

Achieving the Ables: Reimagining the Digital Discovery Services at the National Library of Singapore

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Abstract:

The NLB Digital Masterplan articulates the joint vision and key digital strategies of the National Library of Singapore (NLS) and Archives, in enriching the digital library experience for our patrons through 5 key capabilities or ABLES.

The 5 ABLES are envisioned to be: FindABLE, ExpandABLE, UsABLE, DeliverABLE, and PreservABLE.

Digital preservation and sustainability will be embedded as an organisational principle underpinning all digital collection activities. The inherited digital infrastructure of NLS will be refreshed, along with backend and frontend digital services, utilising the latest library information technologies and metadata modelling methodologies from Linked Data, Knowledge Organisation System, to text mining.

There will also be strategic reliance on a planned amendment of the Legal Deposit legislation, as well as implementation of new business models of access/reuse that will push the boundaries of National Library copyright exceptions, in order to accomplish these objectives.

Through the optimisation of these ABLES, it is hoped that the newfound ease of experiencing and using the NLS digital collections, would in turn help to ensure a future where every Singaporean has easy access to Singapore's past, is then inspired by Singapore's past, and cherishes his or her personal part to play in weaving the fabric of the nation.

Keywords: National Library of Singapore, national collection, digital strategy, contextual discovery

1 INTRODUCTION

The National Library Board (NLB) oversees the National Library, the National Archives, and the Public Libraries in Singapore.

The National Library of Singapore (NLS) is responsible for preserving and making accessible the nation's literary and publishing heritage and intellectual memory for future generations.¹

The National Archives of Singapore (NAS) is the official custodian of the corporate memory of the government (records), and is entrusted to collect and preserve broadcast audio visual recordings and oral history interviews of Singapore.

As stewards of the national patrimony and a rich multi-format collection of learning on Singapore, NLS and NAS are now working on a Masterplan that proposes physical and digital integration points to make our joint collections a focal point for scholarly, academic and citizen researchers.

The Masterplan will also recognise that both institutions have distinct custodial responsibilities, professional stature and identities, that will need to be maintained even with harmonised backend processes.

2 THE NATIONAL LIBRARY & ARCHIVES DIGITAL MASTERPLAN

The National Library & Archives Masterplan articulates the joint vision and key strategies of the NLS and NAS from 2016 to 2020. This paper will specifically address the key digital strategies, which have as its main focus, the improvement of the overall digital experience for our patrons.

The inherited digital infrastructures of NLS and NAS will be refreshed, along with backend and frontend digital services, utilising the latest library information technologies and metadata modelling methodologies.

There will also be strategic reliance on a planned amendment of the NLB Act, as well as implementation of new business models of access/reuse that will push the boundaries of National Library copyright exceptions, in order to accomplish these objectives.

3 THE 5 ABLES OF THE DIGITAL MASTERPLAN

Under the Masterplan, it is envisioned that the future digital discovery services of the NLS and NAS needed to achieve the following 5 capabilities or ABLES:

¹ NLS is supported in its Legal Deposit role through the provisions of the NLB Act (Chapter 197, No. 5 of 1995, Part II Section 10) whereby two copies of every Singapore publication, have to be deposited with NLB. <http://statutes.agc.gov.sg/aol/search/display/view.w3p?page=0;query=DocId%3A%22bf7d269-e298-4085-bcce-d25e024fdd6d%22%20Status%3Ainforce%20Depth%3A0;rec=0>

What NLB hopes to achieve	The 5 ABLES		What our patrons and librarians/archivists will achieve
PREPARING OUR CONTENT TO BE:	1	FindABLE	<i>"I can discover NLS/NAS Content in NLB, as well as outside NLB, across format and languages."</i>
	2	ExpandABLE	<i>"I can go further than my first hit and see a wider context from what I am searching for."</i>
	3	UsABLE	<i>"I can use the content because I can reproduce it, manipulate & repurpose."</i>
	4	DeliverABLE	<i>"I can ask for content I want delivered to me in a platform or channel I desire."</i>
FULFILLING OUR NATIONAL PATRIMONIAL ROLE:	5	PreservABLE	<i>"I can rest assured that everything in the National Collection that is precious will last beyond this generation."</i>

4.1 FINDABLE

"I can discover NLS/NAS Content in NLB, as well as outside NLB, across format and languages."

Our digital content needs to be easily discoverable even if patrons do not know of the existence of NLS or NAS websites. Search engine optimisation will be key. Digital content with little metadata or which are non-textual will need good descriptions to be discovered. These descriptive metadata can be obtained through crowdsourcing or extracted using technology in order to boost discoverability. NLS and NAS web portals will be horizontally integrated via a common search platform that will allow for consolidated searching across all NLS and NAS content.

FindABLE (Inside NLB):

4.1.1 Consolidated search platform to search all NLS and NAS digital content

The OneSearch service prototype was launched in August 2014 and provided NLB patrons with a platform for consolidated searching of resources from NLS, NAS, the Public Libraries and NLB subscribed online databases (Figure 1).

OneSearch will be further enhanced to improve the accuracy and relevance of search results, refine searches to more granular levels of metadata, and to eventually search through all digital content of NLS and NAS. New capabilities to search through images will also be explored.



4.1.2 Enhancements to allow cross-searchability whether in NLS or NAS portal

Other than the consolidated search platform OneSearch, NLS/NAS portals will be enhanced so that relevant Singapore content can be found, regardless of whether the patron is searching from an NLS or NAS portal. So for example, a patron searching in the NLS digital photograph portal PictureSG, would also be given a choice to do a wider search through the NAS digital photographs² inventory as well via OneSearch.

4.1.3 Correction of existing NLS digital infrastructural issues

NLS's digital content is currently spread over a number of different format portals from NewspaperSG³ (for newspapers), BookSG⁴ (for books, periodicals, and text-based materials), PictureSG⁵ (for photographs), MusicSG⁶ (for music), NORA⁷ (for arts personalities), Web Archive Singapore⁸ (for archived websites), to SingaporeMemory.SG⁹ (for personal memories).

Even though each content microsite has been custom-developed for optimal display and access peculiar to each particular format type, the overall NLS digital infrastructure has developed organically rather than holistically over the years. As a result, different titles of books, periodicals, manuscripts, photographs can be found in isolated silos in BookSG, SingaporeMemory.SG, PictureSG, and NORA, with no common format searchability of NLS's complete inventory from any individual website. Serious researchers cannot browse and search easily via format.

To resolve this, a new one-stop landing site for all NLS content would allow for cross-collection browsing and searching by formats, subjects, or by partners. NLS portals' system pulling logic scripts will be re-written to allow for the searching of similar formats stored in other NLS portals, so that a digital item stored and deployed in one NLS portal would also be searchable from multiple NLS portals just from one search conducted from any NLS portal. Digital Rights Management will also be maintained at the digital item level to provide the flexibility to support multiple access scenarios whilst keeping to the same item access rights.

² Archives Online: <http://www.nas.gov.sg/archivesonline/>

³ NewspaperSG: <http://eresources.nlb.gov.sg/newspapers/>

⁴ BookSG: <http://eresources.nlb.gov.sg/printheritage/>

⁵ PictureSG: <http://eresources.nlb.gov.sg/pictures>

⁶ MusicSG: <http://eresources.nlb.gov.sg/music>

⁷ NORA: <http://eresources.nlb.gov.sg/arts/web/Common/Homepage.aspx>

⁸ WAS (Web Archive Singapore): <http://eresources.nlb.gov.sg/webarchives/>

⁹ Singapore Memory: <http://www.singaporememory.sg/>

FindABLE (Outside NLB):

4.1.4 Search engine optimisation

A high level of traffic of up to 60% is currently directed to NLS content portals from search engines. Most users go to the popular search engines (e.g. Google) as their first port of call to search for information.

We will continue to leverage on this behaviour by employing the latest search engine optimisation (SEO) techniques and/or adjusting SEO techniques when search engines change their indexing logics, to ensure that digitised resources available in NLS/NAS are easily findable via the popular search engines, and ranked highly and frequently in relevant search results.

Some SEOs to be explored:

- Increase textual content for search engine indexing, e.g. exposing the full-text of rights-cleared books/periodicals/oral history transcripts to Google.
- Implementation of search engine friendly techniques such as schema.org tagging¹⁰ that NLB can use to mark-up HTML pages in ways recognised by major search providers. Search engines rely on this mark-up to better understand the content and perform the search ranking.
- Mobile SEO to enable NLS's mobile-optimised content to be crawled and easily discovered by search engines¹¹. NLS portals will also be designed or redesigned with responsive web design in order to cater to more and more of our patrons using mobile devices to access the internet.

4.1.5 Extend reach of OneSearch through Open Data

OneSearch will also be further embedded within the e-learning systems for Singapore schools and Government/NLB partner websites. It will be a win-win situation where external agencies will help to expose NLS/NAS content through these embedded links and NLB could also integrate the agencies' host collections within the OneSearch search parameters at the same time.

4.1.6 Increase visibility through Linked Data

To enable non-NLB patrons to find our digital collections better, metadata entities such as people, organisation and place names will be exposed on the web as Linked Data.

Linked Data will allow for intelligent searching of NLS/NAS content, so that patrons can truly be able to search and find our content based on intent rather than on keywords alone. As the internet evolves into a web of data, even non-NLB patrons would be able to discover precise results to our open access content via metadata that NLB has applied Linked Data transformation on.

¹⁰ schema.org: <https://schema.org/docs/gs.html>

¹¹ Mobile SEO: <https://developers.google.com/webmasters/mobile-sites/mobile-seo/?hl=en>

In addition, external entities such as other libraries and archives can incorporate our exposed Linked Data into their own collections, thereby increasing the findability of NLS/NAS content to a new audience.

4.1.7 Crowdsourcing for metadata enhancement

Many items of the NAS collections do not have adequate description to enable them to be easily findable. Describing the resources is also a laborious process.

To quicken the pace of metadata enhancements, NAS recently launched the Citizen Archivist¹² Project, where members of the public participate in describing images and transcribing documents. Once the caption of a photograph is approved, it will be made available at Archives Online so that other patrons would be able to now discover the item with the enhanced metadata.

The next phase will see more formats available for crowdsourcing of metadata such as transcribing of oral history recordings and correcting of oral history transcripts.

4.1.8 Enhancing findability of non-textual content

In the absence of metadata for non-textual content like photographs and audio/audiovisual content, the following technologies will be prototyped to enhance findability:

- Extraction of textual information in photographs and videos (e.g. road signs and building names)
- Image matching for photographs and videos (identifying shapes of objects, like e.g. buildings)
- Voice-to-text technology to automatically transcribe voice or speeches available in audio (e.g. oral history recordings) and audiovisual (e.g. broadcast news) content

4.2 EXPANDABLE

“I can go further than my first hit and see a wider context from what I am searching for.”

Related digital content needs to be easily discoverable by our patrons even if they do not know of such connections beforehand. New contextual search possibilities must be created that will allow patrons to easily discover similar content across multiple formats and languages in NLB, and also for related content stored outside of NLB. This can be achieved using a combination of advanced modelling of NLB and non-NLB metadata tapping on our cataloguing colleagues’ Singapore content curatorial skillsets, with aggregating, search, and text mining technologies.

¹² Citizen Archivist: <http://www.nas.gov.sg/citizenarchivist>

ExpandABLE (Using NLB metadata):

4.2.1 KOS (Knowledge Organisation System) Query Expansion

The KOS names database is an existing Knowledge Organisation System maintained by NLB's cataloguing team which contains name headings and controlled vocabularies of 13,500 local personalities/places/organisations with over 23,000 name variants and relationship associations.

NLB portals' search query functions would be "expanded" so that relevant results will be retrieved in spite of the different names by which an entity is known, or the different forms in which the public may enter a name. These contextual results will be grouped together using just one search, such as for:

- Different forms of names (people and places) in Singapore's 4 major languages¹³, e.g.
 - Lee Kuan Yew¹⁴ and his Chinese name 李光耀
 - Lim Bo Seng¹⁵ and his alias of Tan Choon Lim
 - Telok Ayer Market¹⁶ and its colloquial name of Lau Pa Sat
- Former names (place or organisational name changes), e.g.
 - SPRING Singapore¹⁷ and its former name of Productivity and Standards Board

The contextual search features will also extend to a "People also searched for..." in recommending personalities (and relevant NLB content) that are linked to the original search personality in KOS (Figure 2):

- Related names (people relations), e.g.
 - Lim Chong Pang (son) is Related To Lim Nee Soon¹⁸ (father)
 - Lim Boon Keng¹⁹ (business partner) is Associated With Lim Nee Soon.

¹³ The four official languages in Singapore's constitution are English, Chinese, Malay and Tamil. Although Malay is the national language, English is the common language used for business, government and medium of instruction in schools.

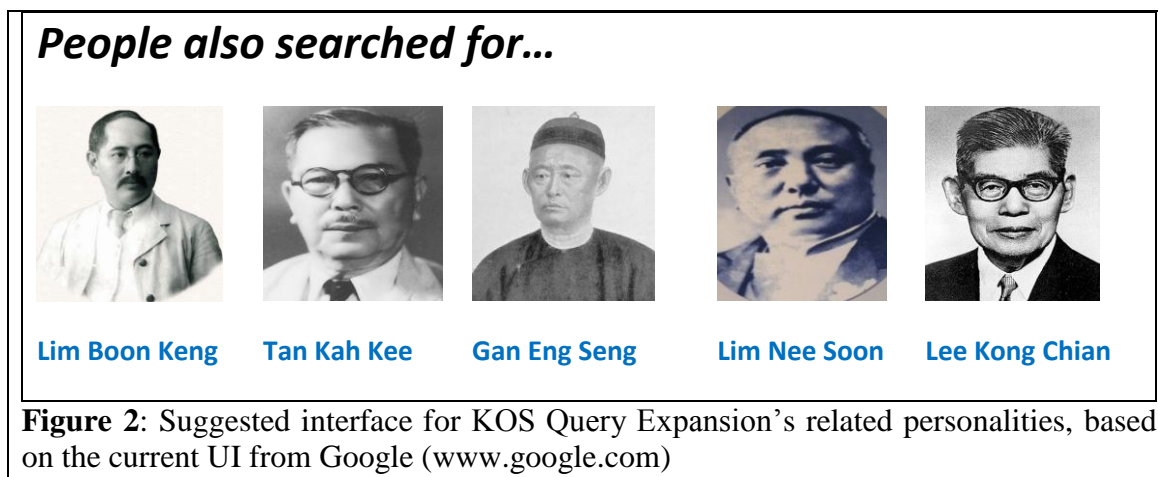
¹⁴ Lee Kuan Yew (b. 16 September 1923, Singapore–d. 23 March 2015, Singapore) was the first prime minister of Singapore and held this post from 1959 to 1990.

¹⁵ Major-General Lim Bo Seng (b. 27 April 1909, Nan Ann, Fujian, China - d. 29 June 1944, Perak, Malaya) was a prominent Hokkien businessman who undertook active leadership in anti-Japanese activities during World War II and is recognised as a local war hero in Singapore.

¹⁶ The former Telok Ayer Market (now known as Lau Pa Sat, meaning "old market") at Raffles Quay was completed in 1894. It was gazetted as a national monument on 28 June 1973 and converted into a food and entertainment complex in 1989.

¹⁷ SPRING Singapore, a statutory board under the Ministry of Trade and Industry, aims to raise productivity to enhance Singapore's competitiveness and economic growth. SPRING stands for Standards, Productivity and Innovation for Growth. It was renamed SPRING Singapore in April 2002 from the former Productivity and Standards Board (PSB).

¹⁸ Lim Nee Soon (b. 12 November, 1879 Singapore - d. 20 March 1936, Shanghai, China), planter and general merchant, was one of the pioneers of rubber planting along with Lim Boon Keng (Dr) (1869-1957). He was a generous charitable benefactor with a keen interest in social and community matters. A respected community leader and, one of the most influential businessmen of the day, he was made a Justice of the Peace (1925).



At the same time, in order to make clear to our patrons that our search results have not generated irrelevant hits for them, the User Interface for the various content portals will be enhanced to display messages that will spell out the associated relationships of the personalities/organisations from the contextual search results clearly to them, e.g. Productivity and Standards Board is the former name of SPRING Singapore.

4.2.2 Contextual relationships using Linked Data

To expand on a search intelligently, data need to be semantically linked so that patrons will be exposed only to content which are relevant to their search.

A Linked Data Management System is now being put in place in NLB to support future data transformations and semantic linking.

Once the infrastructure is in place, structured (metadata) and unstructured data (e.g. articles, speeches and press releases) can be optimised into Linked Data. This would mean that even unstructured data content can be contextually linked to related structured content by the extracting, linking and exposing of key facts and events from the unstructured content.

Once transformed into Linked Data, NLB patrons will be able to explore entities e.g. people, places, organisations and events, and relationships among entities, in a serendipitous discovery of resources and data.

ExpandABLE (Using non-NLB metadata):

4.2.3 Metadata aggregation

Aggregation of non-NLB metadata from external agencies would further expand the reach and usefulness of our NLB collections. Our patrons would be able to be directed to related content that NLS/NAS do not own, just from a single search in NLB.

¹⁹ Lim Boon Keng (b. 18 October 1869, Singapore - d. 1 January 1957, Singapore) was a pioneer Straits Chinese who actively sought to improve the status of the Chinese in Malaya through education and social activism. He held top positions in the Legislative Council and liaised actively with the Manchu government.

Leveraging on metadata aggregation technology would allow NLB to be agile in reusing existing metadata without the effort of recreating information descriptions for these external resources.

Some of the overseas institutions with Singapore-related collections that we hope to aggregate metadata from include the British Library, the UK National Archives and the Imperial War Museum.

4.2.4 Web Scale Discovery Service

To provide our patrons with a one-stop comprehensive search for Singapore content, NLB needs to be able to “curate” good sources of Singapore information for our patrons to search from.

We are exploring the use of web scale discovery services to facilitate such a quick and seamless search through a vast range of internal and external pre-harvested and indexed content, and delivering relevancy-ranked results as the end result to our patrons. Web scale discovery services have been shown to increase the accessibility of e-resources by the increase of full-text downloads in implementing libraries worldwide (Way, 2010).

Moving forward, this discovery service tool will be prototyped to simultaneously search through NLS/NAS collections along with subscribed e-databases, and non-traditional library sources like Wikipedia Singapore, and iconic Singapore blogs, etc.

ExpandABLE (Using technology):

4.2.5 Text mining

Text mining/analytics and keyword clustering (Mahout software from the Apache Software Foundation) have been used successfully already on mass NLS digital collections to link related textual content for contextual discovery (Kia, Liao, & Ong, 2014).

The Mahout technology will continue to be deployed to automatically sieve through tens of millions of NLS and NAS content items, pull out the most important phrases within the textual content using key term extraction technique, and then cluster related resources together based on common key terms extracted. The result will be a massive interconnected network of knowledge that will allow our patrons to easily view and explore related resources within and across collections and media formats.

4.2.6 Machine translation

NLS and NAS content cover all four major languages in Singapore, though English is the common business language used. To extend the reach of the NLS/NAS content across languages and formats, a combination of machine translation (e.g. translating NLS’ digital Chinese newspapers into English), the KOS names databases (e.g. precise translation of a local personality’s Chinese name to the English name), and text mining will be applied to cluster and identify related NLS/NAS content.

4.3 USABLE

“I can use the content because I can reproduce it, manipulate & repurpose.”

NLS is already prioritising digitisation for rights-cleared or public domain items so that as much digital content as possible can be pushed out with open access. In addition, the usability of the content will also be enhanced with new access/use/reuse business models that will emphasise open access, maximum access, and easy reuse. Where open access is not possible, access to the content will still be maximised by using Digital Rights Management to restrict access to onsite viewing only, even to select workstations only dynamically.

UsABLE (For access)

4.3.1 Digital Rights Management

Advanced Digital Rights Management (DRM) needs to be applied at item level across NLB so that even within any one collection, different levels of access can be delivered according to the rights that have been cleared (or even not cleared) for each individual content item.

Instead of having staff manually retrieve for patrons the physical DVDs of digitised content that are not rights-cleared for online access, the Digital Mastepplan aims to implement DRM that can provide metadata exposure of the digital item online, and then point patrons onsite for self-service viewing-only access at NLS/NAS terminals.

In order to ape the physical item one-user-at-a-time access as much as possible, the DRM would also need to be sophisticated enough to restrict the onsite-viewing to one dynamic workstation only in NLS or NAS at any one time, for any one title. In this manner, NLB would not have significantly affected any copyright revenue streams in providing unreasonable new accesses, as any downloading/copying/printing would also not be allowed. The DRM can maximise access by allowing multiple patrons to view multiple rights-uncleared items onsite at the same time, so long as they are different items.

For digital Legal Deposit items, NLS will push National Library copyright exceptions by letting our patrons view the first few pages of the item online with no downloading/copying/printing allowed. The access is still reasonably within the confines of fair use, but to our patrons, it could mean finding the right Singapore content item from the comfort of their own homes, just from perusing the “Table of Contents” from this teaser exposure.

UsABLE (For use and reuse)

4.3.2 Policy Manager & Open Data Repository

As part of the NLB Policy Manager setup, backend access/use/reuse rights menus from NLS and NAS will be harmonised into one standard menu, with retrospective conversion of NLS content batches to the new access/use/reuse for Open Data access.

Usability of our content will be enhanced by pushing out rights-cleared/public domain content to NLB's Open Data Repository²⁰ for patrons to access and reuse to create new content. Backend management of the Open Data Repository will be supported by an integrated NLS/NAS Policy Manager, so that the full suite of rights cleared (or uncleared) for access/use/reuse would be determined upfront in the digital acquisition lifecycle and stored officially as NLB's Registry of Rights metadata and linked always to the actual digital item.

4.3.3 One Datum, Many Stories through Linked Open Data

One Datum, Many Stories is the concept of building new services through the curation of Linked Data. NLS/NAS Linked Data is first exposed as open data for direct query and manipulation. Usability is then taken further with direct access provided to developers and industry players to create new content and services. NLS/NAS can look forward to having their collections exposed through services developed externally through Linked Open Data.

Already, governments around the world have started publishing their data in this format to assist citizens in making better use of public services (Interoperability Solutions for European Public Administrations, 2013). In the same 2013 ISA report, the British Broadcasting Corporation quoted the following benefits from its own experience of publishing Linked Data on its website:

- improved navigation
- content reuse
- search engine rankings
- semantic placement of advertising

4.4 DELIVERABLE

"I can ask for content I want delivered to me in a platform or channel I desire."

If the national collection is not accessible or fully accessible via the internet, there will be delivery methods developed to satisfy the specific content needs of our patrons as much as possible and as soon as possible via digital reprographic services.

Delivery will be via:

- Digitisation on demand of public domain content
- Digital reprography (fair use pages only)

For national collection items that are in the public domain and that have not been digitised previously, NLS will digitise the entire document for patrons who wish to own the digitised copy for a fee. The digitised item will also be made available thereafter on NLB web platforms. In this way, new national content is then made available for all as the first person requesting the digitisation "unlocks" the content for others to digitally access online.

²⁰ NLB Open Datasets: Mash. Create. Collaborate: <http://www.nlb.gov.sg/labs/mash-create-collaborate/>

For items not in the public domain, NLS could extend its current print reprographic service of photocopying fair-use pages of in-copyright content for research and reference purposes, to digital reprography in scanning fair-use pages.

This will enable local and overseas patrons to be able to get hold of our content even though they may not be able to come to the NLS/NAS premises. An added convenience would also be getting such digitised content delivered directly to our patrons' desired access platform and display-optimised for that platform, e.g. To their mobile and tablets via our NLB app, or emailed to their desktop computers, etc.

4.5 PRESERVABLE

"I can rest assured that everything in the National Collection that is precious will last beyond this generation."

Last but definitely not least, preservation of the National Collection will be of paramount importance to NLB as we are the National Library and Archives of Singapore. We see digitisation and born-digital acquisitions as key to both preserving the National Collection digitally and also enabling NLB to provide access copies that can be opened up to an international online audience (for open access items) at the same time.

Hence, there will be a targeted amendment to the NLB Act in 2016 to help expand NLS's Legal Deposit scope to cover materials published in electronic and Internet forms. The amendments will provide NLS with the required powers to build up a comprehensive collection of Singapore's published digital materials and to more effectively preserve Singapore's digital cultural heritage. If the Internet published materials are not systematically collected in a timely manner for preservation, there will be a permanent loss of Singapore's cultural heritage as websites are highly ephemeral.

Our Digital Preservation System will also be enhanced with new processes to deal with the growing electronic records produced by the public sector (for NAS), and mass ingestion of born digitals (e-publications and website archivals) post-NLB Act amendments.

Taking a lifecycle approach to digital preservation, digital sustainability will be embedded as an organisational principle underpinning all digital collection activities. NLB will need to ensure that there are preservation plans, or preservation selection plans, for all digital content stored in our repository so that they can be preserved for the long term and be reliably accessed long into the future.

5 BENEFITS ACHIEVED FROM THE ABLES

The following table summarises the work/technologies needed in order to achieve the 5 ABLES as well as the benefits reaped by our patrons and librarians/archivists in the process:

The 5 ABLES		Benefits for NLB patrons and librarians/archivists	Technologies / Work needed
1	FindABLE	<i>“I can discover NLS/NAS Content in NLB, as well as outside NLB, across format and languages”</i>	
		<u>E-reference aid for patrons and librarians/archivists (1): able to successfully search and find relevant NLS/NAS content</u> <ul style="list-style-type: none"> • Able to find NLS/NAS items remotely from search engines • Able to conduct federated search from one NLS/NAS format portal for similar formats stored in multiple NLS/NAS portals 	Search Engine Optimisation. Voice to Text. Image matching. Enhancement of internal web infrastructure. Crowdsourcing to enhance item metadata.
2	ExpandABLE	<i>“I can go further than my first hit and see a wider context from what I am searching for.”</i>	
		<u>E-reference aid for patrons and librarians/archivists (2): able to find more related content than what was originally requested</u> <ul style="list-style-type: none"> • Able to expand search to discover more sources related to the original search terms 	Text mining and clustering. Knowledge Organisation System. Metadata aggregation. Linked Data. Machine translation.
3	UsABLE	<i>“I can use the content because I can reproduce it, manipulate & repurpose.”</i>	
		<u>Patrons are able to access and re-use our content easily</u> <ul style="list-style-type: none"> • Open data content (rights cleared) that can be shared with developers and NLS/NAS patrons for them to reuse and develop new content • Able to offer patrons a suite of access options online or onsite, at item level, based on rights clearances for content 	Open Data. Policy Manager. Registry of Rights. Digital Rights Management for one dynamic workstation onsite-only access.
4	DeliverABLE	<i>“I can ask for content I want delivered to me in a platform or channel I desire.”</i>	

		<u>Bringing the libraries/archives to our patrons</u> <ul style="list-style-type: none"> • Digitisation on demand (public domain books) • Digital Reprography (fair use pages only) 	Quick onsite digitisation capabilities. Digital Reprography System.
5	PreservABLE	<i>“I can rest assured that everything in the National Collection that is precious will last beyond this generation.”</i>	
		<u>NLS/NAS content will be digitally preserved in perpetuity for future generations</u>	New Digital Preservation processes for mass ingestion of born digital files. NLB Act Amendment.

6 CONCLUSION

The National Library & Archives Masterplan has been holistically structured to be a customer-centric digital library service strategy that aims to document at the micro level how technology, metadata, copyright and digital rights management, can be deployed together with good content in enriching the digital library experience for our patrons.

Through the achievement of these ABLES, it is hoped that the newfound ease of finding, experiencing and using the NLS/NAS digital collections, would in turn help to ensure a future where every Singaporean has easy access to Singapore’s past, is then inspired by Singapore’s past, and cherishes his or her personal part to play in weaving the fabric of the nation.

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