Increasing accessibility to Electronic Resources
- Experiences of the NUS Libraries -

Introduction to the NUS Libraries

Towards a global knowledge enterprise – this is the vision of the National University of Singapore. The NUS Libraries supports this vision and aims to be a premier information hub. The NUS Libraries comprise of 6 libraries.

The Central Library serves the faculty of Arts & Social Sciences, School of Design and Environment and the Faculty of Engineering. The collection comprises materials on Singapore/Malaysia, Architecture, Building and Real Estate, Engineering, Arts & Humanities and Social Sciences.

Our Chinese Library which is the 3rd largest outside China holds materials on Chinese studies, South East Asia, Classics and Chinese Overseas. One important electronic resource we have is the Chinese Journal Net (CJN). Recently, our Japanese collection which was housed separately was integrated with the Chinese Library.
The CJ Koh Law Library is Singapore’s most comprehensive law library. It was named after the late Mr C J Koh in appreciation of a generous donation made by his trustee. The CJ Koh Law Library focuses on Singapore Law, UK Law, US Law, ASEAN Law as well as the Laws of China.

The Hon Sui Sen Memorial Library provides services primarily to the NUS Business School. It was established in memory of the late Mr Hon, former Singapore Minister of Finance. The Library specializes in collections on business, finance and management. It also holds a comprehensive and sizable collection on Annual reports of Singapore companies.

The Medical Library is the de facto Medical library in Singapore. It has the most comprehensive medical collection and its main focus is medicine, dentistry and pharmacy. The Medical Library is one of the best in this region.

Our Science Library holds collections on biological sciences, chemistry, computer science, mathematics, statistics & applied probability, material science and physics.

The six libraries serve a diverse group of users. Our priority users are the staff and students. As at June 2004, the library
membership stands at over 50,000 members where more 75% are staff and students.

In addition to the NUS community, we also serve beyond NUS by providing services to the NUS alumni, faculty & students of other tertiary institutions as well as the Research & Development (R&D) community in Singapore. The NUS Libraries manages the electronic subscriptions of Singapore’s Agency for Science, Technology and Research (A*STAR).

The NUS Libraries’ print collection has grown from strength to strength each year. However, the growth has slowed down because of smaller budget allocations. The total number of unique titles now stands at over 1.18 million. The number of internet resources, media programmes and microform resources stand at over 22,000 for each format.

In terms of volume, the total has now increased to over 2.3 million. The book collection now stands at almost 1.6 million while the journals more than 700,000.

The number of active print journal subscriptions stands at 13,512 with 9,694 paid subscriptions.
As you can see we have a very rich print collection which the NUS Libraries’ members are privileged to have. While we continue to build the print collection, we have also consciously expanded our Digital Library. It is not possible for us to move completely to a digital base because of our responsibility as a major academic and research library that supports not only the NUS community but also researchers outside the NUS. Also, not all materials have the e-version.

**Strategic goal – increasing accessibility**

The NUS Libraries’ first strategic goal is to provide timely and user friendly access to relevant information. It aims to promote and facilitate access to on-site and remote information services. As such the main action plan was to expand the electronic resource collection. Together with a federated and our library portal we hope to increase accessibility even further.

NUS Libraries use the Innopac system. Our OPAC is called LINC which stands for Library INtegrated Catalogue. LINC is the key to over 1.2 million unique titles.
The Digital Library

The size of the NUS Digital Library had increased exponentially over the years. To expand the collection, apart from purchasing or subscribing, we also digitize our own collection. The majority of the electronic collection is accessible via IP authentication both on campus and off campus for our authorised users. It has been a boon to our staff, students and researchers to have immediate access to a vast resource of electronic databases, books and journals.

From 1993 – 2003, the number of electronic resources subscribed by NUS Libraries increased 9 fold. The number of ejournals increased to 12,789. Our strategy is to license complete bundles of journals from major publishers like – American Chemical Society, Blackwell Publishers, Cambridge University Press, Elsevier’ ScienceDirect, Kluwer, Oxford University Press and Springer. Most of these bundles are tied to our print subscriptions. This allows us to retain the print journals while at the same time negotiate for affordable access fees.

We now have more than 100 databases accessible via several platforms. They include several databases from SilverPlatter, Cambridge Scientific Abstracts, ISI’s Web of Science, etc. Eg. Of
such databases are ABI/Inform, Business Source Premier, Factiva, IEEEXplore etc.

The ebooks grew steadily but did not grow as quickly as well as the journals. The number of ebooks grew to 8,634. We purchase ebooks mainly from netLibrary. We also have some ebooks from Springer and our Singapore University Press, which is the University’s Press.

Today, we still have a number of full text CDROM subscriptions. They are patents, ASTM, ISO, BSI and ITU standards, some international newspapers and law reports. These CDROM subscriptions are very costly to convert to online access.

Besides increasing the collection by site licensing, several Library digital projects have been carried out over the years. The digital projects include both linking electronically and digitizing resources. Examples of our digital projects include indexes, library publications, table of contents, preservation and online art galleries.

The digitization projects include Digital Media Gallery, Video on Demand, Examination papers, ebooks.
The Digital Media Gallery aims to be a central depository of digitized resources for the NUS community. It contains audio, videos, images, clip art and photographs. Here we have two photograph collections – Historical photos of NUS and the Vanishing scenes of Singapore.

The useful navigation feature for videos enables the faculty members to incorporate these files easily into their online courses.

The Library also purchased and licensed videos with copyright clearance so that they can be mounted on the Video on Demand system. These VOD programs are streamed to students’ desktops wherever they are on campus. Access is restricted to students taking the course only.

Another important resource which we digitize is past examination papers. Although some are given to us in softcopies, many of them are in the usual printed form. They are scanned and loaded into the database using the BRS software. These are highly in demand just before the examinations. The online examination database is searchable by course number, course name, department and faculty. The access is restricted to NUS staff and students only.
In collaboration with the Singapore University Press, we have digitized 10 of their books. These ebooks are restricted to NUS staff and students only.

The NUS Libraries also produce online indexes. One example is PERIND. PERIND is an index to articles, book chapters and conference papers relating to Singapore, Malaysia, Brunei and ASEAN as an entity. This has resulted in a publication called SMC Ondisc published by RMIT Publishing. Other indexes compiled are the Southeast Asian Studies database, Index to Singapore Acts. A new project in the pipeline is the Chinese Overseas Periodical Index.

We have also published several online library publications. They include Singapore literature, Statistics on Singapore, Primary materials on Chinese Education in Singapore, 1819-1959 and a Sense of History.

We also enrich the catalogue by adding Table of Contents. We purchase the TOCs from Blackwells. We also create them ourselves for some Chinese books with Singapore/Malaysia content.

Preservation of newspapers, rare books and speeches by digitization on a small scale is also one way to increase accessibility.
Examples of our digitization projects include, Lat Pau – an old Chinese newspaper, Journal of three voyages along the coast of China in 1831, 1832 & 1833, Speeches by distinguished speakers and 3 rare books on Singapore in the Japanese language.

To preserve some of the art pieces donated to the Library, we have created an online art gallery. The gallery include paintings donated to the Chinese Library. We also inherited some of Mr CJ Koh’s paintings which we have preserved and made them online for all to view and enjoy.

Recently, we embarked on creating an e-reserves for recommended readings for students. The e-reserve accessible via the University’s homegrown Integrated Virtual Learning Environment (IVLE) provides links to subscribed journal articles and scanned documents. Access to the documents is restricted to students taking the particular course. This has increased accessibility and reduced a certain amount of workload at the Loans Desk. The service has been received very well by both the faculty members and students.

For requested articles which are not in our collection, we provide a document delivery service. Users request for documents online. The Library sends requests to suppliers using Ariel. On receipt, the
documents are sent to user’s desktop electronically. Due to the vast resources which we have, the DDS service receives about 4,000 requests last year. Requests are sent to suppliers and forwarded to library users via Ariel.

To assist our users in knowing which resources and how to check them, we conduct user education programmes. To enable users to teach themselves at their own pace, we have provided an online library instruction called LION. LION promotes information literacy and teaches users how to locate and evaluate information.

Federated search
As you can see we have a vast collection of electronic resources. It is time consuming for users to have to check resource by resource instead of several databases with a single search.

In August 2003, we implemented EnCompass and LinkFinderPlus which we called InfoGate. InfoGate enables users to execute one search across multiple databases. They can select to search indexes and abstracts, journals and library catalogues all at once. The results presented allow them to link from bibliographic citations to full-text documents. They can also check our local holdings.

The following screen shots show how InfoGate works.
**Proxy Server**

While our strategy is to increase accessibility, we also had to be responsible in ensuring that our users do not violate permitted use of the resources which we have licensed. As such a proxy service was commissioned and implemented in March 2003. Users will only gain access to the electronic resources after authenticating successfully with their NUS network IDs and password.

This service alerts the Library whenever there is excessive downloading. Action is then taken against the user. In future the system will be enhanced to alert users in real time, immediately instead of one hour later.

**Library portal**

To provide a one-stop access point for library users, the library portal was designed and implemented. This service requires a convenient single sign on to myLINC, library proxy and the eforms. Users can personalize preferred services. This way they will see only what they have selected.
Alert services

Users will also be able to receive automatic email alerts on new acquisitions. This alert service will be extended to electronic journals using InfoGate in future.

Wireless services

Finally, we will also be adding wireless services which take advantage of the campus wireless LAN. Currently, users can search the library OPAC via WAP enabled mobile phones. At the end of July, we target to launch AirLINC which will make the catalogue available on pocket PCs.

Conclusion

From our experience, we find that to increase accessibility to electronic resources, support from management, library and IT staff, good IT infrastructure and most importantly funding. Also important is the willingness of publishers to partner libraries to make their resources available to as many researchers as possible without charging exorbitant fees. Without funding it would be near impossible to increase accessibility. Without the support of IT staff
and dedicated library staff, projects will not be implemented smoothly.

All libraries face the same set of challenges – how to purchase more with a decreasing budget – balancing print with electronic resources. What do we do when publishers increase their prices sky high? How do we add more value-add services to meet user demands?