

## Acquiring, organising and providing access to digital content: The Singapore Memory Project experience

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### Abstract:

*Led by the National Library Board (NLB), the Singapore Memory Project (SMP) is a long-term national programme under the National Library of Singapore (NLS) to enable the cultural and intellectual memory of Singapore to be collected, organised, preserved and promoted for discovery and research. The key outcome of the project is the building of a national digital collection of knowledge assets about Singapore.*

*Institutional memories are central to a national collection and consist of the official published documentary content of Singapore. These already fall under the NLS' collection purview. The advances in digital technology and the power of proliferation have allowed the SMP to collect more comprehensively beyond institutional collections. It is now possible to engage citizens on a national scale to collect personal memories through crowdsourcing in both physical and digital formats. Personal memories go beyond official published content to include personal narratives, some of which are just in people's minds until they are captured by the SMP.*

*The acquisition of institutional memories involved a massive digitisation programme of the NLS' national collection and partners' materials. Collection comprehensiveness and access clearances involved whole-of-nation collaborative initiatives as well as strategic partnerships with key content agencies, local and overseas.*

*The acquisition of personal memories involved memory roadshows and leveraging on partners' events in collection of handwritten memory cards which are then transcribed for digital ingestion. Digital memory contribution was achieved through the development of the SingaporeMemory.SG portal and an SMP iOS app for Apple mobile devices. In reducing barriers to digital contribution, the SMP also explored the harvesting of blogs, tweets, Facebook and Instagram, with their accompanying selection, archival, and access challenges.*

*The SMP work has ultimately helped to highlight the important role that the NLS plays in safeguarding the documentary heritage and intellectual memory of Singapore.*

**Keywords:** Singapore Memory Project, National Library of Singapore, national digital content, institutional memories, personal memories, social media.

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## **1 INTRODUCTION**

Singapore is a bustling city state with a population of 5.18 million. It is a young nation, having become a sovereign republic only in 1965. In recent years however, amidst fast-paced developments and changes, there has been a growing awareness amongst its citizens on the need to remember where the nation came from, and how it got there. This would eventually culminate in the genesis of the Singapore Memory Project (SMP), a national memory initiative.

Led by the National Library Board (NLB) and now in its third year of operation, the SMP is a long-term national programme under the National Library of Singapore (NLS) to enable the cultural and intellectual memory of Singapore to be collected, organised, preserved and promoted for discovery and research. The key outcome of the project is the building of a national digital collection of knowledge assets about Singapore.

## **2 BACKGROUND TO THE SINGAPORE MEMORY PROJECT**

Like other libraries, the NLS constantly strives to meet the needs of its users by leveraging on technological innovations to break down barriers to content access. The SMP embraces the attributes of the Library 2.0 environment (Foo, Tang, & Ng, 2010) in advocating a socially rich, multimedia enabled, user originated and communally innovative environment that allows the NLS to make itself even more relevant and significant to its users and beyond.

The 2 types of digital content collected under the SMP are institutional and personal.

Institutional memories are central to a national collection and consist of the official published content of Singapore residing with organisations and individuals. These already fall under the NLS' collection purview and are collected comprehensively in physical form through legal deposit, purchase and donation, in order to fulfil the NLS' national documentary heritage role.

Personal memories go beyond official published content to get personal narratives and accounts by Singaporeans about their memories and experiences, some of which are just in people's hearts and minds until they are captured by the SMP. The advances in digital technology and the power of proliferation have allowed the SMP to collect beyond traditional acquisition processes. It is now possible to engage citizens on a national scale to collect personal memories through crowdsourcing.

Even though the SMP began life as an NLS project, it was subsequently positioned and endorsed as a national memory initiative (Chang, 2010). SMP was then launched in 2011 with a national call for contributions to be showcased on the SingaporeMemory.SG portal.

### **3 ACQUISITION OF DIGITAL INSTITUTIONAL MEMORIES**

The NLS' strategy of transforming the access and discovery of its physical institutional memory materials involved a massive digitisation programme in the creation of a national digital repository of items collected and contributed.

The NLS started digitising its physical materials less than ten years ago. The operations are outsourced to qualified vendors who are familiar with the digitisation requirements for preservation purposes (Chellapandi, Siow, & Asmah Eusope, 2010). To date, more than 212,000 items or 5.3 million pages have been digitised.

Digitisation helps to open up access to the NLS' national collection to an international online audience 24/7. This was to meet the growing expectations of the NLS' users to access archival materials in digital format. Visibility and use was also increased as users could now conduct full-text searches on text-based content that have OCR (Optical Character Recognition) performed on them during the digitisation process. The NLS believes that exposure of the national digital content will facilitate content interpretation (e.g. for exhibitions and publications) as well as open up new areas of research (creation of new content).

From a logistical perspective, the SMP deliberately focused on digitising from item loans from its partner agencies to cut down on physical processing and storage costs. This also encouraged contribution from collectors and organisations who may have had concerns over losing physical ownership to their primary materials previously.

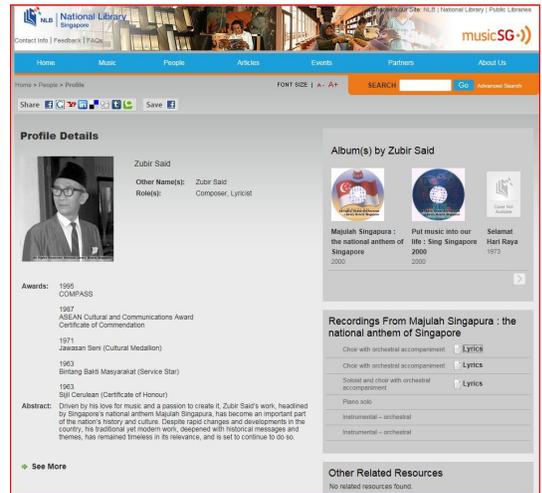
In order to collect as comprehensively as possible, the SMP adopted a whole-of-nation collaborative initiative to strategically acquire Singapore materials for digitisation from content owners such as libraries, government organisations, heritage agencies, research institutions, private donors and companies, and involving the people, private and public sectors.

A key example would be the partnership with the major local newspaper content owner, the Singapore Press Holdings, which granted permission to the NLS to digitise and provide access to Singapore's national newspaper, the Straits Times, from 1845 to 2006 (see Fig 1). Born digital copies beyond 2006 are deposited directly with the NLS for ingestion into the NewspaperSG website ([newspapers.nl.sg](http://newspapers.nl.sg)). NLB is one of the select few organisations in the world to have secured the rights to digitise or obtain and provide digital access to all the past issues of its major newspapers in a country from its first issue to almost the current day (Foo, Tang & Ng, 2010).

**Fig 1: NewspaperSG website (newspapers.nl.sg)**



**Fig 2: MusicSG website (music.nl.sg)**



Another key strategic partnership was with COMPASS (The Composers and Authors Society of Singapore) for NLS' MusicSG website (music.nl.sg), Singapore's first music digital portal set up to digitise, archive and provide access to all forms of published Singapore musical works (see Fig 2). COMPASS works together with the NLS on content development and rights clearances for the MusicSG portal. Thanks to the representative power of COMPASS in the administration of local composers' copyrights, MusicSG has been allowed unprecedented access to waive away performance rights clearances as well as minimally provide 30 seconds of libraries-only onsite access for all locally-copyrighted musical works registered with COMPASS.

Going beyond the collection of institutional memories from local organisations alone, the NLS is also working with the British Library (BL) to acquire early printed materials of Singapore and other non-published documents relating to Singapore in the BL's collection. This collaborative project aims to digitise and make available online for the first time, content relating to Singapore and Southeast Asia which are of value to the learning, teaching and research communities of the BL, NLS and the general public. The project is expected to be carried out over the next 5 years.

While the SMP aims to be comprehensive in the collection of published materials, due to budgetary and operational limitations, the selection of institutional materials from its partner organisations for digitisation is prioritised. The phasing is based on a combination of factors such as the heritage value of the items, collection and service development needs as well as rights issues for in-copyright and out-of-copyright content.

There are also costs that need to be considered for acquiring born or acquired-digital institutional memories. Before these content can be ingested, they need to go through data transformation, resizing, and prepared for digital preservation.

## 4 ACQUISITION OF DIGITAL PERSONAL MEMORIES

Personal memories are crowdsourced from the public on a national scale in both physical and digital formats. SMP is interested in acquiring all personal memories that relate to Singapore, be they past or present memories, and whether they are contributed by citizens or non-Singaporeans. To date, more than 830,000 personal memories have been collected.

Proliferation efforts to encourage contribution were targeted at the full spectrum of Singaporeans, ranging from the older generation who may have no personal computers or internet knowledge, to the younger generation of digital natives who are active in mobile and social media spaces. The SMP has experimented with multiple digital acquisition channels to accommodate as many varying modes of contribution as possible.

The main avenue for digital contribution is direct submission by the public to the SMP deposit portal SingaporeMemory.SG or via an SMP iOS app for Apple mobile devices. Public calls for contribution were issued via print and online advertisements.

From 2011, the SMP also started boosting its social media presence on platforms like Facebook, Twitter, and Instagram. While the social media platforms were initially used primarily as new engagement channels, the team quickly realised that they could also be positioned as complementary extensions of the SMP to collect personal memories online. The overall approach taken has been to reduce barriers to memory contribution. This means that the SMP will proactively go where users prefer to congregate online and capture those conversation strands rather than forcing contributors to use the SingaporeMemory.SG portal or SMP iOS app as sole submission channels (Chew & Haliza Jailani, 2012). Collection and display of personal memories are however at different levels for the various non-SMP online platforms due to their varying selection, copyright and access challenges. This will be discussed in more detail in the upcoming sections.

To address the digital divide and to ensure that the memories of the older generation are captured, the SMP organised or co-organised memory roadshows and exhibitions all over the Singapore heartland areas. At these roadshows, members of the public are invited to participate in a carnival-like atmosphere with games and snack foods, and can either write down their memories onto SMP memory cards, or bring along print family photographs to be scanned and captioned onsite. Staff are also on hand to write down memories for older contributors who can only recite their stories verbally due to problems with writing. The more adventurous contributors could also record their memories onsite in the form of digital video interviews. The team has found this roadshow outreach element to be of utmost importance as it is the only way to receive contributions from the public that are less tech-savvy. Having curated showcases of memories linked to their own neighbourhoods at these roadshows also served as effective memory triggers to encourage the public to contribute their stories amidst a positive wave of nostalgia.

In addition, the SMP tapped on the power of vast national networks created by NLB's own family of public libraries located all over Singapore, to serve as memory collection points for the public to write down their personal memories onto SMP cards. This provided convenience and easy access for anyone to contribute their stories and memories any time, island wide. As a result of such geographic reach, the MyLibraryMyHome 2012 campaign has since collected more than 57,000 cards from NLB's 24-library network.

Apart from its own memory roadshows, the SMP also leveraged on its network of over 150 partners to gather large-scale personal memory contributions from its partners' own promotional efforts and collection events. An early strategic collaboration was working with the 2011 National Day Parade Organising Committee which yielded a total haul of 126,000 memory cards. For 2013, the SMP will be the beneficiary of MediaCorp's "My Story" memory collection initiative which was launched as part of its year-long Golden Jubilee celebrations to mark 50 years of television broadcasting. MediaCorp is Singapore's leading broadcast and media company, and the digital collection campaign at [toggle.sg/mystory](http://toggle.sg/mystory) is expected to yield evocative memories of local broadcast media as many Singaporeans have grown up over the years watching MediaCorp's TV programmes / theme songs, TV personalities, and radio programmes.

The backend process however, of converting the handwritten memory cards into a format suitable for digital ingestion into the NLS Content Management System (CMS) is by itself, an extremely manual and time-consuming activity. The cards need to be painstakingly transcribed by the SMP Content Management team, card by card, into standard excel forms with pre-set metadata column fields, line by line. E.g. 600 cards would be transcribed into 600 lines in the standard metadata forms for ingestion. In order to ensure that all memories are properly contextualised, the SMP cards have minimally requested for 3 mandatory fields to be filled in: "Name of Memory Contributor", "Description of Memory" and "Date of Memory". Anything less and the contribution would either be a memory that is not linked to a person, a description-less memory, or a memory that cannot be contextualised in time.

With the mandatory 3 fields per card, this means that in terms of time motion studies, every card needs at least a few minutes each to be read through and then transcribed accurately. When you take the time-spent per card analysis and try to apply that to the 6-figure personal memory cards that the SMP team is receiving, it adds up to a considerable amount of man hours needed just to do the transcription work alone. There is no easy solution to this challenge, as the memory cards are essential to the project for reaching out to the less tech-savvy. The team is currently exploring the option of outsourcing the transcription work to external vendors. This could potentially free up precious staffing resources to value add more in the switching of productive staff time to checking for quality of the outsourced transcription work and in more optimal control of the ingestion supply pipeline.

The following are the various collection channels used by SMP in the acquisition of digital personal memories.

#### **4.1 SingaporeMemory.SG portal**

The SingaporeMemory.SG portal was launched in March 2012 as the deposit and showcase portal for all personal memories collected. It was envisioned that every Singaporean would be able to log in directly to their own memory account to deposit their stories. Digital memories can be deposited in the form of text, image (JPEG) or video (AVI, MOV, MP4 and WMV) files, with the option of including the geolocation of the memory. Contributors can submit up to 5 file attachments per memory (Chew & Haliza Jailani, 2012).

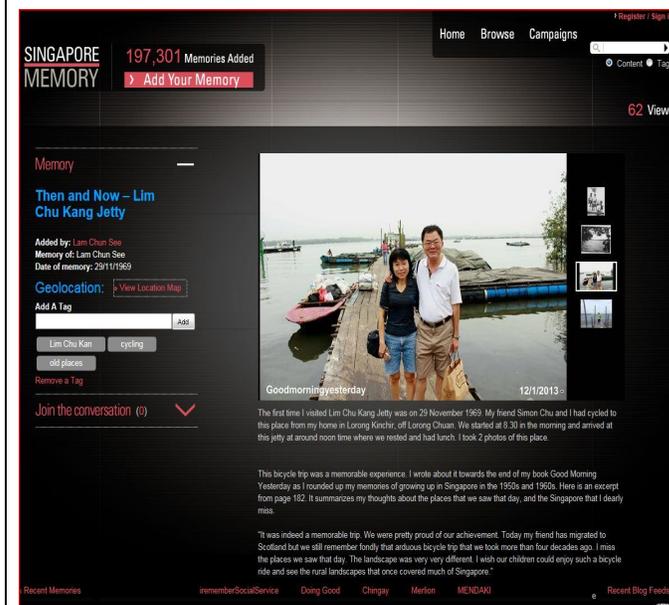
In order to reduce barriers to contribution, users can log in with their existing accounts on popular platforms, like Facebook, Yahoo, Google and Windows Live. This allows users to contribute to the portal without having to create additional online accounts (see Fig 3 & 4).

NLB registered members can also log in using their NLB Membership IDs or NLB Online IDs.

Contributions are saved directly into the NLS CMS and also published on the portal immediately. The spirit of the project is to be as open as possible, with the reliance on the community of users to help flag inappropriate contributions. Contributors also effectively agree to the Terms & Conditions of the SMP during submission in granting open access to their memories and allowing the SMP / NLS and its patrons to be able to reuse the submitted memories for non-commercial purposes, with proper attribution as contributors still reserve their copyrights. It is hoped that such open sharing and use of content will in turn help to breed new content and memories.

All users are free to browse and search the entire personal memory database without logging into the portal. Keyword searches for memories can be conducted on the full texts of all memories contributed and on major metadata fields like “Name of Memory Contributor” and “Social Tags”.

**Fig 3:** A personal memory on “Lim Chu Kang Jetty” from the SingaporeMemory.SG portal



**Fig 4:** Users can browse by the names of “Contributors” on the SingaporeMemory.SG portal



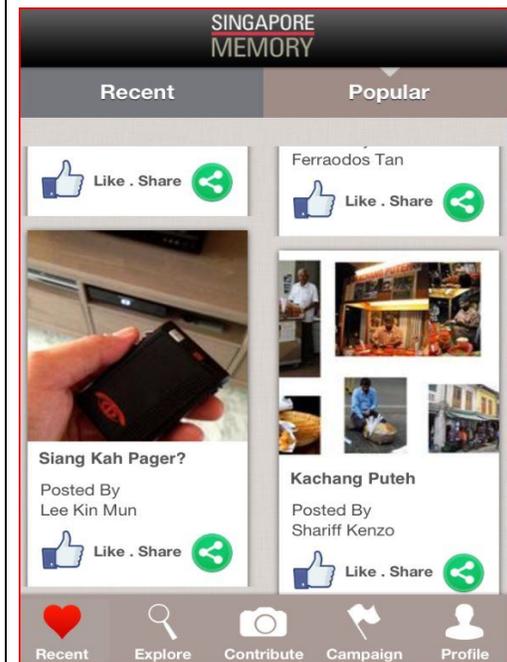
## 4.2 SMP iOS app for Apple mobile devices

Along with the portal, an iOS app (called SG Memory) was launched in April 2012 for Apple iPhones, iPads & iPod touch, and released through the iTunes App Store. The app was specifically developed with the mobile generation in mind and served to increase the accessibility of SMP online submission channels (see Fig 5). It was also part of the SMP’s positioning that memories could be captured as they happen, and helped to address the common misconception that the project is only interested in memories that happened in the distant past. By allowing a more immediate means of submission, it was hoped that users could also consider submitting more current and recent memories (Chew & Haliza Jailani, 2012).

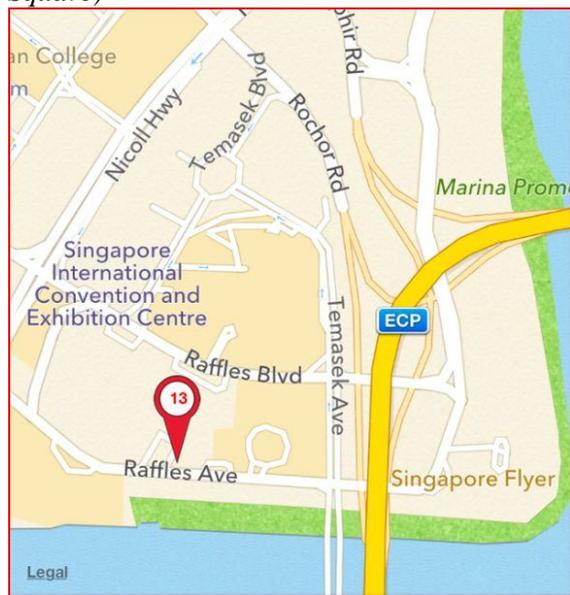
Similar to the SingaporeMemory.SG portal, memories contributed by others can be searched and browsed without logging in; but uploading of memories would involve the same log in procedures like the portal. Digital memory contribution via the iOS app is also similar to the portal and can be in the form of text, image (JPEG) or video (MOV) files. Users can submit up to 5 file attachments per memory, along with the memory’s geolocation. Personal memories submitted via the iOS app are stored directly into the same NLS CMS, and will also be displayed and accessed on SingaporeMemory.SG portal, exactly the same way had they been contributed via the portal.

A unique feature of the app though is that it provides a visual way of browsing for geographically-located memories that have been geotagged by the contributors in the portal or app submissions (see Fig 6).

**Fig 5:** SMP iOS App showing “Recent” and “Popular” memories contributed



**Fig 6:** SMP iOS App showing collocation of 13 memories that have been geotagged by contributors to Raffles Avenue (Marina Square)



### 4.3 Blog pledging

To capture the personal memory element of the online Singapore experience, the SMP also embarked on a blog pledging initiative. Viewed from the perspective of the SMP, blog posts are online records, diaries and memoirs that represent a valuable source of an individual's expressions of and about Singapore. Posts that are not necessarily about Singapore, but are written by Singaporeans, are also valid thematic expressions relevant in telling the Singapore story. Aggregator blogs and corporate blogs / websites are however, excluded from the blog pledging initiative.

The SMP had already noted from its portal and iOS app collection experiences that the project could not just rely on people coming to our 2 official online channels alone for memory contribution. It was even slightly arrogant to assume that the project would be able to capture the significantly larger Singapore conversation going on in the blogger universe without the SMP proactively venturing out to where users were congregating online already. It became clear that there would be an ongoing need to conduct online harvesting of memories.

The first challenge for the SMP was to identify – on a large scale – blogs and blog posts relevant to the project, and to be able to contact and obtain permissions from the content owners. Collecting the blog posts would require the same considerations as collecting personal memory content from individuals or partners, where copyright owners of the content have given their explicit permissions for full access and non-commercial reuse by SMP and NLS patrons.

Initially, the SMP commissioned a vendor who would identify relevant online content using data-mining, handle the process of contacting blog owners for pledging permission, and then capture the web addresses of individual blog posts from those bloggers who have pledged, for submission to the SMP. As of June 2013, more than 327,000 blog posts have been pledged to the SMP from 1,021 bloggers. The team has since started a very synergistic collaboration with Ping.sg for identifying Singapore-related blogs for pledging. Ping.sg is already a successful independent blog aggregator service with 25,000 Singapore blog sites registered with them. Ping.sg will also help to curate and showcase interesting and prominent blog posts pledged to the SMP. Mining of the blog posts' individual web addresses will however still be done by the original vendor, based on blog URLs provided by Ping.sg.

Another consideration aspect is the presentation of such blog posts so as to enable users to make sense of them next to other forms of personal memories submitted from various channels. The blogs themselves are the best way to present the context of the blogger's original expression of intent. As they are already online and publicly available, it would seem that the best way would be to do a showcase of the individual bloggers that have pledged on the SingaporeMemory.SG portal, and then provide links pointing users back to the parent blog sites for access.

However, as blog posts are ephemeral in nature, the NLS also needed to address the corresponding long-term archival issues as well as searchability issues for future research purposes. This was achieved from the NLS submitting all blog posts' individual web addresses to a web crawl in order to archive all the blog posts as HTML files in the NLS CMS. The blog posts' texts will also be indexed at the same time, so as to enable a full-text search of the blog posts if needed. Decisions on public access and display are still being thought through, but the backend archival processes ensures for now that the HTML blog posts can be displayed and searched optimally should the NLS choose to display them in NLB's web archived portal , with even the “comments” of the blog posts preserved.

#### **4.4 Tweets**

The SMP initially adopted the Twitter platform as a means to engage Twitter users using the handle of @irememberSG as a tie-in to the SMP companion blog [www.iremember.sg](http://www.iremember.sg) and its official Facebook page. The number of “Followers” was modest at the start, but as with most

social media platforms, Twitterverse engagement was as much about pushing yourself out to like-minded people to let them know that you are “Following” them, as with getting fans to be “Followers”. The initial folks that the SMP followed were SMP partners and local bloggers active in the social media sphere.

The team felt that the fastest way to create communities of people in Twitter interested in the same topic, in this case Singapore memories, was by making it easier for them to find and share information related to that topic. This was normally achieved in the Twitterverse by inventing a catchy and easy-to-remember hashtag. So in March 2012, the SMP experimented with a Twitter campaign, and created the hashtag #SGmemory as a way to uniquely identify tweets that were related to the SMP.

This resulted in the #SGmemory hashtag trending on Twitter over 3 days, generating more than one million impressions and over 10,000 tweets with the #SGmemory hashtag. It became clear that memories could also be expressed as individual tweets (Chew & Haliza Jailani, 2012). Twitter seemed to be an exceptionally spontaneous channel to generate shared memories as it was messaged totally on the fly and kept things loose, short, and sweet at 140 characters per tweet.

As a result of the successful campaign, there was a modest but steady stream of tweets thereafter with the #SGmemory hashtag and effectively identified tweets as relevant memories for the SMP. To date, we have collected over 38,000 tweets and have more than 1,700 Twitter Followers as at June 2013.

The team is currently evaluating options on ways to collect, organise, display and hopefully provide access to its tweets. Some of the ways include leveraging on Twitter APIs, or third-party tools, to retrieve and export tweets into excel metadata spreadsheets for archival purposes. The original look and feel of the tweets plus any image attachments will not be retained in storage and display, but the raw content, dates, and Twitter names & handles will still be preserved.

#### **4.5 Facebook & Instagram**

Facebook (FB) was the first social media platform that the SMP dived into as part of its digital engagement programme in 2011. The moniker of “irememberSG” was adopted as our FB name and served as the project’s synchronised name on major social media platforms. Over time, fan support for the SMP FB page has grown to more than 32,000 likes as at June 2013. The SMP is also on Instagram with the same user name of “irememberSG”. Photographs taken in the SMP’s Instagram account are shared to the SMP’s FB and Twitter pages.

As aforementioned, the SMP had already established #SGmemory as a key hashtag for people to share their Singapore memories on Twitter. The team then extended the hashtag usage to Instagram in encouraging people to use #SGmemory as the key hashtag for Singapore-related photographs. As at June 2013, there are over 12,000 photographs on Instagram with the #SGmemory hashtag. This is a modest collection compared to the over 1,006,000 photographs using the #SGIG hashtag, which is the most popular Singapore-related hashtag on Instagram.

To tap on the SMP's growing FB fanbase and the largesse of Singapore photographs on Instagram bearing Singapore hashtags (e.g. #SGmemory, #SG, #Singapore, #SGIG, etc), the SMP commissioned a vendor to develop an FB app that will serve as an online submission form for digital photographs on the irememberSG FB page.

A campaign in the later part of 2013 will aim to reach out to Instagram and online users to use this FB app. Upon log in, users would be able to view, select and then pledge their digital photographs to the SMP, either by:

- Facebook – choose albums or select photographs
- Instagram – select photographs
- Desktop computer – select photographs

The FB app will harvest all the digital photographs along with metadata of usernames, captions and dates of submissions for eventual ingestion into the NLB CMS. The digital photographs can then be displayed and accessed on the SingaporeMemory.SG portal.

Going forward, the team will continue exploring more options of getting Singaporeans to pledge even more of their online digital footprint in support of the SMP.

## **5 ORGANISATION OF DIGITAL CONTENT**

Other than the showcase of personal memories on the SingaporeMemory.SG portal, organisation of the digital institutional materials collected by the SMP is by format type into a consolidated NLS CMS of Singapore digital content.

To enable maximum reach, the CMS serves as a 'content-as-a-service' platform that stores content by format type and is decoupled from the online services that consume the content via APIs. This service architecture has allowed NLS to develop Singapore content microsites that are search engine friendly so as to further enlarge the coverage and reach of the content online.

The consolidated CMS currently has NewspaperSG (for newspapers), BookSG (for monographs), PictureSG (for photographs), MusicSG (for music), Web Archive Singapore (for archived websites), Infopedia (for Singapore-encyclopedic articles) and SingaporeMemory.SG (for personal memories). Each content microsite has been custom-developed for optimal display and access peculiar to each particular format type.

## **6 ACCESS OF DIGITAL CONTENT**

To handle the various copyright situations arising from the different types of content contributed, a menu of different digital access rights have been offered and accepted by SMP partners and the contributing public. Digital rights management is then imposed on the access of the digital content as desired by the copyright owner / content provider. This could range from remote access to onsite access only at NLB libraries, and/or disabling of the copying and downloading functions.

The predominant spirit of the SMP is to offer remote and open access to as much digital content as possible. However where copyrights are not fully cleared or in doubt, the NLS is in

the process of examining its options as a National Library to provide onsite limited viewing access only of the digital content for research and reference purposes, with no downloading or printing allowed.

There is also an NLB Takedown Policy (<http://www.microsite.nl.sg/TakedownPolicy.html>) in place to handle removal of orphan digital works which NLS has done reasonable investigations for and failed to uncover the copyright owners. Such digitised content will still be put up for access until such time the true copyright owners notify NLB of their claims to the content.

## **7 CONCLUSION**

Although there will be many challenges ahead, the project promises to be an exciting time for all Singaporeans as the spirit of the nation becomes documented by the collective efforts of all citizens of Singapore. The outcome – a People’s Memory of Singapore – will be a look-back at Singapore’s development from the point of view of every Singaporean, and a gift to future generations.

Perhaps the most vocal supporter of the project so far has been the Prime Minister of Singapore, Mr Lee Hsien Loong, who has showcased the SMP in 2 separate National Day Rally speeches in 2011 and 2012. On both occasions, he stressed the importance of having memories come together to define the Singapore Story. “Individually,” he said, “these are our life's experiences. Collectively, these bind together to become the soul of the nation.”

Fauziah Ismail, Associate Editor of the New Straits Times, also wrote about her thoughts on 26 March 2013 in the same paper, after being approached by the SMP to pledge her own personal blog posts: “I received an email from Singapore’s National Library Board recently, inviting me to pledge my blog to the Singapore Memory Project... Indeed, what we write, especially our own experiences, can be documentation to the history of the country. Real history is written in people’s everyday lives... I can imagine this to be a mammoth task... but the fact that this is being done shows how serious the Singapore government is in preserving history in whatever form it comes in...”.

This confirms the growing recognition that a national digital collection goes beyond just institutional publications. It needs to extend to include the individual voices of its people. Putting the national digital content online will provide opportunities for librarians, researchers and citizens to explore, engage and curate these memories into various perspectives to be further discovered as new knowledge assets. The SMP work has helped to highlight the important role that the NLS plays in safeguarding the documentary heritage and intellectual memory of Singapore.

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