landline or broadband connections, not to mention electricity and various basic infrastructure. Again, the historical and geographical conditions also need to be considered, and more attention to the value and work involved in maintenance and care would be needed, considering the rapid decay of information materials, offline or online. The annotated bibliography on the preservation of archives in tropical climate by Teygeler et al (2001) bring extremely valuable insights, whether for analog or digital.

Conclusion: Back to the Future?

On top of these “technical” and institutional reasons, however, I would also like to address the more socio-political issues. In Indonesia, the prevalent “great divide” between social sciences and information technological systems, is even more prominent. Additionally, though understandably, the common discourse in discussing problems on libraries and archives tend to be apolitical—rarely are “errors”, “incompetence”, “lack of resources” are discussed as intensely political contests burdened by the past and intertwined with changing power dynamics. Here, it is worth quoting at length David Hill's (1990) overview of PSD HB Jassin more than a quarter century ago:

Like any public repository in Indonesia the PDS operates within certain fluid and ill-defined political constraints. The collection initially reflected Jassin's own interests and position within Indonesian literature and literary criticism. The amount of leftist material is limited and no banned material is available (to public users). It appears, too, that certain unproscribed documents, such as newspaper clippings on the leftist cultural organisation Lekra (many of which were in fact highly critical of the organisation), which had been accessible in the early 1980s are now not publicly available. There is always the danger that, although a collection may have incorporated a range of ideological positions, changing circumstances may result in limited access to material deemed politically sensitive.

Hill also added, that back then, PDS HB Jassin was “the only such (semi-)autonomous public access collection.” The state, as I have discussed briefly above, have intentionally made “politically sensitive” materials inaccessible and fragmented. Whereas private collections that may have rivalled Jassin's, such as those by Pramoedya Ananta Toer and Bakrie Siregar, were destroyed if not incapacitated, knowing that there can always be unexpected risks of keeping manuscripts or documents²⁰.

¹⁹However, in their survey of higher education institutions in Indonesia, the push for OA in Indonesian HE IRs was initially driven more by prestige (ranking) and attempts to combat plagiarism, rather than the desire to make Indonesian research globally visible (Liauw & Genoni 2016).

²⁰The painful irony was to see the same decline and chronic underfunding happening to PSD HB Jassin. In 2011, the

Such logic still applies, even after this so-called democratic Reformasi period. We only need to remember the controversial statement by the then Acting Head of the National Library, Dedi Junaedi, in supporting the crackdown of leftist books in the wake of raids on leftist attributes in May 2016. After significant outcries, Perpustakaan Nasional later published not one but two press releases amending the statement, the second erasing the paragraphs that clarified Junaedi's statement of destroying leftist books in the first²¹. It is easy to shrug the incident now that the raids have slowed down and a new head had been installed for Perpustakaan Nasional, but the flip-flop demonstrates the socio-political, legal constraints in which archives and libraries in Indonesia has been operating, and have to be carefully considered particularly when we are at the nascent stage of bringing visibility to various materials that have been vaguely “in the dark”.

Digital technology and external servers provided by Facebook, Instagram, Google, WordPress.com, archive.org, and filesharing servers might seem to offer alternative platforms to bypass the state's surveillance and crackdown. But as anyone who has observed the turbulent state of digital world, this is being extremely naive. Freedom House (2015) also reported that Internet freedom has been declining globally for the last five years, with “more governments censoring information of public interest and placing greater demands on the private sector to take down offending content. Indonesia's Internet Freedom status has also been downgraded to “Partly Free”, based on the Supreme Court passing a Ministerial Regulation on “negative content” without legislative review, thus giving officials the power to arbitrarily block websites (including Vimeo), even if implementations have been inconsistent (and sometimes even used by the ISPs to inject advertising). At least five people had been sentenced to prison under the notorious Information and Electronic Transactions Law (ITE Law). As we move into “digitalising knowledge”, the more we need to seriously consider socio-political and legal issues of libraries and archives.

In highlighting the importance of socio-political issues, before closing my paper, I'd like to propose for future studies that we see the process of digitalising knowledge in education, libraries, and archives as building infrastructure. This is for two reasons. Firstly, infrastructure in Indonesia has for long been associated with physical buildings and material procurement, but there is a growing body of work in the information and social sciences that focus on information and knowledge infrastructures²², which would be worthwhile to look into for future studies of libraries and archives. Secondly, the “low quality” of education, libraries and archives in Indonesia are frequently technically or institutionally discussed by blaming the informal, weak institutional capacities and low budget of the LIS profession and education, or by the supposed culture of Indonesians that lack “*minat baca*”, but rarely on how these have been deeply implicated, or intentionally stunted, by politics.

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news of the dismal condition of PSD momentarily created a “Gerakan Koin Sastra”, highly visible in mass and social media, but PSD is still in a declining state.

²¹The statement was published online in tempo.co, titled “Perpustakaan Nasional Dukung Pemusnahan Buku-buku Kiri,” on 16 May 2016. For the copies of the official statement by Perpustakaan Nasional, see Ikatan Sarjana Ilmu Perpustakaan dan Informasi's webpage for discussion: <http://www.isipii.org/node/81>

²²Some examples are the work of Susan Leigh Star, Geoffrey Bowker, Steve Jackson, Paul Edwards, but there are many others.

evolved into a community and co-working space. As a researcher and a practicing designer and programmer, she is interested in the histories and intersections of information, design, (digital) technology, and society. She holds a Master in Cultural Studies from Airlangga University, with a thesis on alternative libraries, which was awarded 2013 Asian Graduate Student Fellowship support from the National University of Singapore. Her writings have been published in *Networked Researcher Open Access Week* (2012), *Cornell University Southeast Asia Program Bulletin* (2014), *Arsipelago: Archival Work and Archiving Art & Culture in Indonesia* (2014), *SOJOURN* (2015, 2016), *PORTAL Journal of Multidisciplinary International Studies* (2016), and forthcoming “Cashless in Indonesia: Gelling mobile e-friction?” in *Journal of Southeast Asian Economies* (2016). Email: k.azali@ayorek.org

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Recommended websites

Digital Archive of Indonesian Contemporary Art <http://archive.ivaa-online.org/>

Ikatan Sarjana Ilmu Perpustakaan dan Informasi Indonesia <https://www.isipii.org/>

Indonesia OneSearch by Perpusnas <http://onesearch.id/>

Irama Nusantara <http://iramanusantara.org/>

Lokananta <http://lokanantamusik.com/>

Perpustakaan Nasional <http://www.perpusnas.go.id/>

Senayan Library Management Systems <http://slims.web.id/>

Sulistyo Basuki's Blog <https://sulistyobasuki.wordpress.com/>