

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'être* 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.

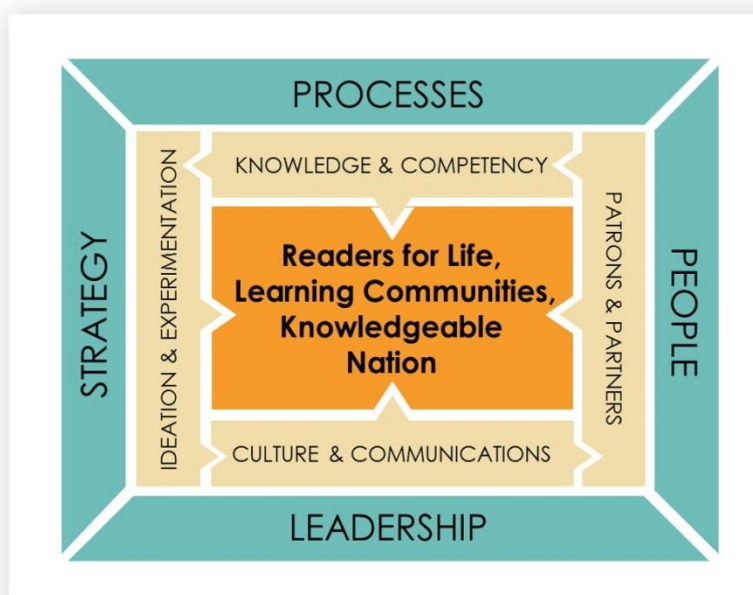


Figure 1: NLB's Innovation Framework

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.

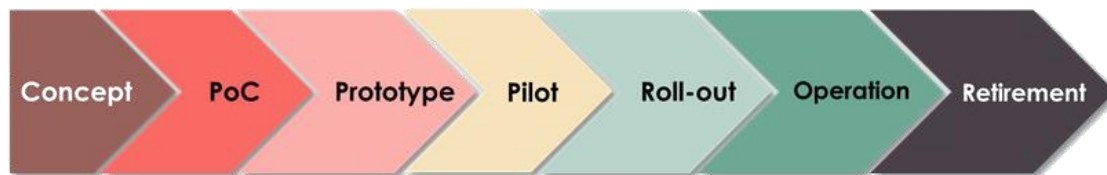


Figure 2: New Service Development Process

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.



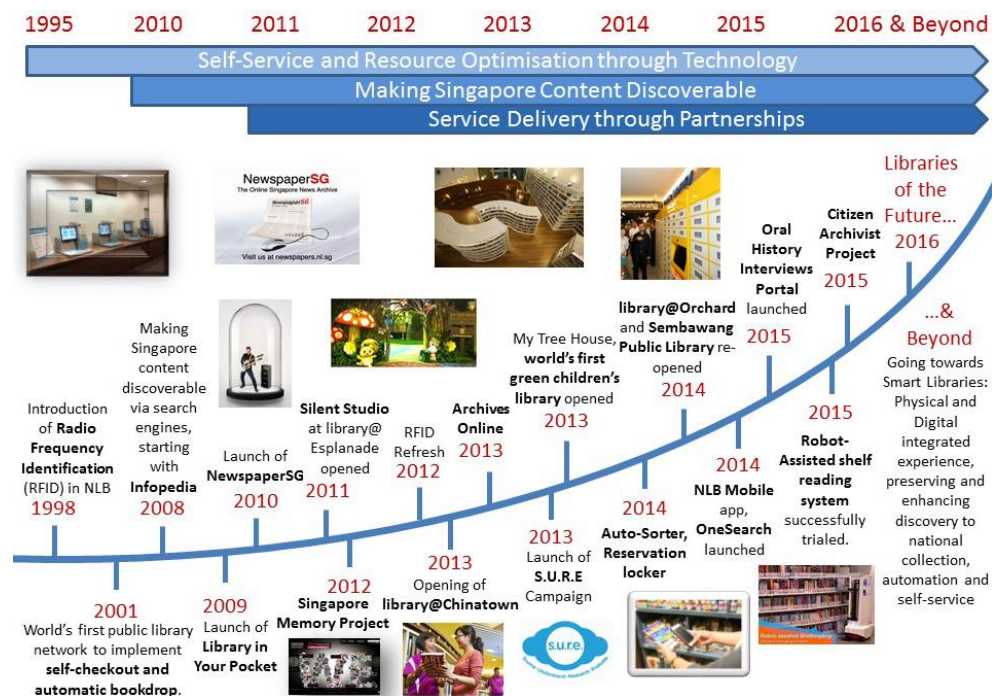


Figure 3: NLB's Innovation Journey

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).

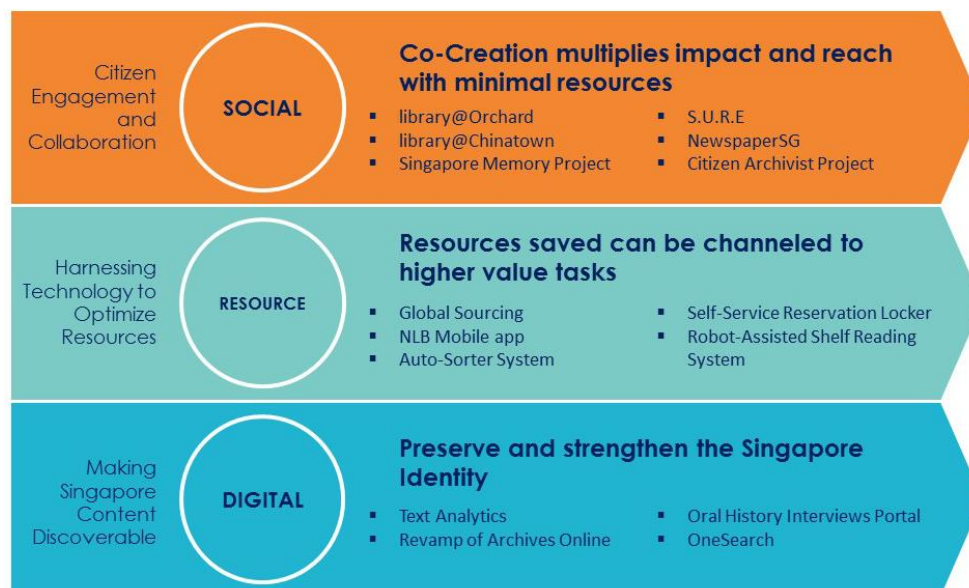


Figure 4: NLB Innovations



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.

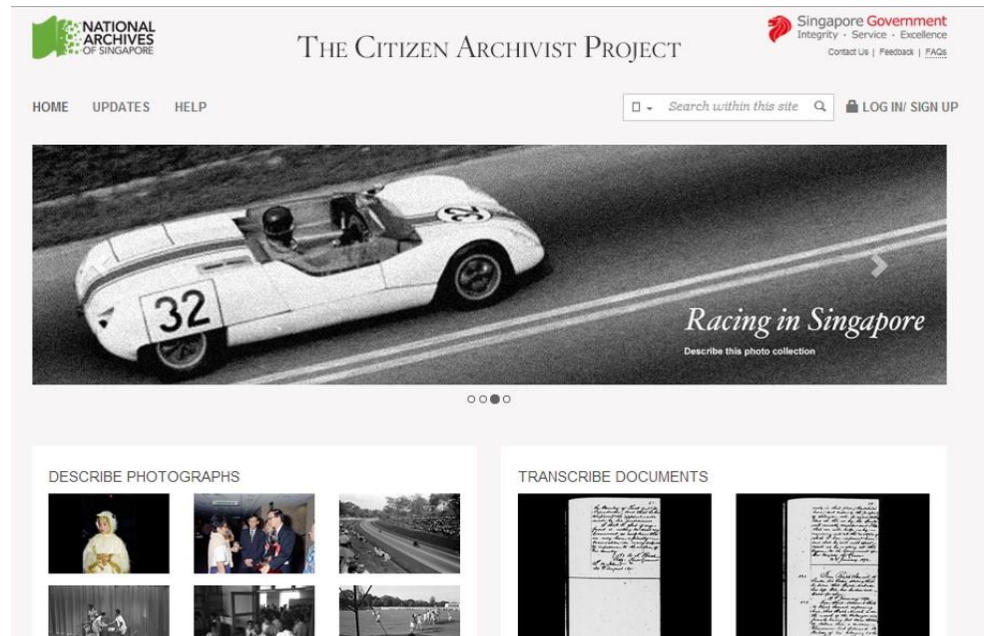


Figure 6: The Citizen Archivist Project

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.



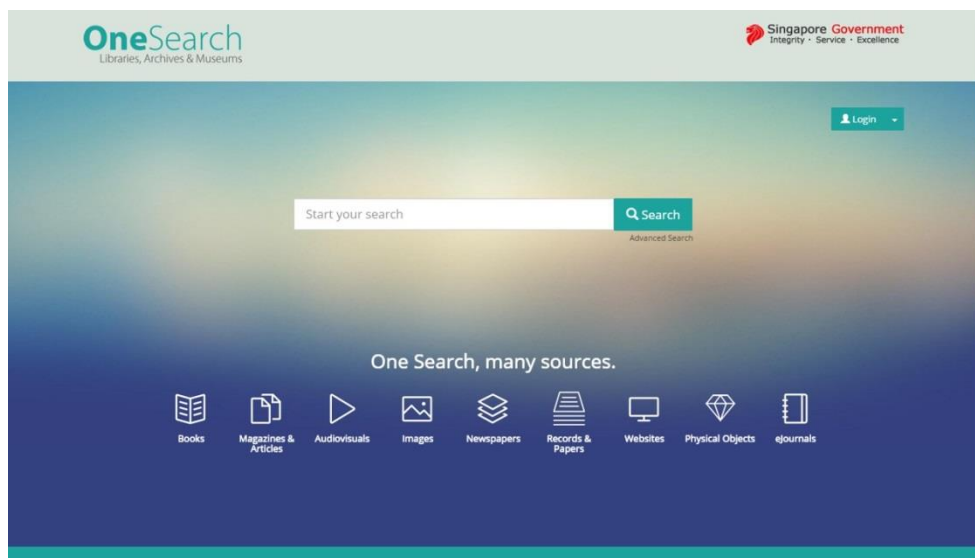


Figure 9: OneSearch - Facilitating Access to NLB Resources

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.

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