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## Transforming Singapore's Public Libraries

*Our purpose is to continuously expand the nation's capacity to learn through a national network of libraries and information resource centers providing services and learning opportunities to support the advancement of Singapore.<sup>1</sup>*

—Library 2000 Report

In May 2001, Dr. Christopher Chia, the chief executive of Singapore's National Library Board (NLB), showered visitors with facts as he ushered them around the recently renovated National Library on the island's bustling Stamford Road:

In six years we quadrupled the visitorship, tripled the collection, and doubled the membership and the physical space. We increased our loan rate from 10 to 25 million books without a corresponding increase in staff and generally reduced queues from 60 to 15 minutes. Four times more people walk around a space not more than twice the size, yet queues have been eliminated and libraries feel more spacious. No jobs were lost. Eight hundred thousand members joined the library during the first 35 years of the library system compared to 1 million in just the last five years. Nearly half of our population are now members of the local public library.

"We felt that if we could meld a highly motivated staff with modern marketing and information technology," Chia continued, "the results would come." Since 1995, Chia and his management team had used information and communications technology to deliver what they described as cutting-edge products and services to enhance the quality of the learning experience and to cut costs and improve internal processes and communication. The team also worked on changing the public's image of the library from a book repository to a place for the people to learn, explore, and discover; and to recast librarians as service-oriented "cybrarians" rather than custodians of materials. These professionals would help make Singaporeans "knowledge navigators" through training in information search skills. However dramatic the transformation, to the NLB team it was only a first step towards its ultimate goal of creating the "any time, any place" e-library of the future that would complement the physical network of libraries in promoting social interaction and community bonding.

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<sup>1</sup> *Library 2000—Investing in a Learning Nation*, Report of the Library 2000 Review Committee, Singapore, 1994.

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## Context

Founded in 1819 and independent since 1965, the city-state of Singapore covered an area roughly the size of Chicago. Most of Singapore's four million people enjoyed a high standard of living; 1999 GDP per capita was US\$27,800 (see **Exhibit 1** for comparative indicators). With minimal natural resources, Singapore had worked hard to become a regional business hub. Singapore was known for the professionalism of its civil service and the success of its development planning.<sup>2</sup> "We are a pragmatic country." Minister Lee Yock Suan, the Minister for Information and the Arts explained. "When we see a problem, we analyze it objectively and put the right people together to find a solution."

In response to space and manpower constraints, development policy in the 1990s focused on Information Technology (IT), education, and training. The government financed such investments with its recurrent budget surpluses (about S\$6 billion in 2000).<sup>3</sup> In the early 1990s, the government's IT2000 plan called for the construction of an advanced national information infrastructure, including extensive fiber-optic and cable networks that could connect every home, school, office, and factory.<sup>4</sup> These investments supported Singapore's aim of becoming a "learning nation"—one that competed on the basis of information and knowledge. By 2000, three out of four homes owned PCs, and about half had Internet access.

The Singaporean work ethic was pervasive. "We are all workaholics," some residents fancied telling visitors. Self-improvement books were very popular. Parents were intent on getting children to read early and often, and all children were required to learn a second tongue. The Singapore constitution enshrined a multi-language polity; and all government offices, including the libraries, provided documents and services in four languages. About 75% of the island's population was ethnically Chinese, 15% Malay, and 6% to 7% Indian, of whom 4% were Tamil. Singapore's literacy rate was 93%; 71% of the populace was literate in English, the country's official language.

### *Singapore's Libraries in 1992*

In the early 1990s, improving the nation's library system became a government priority. A 1992 survey revealed that the public found the comprehensiveness and accessibility of the Singapore Library's collection, services, and facilities inadequate. Only 12% of the population visited a library at least once a year and membership was shrinking. Libraries were cramped, book pages were ripped, carts of unshelved books crowded libraries' aisles, and the average shelf-life of a book was 11 years. Each branch offered similar collections and services. Few improvements had been made in the 1980s, and the Singaporean system continued to lag far behind that of other developed cities. For example, in Glasgow, Scotland, one public library served 65,000 people, versus one for every 200,000 people in Singapore. Finally, it had become clear that the historical practice of replicating branch libraries in nearby towns (within Singapore) was no longer the best way to cater to the diverse needs of the community and support the national agenda.<sup>5</sup> Minister Lee summarized: "Feedback from the community showed that libraries were the most sought-after social infrastructure in our new towns."

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<sup>2</sup> *Singapore: EIU Country Profile 2000*, The Economist Intelligence Unit, 2000.

<sup>3</sup> US\$1.00 = S\$1.73.

<sup>4</sup> For more background and context on Singapore's development strategy, please refer to Lynda M. Applegate, Neo Boon Siong, and John L. King, HBS case No. 196-012, "Singapore Unlimited: Building the National Information Infrastructure."

<sup>5</sup> Library 2000 report, 1994.

Enhancing our people's capacity to learn was also a strategic priority in our quest to build a knowledge-based economy."

## Library 2000—Investing in a Learning Nation<sup>6</sup>

In 1990, Singapore established the Ministry of Information and the Arts, vesting it with the responsibility for managing the public library system. Its first Minister, George Yeo, explained:

My ministry borrowed its mission from the BBC—"to inform, educate and entertain." This was expanded and applied to reinventing libraries and supporting the growing demands of a more sophisticated user base. Libraries had to change as technological advances were affecting the way users obtained information and knowledge and how libraries could better serve them. The philosophy of libraries as a place where people go when they wished to borrow titles or research had to be re-examined.

In June 1992, Minister Yeo set up the Library 2000 Review Committee and appointed 20 senior representatives from the public, academic and private sectors to review local library services and recommend improvements. The committee considered how libraries could help Singapore become a "first league developed country" in terms of economic dynamism, quality of life, national identity, and global reach. Their recommendations were contained in the Library 2000 (L2000) report. Dr. Tan Chin Nam, then Chairman of the National Computer Board (NCB)<sup>7</sup> and then the Managing Director of the Economic Development Board (EDB),<sup>8</sup> was appointed Chairman. He summarized:

The library function has a national competitiveness dimension as well as a quality-of-life dimension. We think of it in terms of purpose, process, and people. The purpose is about making Singapore a learning nation and empowering people. The process is about the library function and providing customer-centric services. The people part is about making our citizenry information-literate.

The committee recommended that libraries impart (1) knowledge navigation skills, (2) use of information skills, and (3) love of reading, as well as promote an appreciation of culture and heritage. They were to establish links with business, industry, and the community, not least by being built as part of cultural, educational, and commercial complexes rather than being housed in stand-alone buildings. Such co-location also gave libraries more flexibility to expand or relocate based on demand patterns. The L2000 report outlined six strategic initiatives, ranging from increased community outreach to a new segmentation of libraries, to be implemented in stage-by-stage pilot experiments. "We wanted rapid prototyping and the ability to transplant experience gained from renovating or building one library to the renovation or building of another," Tan recalled. "We said that we will try things; if they work, we will quickly enhance and spread them around. If they don't, we will retire them and look for alternatives."

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<sup>6</sup> Ibid.

<sup>7</sup> The NCB was established in September 1981 as the government agency responsible for developing Singapore's IT Policies and for driving Singapore into the information age. Its early focus included computerizing the civil service, developing sufficient IT manpower, developing the computer software and services industry, as well as raising IT literacy among its people. NCB was merged with the Telecommunications Authority of Singapore to form the Infocomm Development Authority (IDA) of Singapore on December 1, 2001 under the reconstituted Ministry of Communications and IT.

<sup>8</sup> Since the mid-1960s, the EDB sought to attract foreign investment to Singapore.

The L2000 report was submitted and approved in March 1994. In September 1995, a new statutory board, the National Library Board (NLB), was formed to transform the Library 2000 vision into reality and to lead library development in Singapore. As a governmental statutory board, the NLB had some discretion in financial and human resource matters, allowing, for example, pay for performance and market-based salaries. In 1996, at a time when most countries were cutting investments in their libraries, the Singapore government announced a S\$1 billion capital commitment to the NLB through March 2004.<sup>7</sup>

A significant part of the budget was to go towards the design and construction of a new National Library building; with the rest, the NLB was to quadruple its book collection, triple its gross floor space, and use IT to improve services and operations, including bringing the library to readers. The IT budget was set at S\$100 million. "We got the budget by arguing that we have to empower our people to learn to compete in the knowledge economy," Tan explained. "We had a Minister who was very pro-library," added Julie Sabaratnam, Secretary to the Library 2000 Review Committee.<sup>8</sup> "We said, 'If we are going to do it, we are going to do it right!'"

## Enabling Change

L2000 and the establishment of the NLB meant that the whole idea of what a library did and how it did it would change. That transformation would rest on three pillars: (1) organizational leadership, defined as a flexible structure and an effective management system; (2) technology, to speed, streamline, and improve service to patrons while increasing the efficiency of library operations; and (3) human resources, to attract, train, retain, and motivate high-quality staff.

### *Organizational Leadership*

Tan tapped Christopher Chia, formerly from the NCB to be NLB's Chief Executive. Described in the press as one of Singapore's "top technology researchers," Chia brought with him the NCB's 3P philosophies: professionalism, partnership, and people. According to managers, Chia built a management team that helped boost staff confidence, introduced improvements, and reduced resistance to change. A certain understanding emerged: "Professional librarians knew what customers wanted, and Chia helped them to deliver it in more efficient ways," a manager noted. "He didn't question what they knew, and they came to trust new delivery mechanisms."

Chia's energy and self-deprecating humor set a particular tone. Described as an ambassador and communicator, Chia worked from 9:00 a.m. to 9:00 p.m. when not attending functions or holding early morning "sharing sessions" with library staff. He explained his philosophy:

In a transformation you have to start many things at once. About one-third of what you try will fail, but that is the cost of change. We felt that the first three years would be key. We also felt we had to move faster than they could catch us. Of course, speed is not everything—what we did is like a net. Everything is interrelated. We could not introduce change in small bite sizes one at a time. Every change had an impact on other changes. We had to coordinate and move simultaneously on all fronts.

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<sup>7</sup> FY 2003 ends in March 2004. The fiscal year in Singapore started in April and ended in March of the following year.

<sup>8</sup> A presentation was made to Minister Yeo, his ministry officials, and the Permanent Secretary of the Ministry of Finance that sealed the conclusion of the L2000 study.

## *Technology*

At NLB, managers used technology to make information services convenient, accessible, and useful. They also used technology to improve traditional service delivery. "We wanted users to be able to return books to any branch; we wanted scattered branches so no one had to travel far; and we wanted all branches to have the same service quality," an NLB manager explained. "And technology helped us do this." "NLB is a very exciting place," an IT manager said. "We get to try new things." Yet Tan noted that the team had been cautioned against being too technologically oriented. "The message was that the library's transformation is first about people and new services, not new gadgets and the latest technologies. Technology should be seen as an enabler."

**Back-end systems** When Chia arrived, a 10-year-old system supported the National Library system's transactions. "A robust library automation system was necessary to manage growth," a manager explained. After a tender, the team chose the CARL system, which handled every NLB transaction, including loan, membership, and fine (late fees) information. With this new system, the NLB operated one of the largest public lending library systems in the world running on a single engine. It supported about 75 million transactions a year (one-third of which were loan transactions). Screen views catered to novice users and expert researchers alike, and supported English, Chinese, and Malay language searches.

Another new back-end system was the Human Resource, Finance and Information System (HRFIS), which was designed to cut approval time for HR-related applications ranging from medical benefits to petty cash claims. The system cut form processing from one to three weeks to potentially instant approval. A third system, Data Warehousing, supported analyses of loan rates, customer segments, and renewals. Finally, the Multimedia and Information Services system made remote video and CD-ROM access available from terminals located in the various libraries.

The library's systems were connected via Singapore ONE—Singapore's nationwide broadband network. Library patrons were also able to access Singapore ONE services. Internet access was introduced in libraries as early as 1995. At that time making Internet access directly available to patrons (as opposed to via library staff) was controversial: "This was almost heresy," Chia explained, "akin to putting a fox in the chicken coop."

## *Human Resources*

Until the early 1990s, librarians with advanced degrees were among the lowest paid civil servants in Singapore. Even so, 30- to 40-year tenures were not exceptional among them. "What drives our librarians is their calling," Chia noted. "They love the libraries and want to reach out to our readers." In 1995, 97% of library employees were women. Senior Librarians—the top staff level, tended to have a discipline-based degree in addition to a graduate library science degree. Library Officers and Assistants typically had either a high school degree or a basic undergraduate degree. They were supported by Library Attendants, with very basic education. When Chia first arrived, a significant fraction of the staff spent their days just mending ripped pages and book spines which was necessary to keep the service running. Very few had computer access and even fewer had e-mail access. Unions, which represented the majority of the staff, had historically been very active, especially among Library Assistants and Officers. Staff costs comprised about 40% of a branch library's operating budget.

The NLB team felt that HR was key to the success of the transformation process. "We did not know what we were going into, but we knew that the staff needed to be involved and that, whatever

we did, it would change their work," a manager explained. "To prepare them, we had to take care of 'HR hygiene factors' first, such as development, workload, and succession planning."

"When the NLB became a statutory board, it was quite traumatic for the staff who didn't know management's new intentions," an NLB manager noted. "A key challenge was managing staff uncertainty so that they would be more predisposed to change." "A lot of effort was spent telling people that there would not be any retrenchment and that we would redefine and enlarge the jobs for younger staff," a manager recalled. Massive communication sessions were held and participation in the change effort was encouraged at all levels. In its first year, 65% of the 3,337 suggestions generated by a staff suggestion scheme made were implemented.

After giving the staff a slight raise, new designer-conceived uniforms, business cards, and an improved workspace featuring artwork and partitions, emphasis was placed on giving all staff e-mail and easy access to a computer. Within one year all Senior Librarians and Library Assistants had PCs. Since most senior staff did not type, the NLB arranged for typing, simple word processing and spreadsheet courses.

From 1997 to 1998 turnover dropped to close to zero. NLB managers noted that by 1997 the Asian economic crisis made it less easy for staff to leave and less likely for them to reject change. Some of the staff also felt that "since things at the libraries could not get worse, they might get better." Finally, managers believed that because changes were occurring rapidly, there was little time for staff to worry about them.

**Hiring** The NLB changed the library's hiring process. "Historically, a candidate would come to interview and the civil service recruitment department strongly recommended where that person might fit—in the entire government—based on skills and the interviewer's assessment of his or her personality," a manager explained. "Then we started to hire ourselves. We looked for customer orientation and values consistent with the organization we were building." (See **Exhibit 2**.) Until 1999, Chia interviewed all potential librarians and executive staff. By 2001, turnover had increased to 7% to 8%, compared to the historical average of 2% to 3%. Managers attributed this to the hiring of technology- and marketing-oriented staff who were sought after by the burgeoning IT industry.

**Organization** "We realized that a hierarchical structure is good for stability, but not good if you want to make a lot of changes happen quickly," a manager said, "so we tried to encourage teamwork and organized teams composed of people from various libraries to solve particular problems, rather than having just a Senior Librarian make a decision." In 1996, over 200 staff were trained in project management and teamwork.

**Standards and training** Metrics and standards for operations and front-line customer service were established and all front-line staff were given a manual for easy reference. Standards ranged from basic issues of appropriate attire to processes for handling customer complaints. In 1996 the staff received customer service training. The first two rounds of generic customer service training, subsequently tailored to the library by independent consultants, became part of core staff training. Lower-level staff spent about one-half a day in this training, the rest two to three days. "Librarians had the ability to provide good service," a manager noted, "but it had not been tapped. Moving them from being passive to proactive service providers was hard." "Some of our employees said that they were shy and wanted to stay behind the counter," a colleague added. In 1998 alone, NLB invested S\$1.4 million in training.

**Performance evaluation and recognition** Performance measurements, such as a "complaints versus compliments" ratio, were introduced. To bring in the "voice of the customer," NLB commissioned a survey of library user experiences and desires. Furthermore, NLB changed the

library's performance evaluation process from one relying solely on supervisory discretion to a more objective system that also required input from peers and customers. Finally, quarterly staff appreciation brunches were held to recognize staff praised by a customer in that particular quarter. Each session recognized 30 to 40 staff members; one brunch recognized over 100 staff.

Shifting the organization's mindset from "monopoly to quality" was a major challenge, NLB managers explained, noting that doing so was essential to the new strategy. Chia reiterated that NLB's service philosophy was one of delivering a world-class library system being convenient, accessible, and useful. "It drives everything we do today," he said.

## Bringing the Library to the People

To bring the library closer to the population, the L2000 committee proposed a new configuration of libraries that would consist of a national reference library and branch public libraries of varying sizes and capacities (regional, community, and neighborhood libraries).<sup>9</sup> Regional libraries, the largest, would provide reference, basic lending, and outreach services. In contrast, community libraries would focus on lending. Neighborhood, or children's libraries, were designed to serve children and their parents. **Exhibit 3** and the **Appendix** describe the various types of libraries.

NLB was charged with building or retrofitting 5 regional libraries, 18 community libraries, and about 100 neighborhood libraries over the next 10 to 20 years. See **Table A** for a summary of library construction and renovation.

**Table A** Library Renovation and Construction

|                                       | 1995 (base) | 2000 (cumulative) |
|---------------------------------------|-------------|-------------------|
| Number of libraries (net of closings) | 22          | 65                |
| Number of libraries renovated         | 0           | 2                 |
| Number of new libraries               | 7           | 50                |

Source: NLB

Making libraries accessible meant having a library within walking distance of most Singaporean homes. It also meant expanding library hours. Libraries that once closed at 5:00 p.m. and on Sundays were opened longer, tailoring opening hours to user needs. Libraries in shopping malls were open from 11:00 a.m. to 8:00 p.m. daily. The NLB's newest library, the Woodlands Regional Library, was open from noon to 9:00 p.m. daily.

NLB managers never forgot that "the collection is key." Yet the proliferation of information made it impossible for each branch to be encyclopedic in its coverage. To avoid unnecessary duplication and maximize collection coverage nationally, each library became responsible for a certain range of the total collection. A core collection at each location included items common to all libraries—fiction, computer science, and self-help books. To make all books available to all patrons, books were physically shipped among the branches by request. Books could also be returned to any branch (with a 24-hour branch-to-branch turnaround). About 300,000 books were transferred among branches every month.

<sup>9</sup> Reference libraries specializing in specific subjects also existed although they are not discussed in this case.

The Library Support Services managed these flows, partly by automating several parts of the process of sorting and returning books, including barcoding (see **Exhibit 4**). In addition, the NLB outsourced transportation of books among branches to Singapore Post, which also used a sorting mechanism that read barcodes on books and sent them to the right libraries. Library Support Services also selected, acquired, and catalogued library materials in the four official languages of Singapore.

### *Community*

The NLB used technology to build online communities for a variety of groups in Singapore including students, small business people, and different ethnic groups. The library was also asked to facilitate access to information on regional business and culture. For instance, the Inter-Agency Committee on Overseas Chinese Databank and Research Collection was formed to shape the development of services and collection to serve the information needs of Chinese individuals living outside China. Its outgrowth was HuayiNet, an online overseas Chinese website. Three Advisory Panels were set up to review and propose services for the Chinese, Indian and Malay communities. These panels reviewed existing services offered by the libraries, and helped forge links to the community.

### *Bringing People to the Library*

To entice citizens to visit libraries, NLB managers changed the libraries' look and feel. New and renovated libraries featured clean, open, modern, and comfortable surroundings. Light wood and carpeting, glass partitions, highly visible signage as well as color coded floors and books (e.g., yellow for the children's section, red for reference) consistent across the libraries, all contributed to an impression of openness and ease of access. Several libraries featured cafes such as Starbucks and snack bars. "Before we built space for people to line up," Chia said. "Now we build space for people to interact. We think of the library as the old marketplace." "The idea was to transform the library from an institution to the third place people would spend time after their homes and offices," an NLB manager explained. "We wanted to make users feel like they were in their living rooms." "Of course, after we get them to visit because of the way the libraries now look, the challenge is to provide a service that brings people back again and again," another noted. (**Exhibit 5** contains pictures of new NLB libraries.)

In doing research on how the libraries should look, the NLB management team examined not only other library systems around the world but also benchmarked sectors such as retail. The team thought of services beyond books and focused on a customer's "experience." A manager noted that "this required us to think in ways that we never had. For example, when we first thought about serving coffee in libraries we said 'no.' Our job used to be to protect the collection at all costs. But then the chairman pointed out that people drink coffee at home while they read so we said 'okay.'" "A new ambience in the libraries is part of our move towards being a renaissance city," Tan elaborated, "to benefit Singaporeans and attract talent to the city. Going to the libraries is about a new experience—lifestyle!"

### *NLB Library Programs*

The NLB organized various cultural, educational, and recreational programs targeting all age groups. Some were thematic (for example, on "active aging"); others supported national directives such as the "Speak Good English Movement;" and others were based on the interests of staff and patrons. In 2000 nearly 4,000 NLB programs reached 117,000 people.

For Tan, part of NLB's mission was to bridge the technological divide by including people who might otherwise not have experienced the Internet or IT. As a result, information literacy was given emphasis. Specific programs were designed to inculcate information search and navigation skills and an appreciation of sources of information and how to use them. In May 1999, NLB unveiled a 124-workstation training center offering basic and advanced Internet training at affordable prices (some courses were free to individuals). Overall the NLB aimed to train 174,000 people in three years.

## Transforming the User Experience

### *Self Service*

The first attempts to reduce lines through the use of self-checkout machines started before the NLB was set up. Book barcoding began in 1986 and the library first experimented with self-checkout in 1993. However, the system was not popular. It required patrons to open, align, and place books very carefully for the machine to read the barcode. "Nobody who is trying to use a machine for the first time wants to look foolish trying to check out books," a staff member explained. As a result, patrons turned to the counter, despite its long lines.

After the NLB was created, staff members were deployed at self-checkout machines to assist patrons. As a result, acceptance grew. Soon barcodes were affixed to the front of books, making self-checkout even simpler.

Borrower Enquiry Terminals were developed that let users know how many books they had checked out or for which they owed fines. If a fine was owed, it could be paid via cash card, a popular debit payment system in Singapore. Borrower enquiry was also possible through the Internet by inputting one's identity or Library card number. Before the terminals, fine collection involved 2.5 million transactions per year, staff often collecting only S\$0.15 per transaction (book fine). Each transaction took two to three minutes, and staff spent hours counting and recounting coins every night.

A bookdrop was introduced in 1996. Prior to that the average wait in line to return a book at peak periods was 60 minutes. In 1998, the NLB added conveyor belts behind the book drops to prevent books from jamming the opening. In 2001, the NLB set up its first remote bookdrop, making book return convenient for those working in the business district.

### *Business Process Reengineering*

In 1996, a small group of NLB managers tackled the library's most pressing problems, reviewing processes from the customer's perspective before any IT was deployed. The group wanted to review, streamline, and, when possible, eliminate processes before automating them. Among the first things they tackled were internal request forms (for example, vacations or expenses). "By starting with what was close to the staff," a manager noted, "we sent the message that reengineering is good."

The NLB then launched a full-fledged business process reengineering (BPR) exercise "to achieve quantum improvements." The design of the BPR started in June 1997 and concluded after seven months, with subsequent implementation of the recommendations. Staff were regularly updated on its progress via e-mail. At its conclusion, NLB managers held a three-day session to communicate findings to all headquarters staff, followed by road shows across departments. "We had ownership

and it was a team effort," a manager noted. "Seventy-two of our best staff were involved. Chia was the sponsor and was totally committed."

Four working groups focused on four customer-facing processes. These supported NLB's targets of increasing the number of loans and enquiries, rejuvenating the collection, and increasing membership. Customer service and logistics issues cut across all working groups.

**(1) Time-to-market** Defined as the time from selecting a title for the library to the moment it was available for borrowing, this metric spanned book selection, purchase, processing (cataloguing, bar-coding), and delivery to its branch library. Getting books purchased from overseas sources on NLB shelves had taken 8 months. The new target (achieved) was 4 weeks. For domestic publications, the time was cut from 18 weeks to 1 week. To achieve these results, the NLB improved its internal processes and worked with suppliers. "If they did not fill orders fast enough," a manager noted, "we told them we would work with someone else."

**(2) Time-to-shelf/time-to-checkout** Both processes aimed at increasing book circulation and preventing "stockouts," especially at new or renovated libraries with increased traffic. Time-to-shelf was defined as the time between the moment a book was returned and when it was properly reshelved. Time-to-shelf had averaged 6.5 hours because of batch shelving. The target was set at 60 minutes. By 2001, the average had dropped to 15 minutes. Much of the improvement occurred because popular, high-circulation books (about half of all loans) were initially placed in a "Popular Picks" section of the Library. About 50% of these were borrowed again before they were reshelved. Staff recognized less popular books and shelved those within two hours. Based on 25 million loans, this resulted in an effective increase in the collection of 6.25 million books. It also reduced labor costs. To move each book from Popular Picks to the original shelf required about one minute of labor. For 6.25 million books, NLB estimated that implementation of the "Popular Picks" section saved 52 person-years of labor. The NLB also invested in automating some parts of the book drop and reshelving processes. For instance, books were color coded for quicker sorting and shelving.

Time-to-checkout was defined as the time that elapsed between customers' identification of what they wanted and their ability to walk out with it (including time spent searching for the book). Time-to-checkout took 60 minutes on average in 1992. The target was set at between 3 and 14 minutes. To reach it, the BPR team proposed improvements in cataloging, signage, and an Electronic Library Management System (ELiMS). This system was based on Radio Frequency Identification (RFID) tags affixed to library materials. NLB managers described it as one of the world's first RFID applications to be deployed in a public library.<sup>10</sup>

By 2001 the collections at the newer libraries and refurbished libraries were already RFID-enabled. To use RFID—automated self-checkout machines, patrons inserted their Singapore Identity Card or Library Card into a self-checkout terminal after placing their book on a flat surface. No special angling of the material was needed. The process checked out the book and desensitized the security tag. The patron received a receipt summarizing the transaction and could walk out of the library (see **Exhibit 6**). Following implementation, traditional checkout counters were closed, and staff were instructed to help patrons use the machines. Videos played in the background providing instruction on how to use the machines. The staff who used to stamp books were retrained to help users on the

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<sup>10</sup> The system earned NLB and its partner the first patent for an RFID-enabled monitoring system.

floor and add value to the services provided. Overall checkout time was reduced to less than five minutes.<sup>11</sup> "When you are in a line," Chia underlined, "every second counts."

Bookdrops and returned-book sorting machines were also RFID-enabled. As a result, loans were immediately cancelled when a book was returned and the user's loan records were immediately updated. Users could therefore immediately borrow again instead of waiting up to 15 minutes until their loan records were cleared (the number of books a single user could borrow was limited).<sup>12</sup>

The NLB system was expected to be fully RFID-enabled by late 2002. The next extension of RFID was the use of handheld scanners for inventory and book search. These functions were performed by swiping a portable scanner near the spines of the books on the shelves. This technology allowed the searcher to locate a book that might have fallen behind the others or was placed in the wrong shelf. (See Exhibit 5 for an overview of the EliMS system.)

**(3) Time-to-information** The type of information a customer might seek was divided into three categories, and a target was set for each. Basic inquiries (e.g., finding Norway's GDP), which used to take 19 to 35 minutes, were to take 10 minutes. Reference inquiries (e.g., a list of major Norwegian exporting companies) were set at 30 minutes, compared to the pre-BPR range of 34 to 55 minutes. Research (e.g., the Singaporean market for hand-knit Norwegian sweaters) had a target of one day; no prior time data existed. "Now, when we say we will call back in 30 minutes," a librarian commented in 2001, "we really try to do that."

These targets had been achieved and, since April 1999, a newly constituted team had started providing a customized information service. Adopting a Call Center approach, "Reference Point" was set up to manage all inquiries that were received by e-mail, fax, or telephone.

**(4) Library planning, setup, and renewal** Prior to BPR an average of 18 months was required to plan and open a new or renovated library. The target was set at 10.4 weeks. A template establishing parameters for new libraries or renewal projects was devised. A major component involved improving project management and minimizing changes to specifications. The NLB also standardized requirements in terms of furniture and fittings and created a standard furniture contract, which lowered costs. "In the past we'd open a new library once every three years," a manager noted. "Now we open about three a year."

Also addressed were issues such as the outsourcing of peripheral activities including book reshelfing, security services, building maintenance, and the organization of library openings. Part-timers were brought in for some tasks. Finally, a new approach to leadership for establishing new libraries was developed. Prior to BPR, each new library had a new team leading its development and construction. Post-BPR, a manager experienced in set-up or renewal would be put in charge.

## Delivering a New Value Proposition in 2001

The NLB team felt that it had been able to effect most of the changes recommended by L2000, described in Table B. However, managers acknowledged that more needed to be done on the provision of "value added services" as well as the "library without walls" rubrics.

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<sup>11</sup> With the increase in loans, if NLB had adhered to its former service method, more than 2,000 staff would be stamping the 25 million materials that went through the library in 2000. Managers estimated total savings due to self-checkout and the RFID system were S\$50 million per year.

<sup>12</sup> Using RFID sorting and color coding for reshelfing, NLB estimated that it saved about 20 seconds per book. For 18.75 million books returned to the shelves, this translated to 104,200 person-hours/year or 54 person-years per year.

**Table B** Paradigm Shifts

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|                                   |        |                                                                           |
|-----------------------------------|--------|---------------------------------------------------------------------------|
| Similar libraries                 | —————→ | Market-driven individual locations                                        |
| Library as the custodian of books | —————→ | Service-oriented information provider                                     |
| Print media (only)                | —————→ | Multimedia                                                                |
| NLB owns the collection           | —————→ | Library without walls                                                     |
| Patrons go to the library         | —————→ | Library comes to you                                                      |
| Local research capacity           | —————→ | Global reach                                                              |
| (All but) free basic service      | —————→ | (all but) free basic services and value-added services at premium prices. |

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Source: Library 2000 report, 1994.

### *"Anytime—Anywhere"*

The NLB team wanted Singaporeans to be able to access the library anytime and have access to information from anywhere. Indeed, the L2000 report positioned physical libraries as access points, switching nodes, and mediating agents in a vast network of interconnected, borderless libraries and databases. To begin the transformation of the library from a repository to a borderless information resource offering convenient, accessible, and useful data at the touch of a button from home or work, the NLB deployed a range of electronic information services resting on its back-end systems (see Exhibit 7).

The library's umbrella online service, [www.nlb.gov.sg](http://www.nlb.gov.sg), gave users online access to check the catalog, borrow, and renew books online, and even have books delivered to their doorsteps.<sup>13</sup> Customers could also use the service to inquire about library programs. Other resources included TIARA (Timely Information for All, Relevant and Affordable) comprising over 300 international searchable databases available from patron's homes for free; InfoXpress, a database of most Frequently Asked Questions (FAQs) that librarians had compiled over the years and previously kept on index cards accessible to librarians only; and PANS (Public Access Network System), which allowed access to 10,000 e-books and multimedia titles online.

Patrons could see one of NLB's 800 streaming videos, mostly documentaries and some movies. They could also use [SingaporeONE@libraries](mailto:SingaporeONE@libraries), Singapore's high-speed network in the libraries, to access entertainment, news-on-demand, distance learning, on-line shopping, and other e-commerce services. At most libraries patrons used their debit cards to purchase computer time for S\$2 an hour.

To further expand users' choice and access to materials, the NLB signed memoranda of understanding to share information and other resources with the National Library of China, the Shanghai Library, the British Library, and the Russian State Library (including its large Asian collection). Other "Anytime—Anywhere" initiatives under discussion included using GPS and emergent wireless technology to deliver service to handhelds and allowing patrons to use a PDA to search the catalog.

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<sup>13</sup> The Library Phone-In service made it possible to reserve books and have them home delivered via Singapore Post.

## Beyond Library 2000

In May 2001, a core NLB team was already at work on a new vision and strategic plan, referred to as Library 21. Its focus was on supporting the community better, encouraging innovation and creativity, and bridging the digital divide. The team was also wrestling with several trends as described by Minister Yeo:

A major issue is the convergence of education and entertainment. We are finding that to inform and educate, we have to entertain. At what point will the library become an entertainment resource? But the curious thing about entertainment is that it is always local. Second is the issue of what a library should be and how the library system will respond to the fact that we generate more knowledge every few years than we ever have before in history. This will require us to think about how we see public libraries—as physical locations or knowledge repositories?

In the meantime, three or four more community libraries were in the works, as was the new 60,000-square-meter, state-of-the-art National Library. Library openings had become media events. The opening of the new branch library at Orchard made the front page of Singapore's main daily newspaper's lifestyle section. Openings had also become popular destinations. Over 100,000 individuals attended the April 2001 opening of the Woodlands Regional Library. Tan summarized:

I am most proud of our contribution to integrating the library in the fabric of our nation and national agenda. People are now happy to go the library. It is "in." This makes the job of librarians meaningful. A "cool" organization needs a "cool" purpose that staff can relate to and which customers find "cool" so they want to come back.

Approximately 49% of the NLB's FY96-99 capital expenditures went to information technology, 27% to buildings, 9% to staff development and 15% to the collection. As of 2001 only about 20% of the total S\$1 billion original capital commitment to the NLB had been deployed. See **Table C** for performance indicators and **Exhibit 8** for selected milestones.

Table C Performance Indicators

|                                                        | FY 1995      | FY 1996      | FY 1999      | FY 2000      | FY 2003<br>(target)      |
|--------------------------------------------------------|--------------|--------------|--------------|--------------|--------------------------|
| Physical loans                                         | 14.3 million | 18.9 million | 24.7 million | 25 million   | 30 million               |
| Total membership                                       | 1.07 million | 1.2 million  | 1.76 million | 1.86 million | 1.5 million <sup>C</sup> |
| Active membership                                      | 500,000      | 646,175      | 914,337      | 955,074      | 1,500,000                |
| Collection items                                       | 3.7 million  | 4.7 million  | 6.86 million | 7.29 million | 11.4 million             |
| Average book age                                       | 11.5 years   | 9.74 years   | 6 years      | 5.75 years   | 4.1 years                |
| Staffing level                                         | 421          | 685          | 811          | 866          | TBD                      |
| Operating grant dollars per active member <sup>a</sup> | S\$70.32     | 66.70        | 84.66        | N/A          | N/A                      |
| Operating grant dollars per book lent <sup>a</sup>     | S\$2.46      | 2.26         | 3.13         | N/A          | N/A                      |
| Operating costs per active member <sup>b</sup>         | S\$69.78     | 76.73        | 108.24       | N/A          | N/A                      |
| Operating costs per physical loans <sup>b</sup>        | S\$2.44      | 2.62         | 4.01         | N/A          | N/A                      |
| Members per staff                                      | 1,900        | 1,460        | 2,170        | 2,148        | TBD                      |
| Loans per staff                                        | 33,967       | 27,591       | 30,456       | 28,868       | TBD                      |

Source: NLB

Notes: 1995 Figures were annualized based on 7-months data prior to the establishment of the NLB. Singapore's inflation rate was low during the 1995 to 1999 period: S\$100 in 1995 were equivalent to S\$103.2 in 1999.

<sup>a</sup>Funds that the Singapore Government provided the NLB for operations.

<sup>b</sup>Operating costs exclude book, periodical, and serials expenditures.

<sup>c</sup>1.5M was the original target set in 1995 which had not been revised, thus managers did not anticipate a reduction in membership between 2000 and 2003.

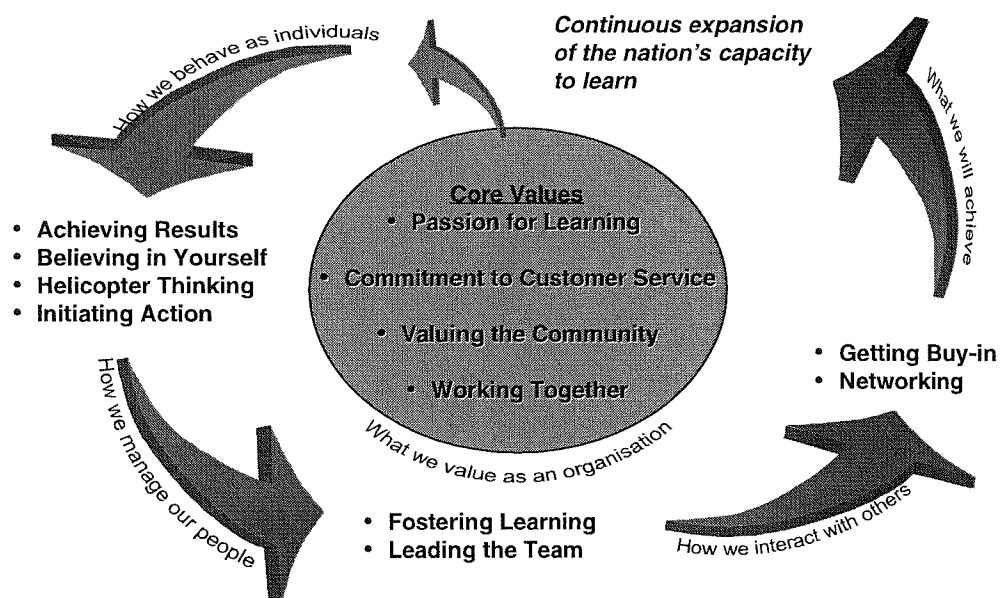
**Exhibit 1** Comparative Indicators, 1999 (unless otherwise noted)

|                | GDP per Capita<br>(\$ at PPP) | TV Sets per<br>1,000 People | PCs per<br>1,000 People | Adult Literacy<br>Rate (% for those<br>15+ years) <sup>a</sup> | Life<br>Expectancy<br>(years) <sup>b</sup> |
|----------------|-------------------------------|-----------------------------|-------------------------|----------------------------------------------------------------|--------------------------------------------|
| Singapore      | 25,274                        | 308                         | 436.6                   | 91.8                                                           | 77.1                                       |
| United States  | 33,300                        | 844                         | 510.5                   | 99.0                                                           | 76.7                                       |
| United Kingdom | 22,943                        | 652                         | 302.5                   | 99.0                                                           | 77.2                                       |
| France         | 22,710                        | 623                         | 221.8                   | 99.0                                                           | 78.1                                       |
| Germany        | 23,627                        | 580                         | 297.0                   | 99.0                                                           | 77.2                                       |
| Japan          | 25,402                        | 719                         | 286.9                   | 99.0                                                           | 80.0                                       |
| Malaysia       | 7,334                         | 174                         | 68.7                    | 86.4                                                           | 72.0                                       |
| Indonesia      | 3,110                         | 143                         | 9.1                     | 85.7                                                           | 65.1                                       |
| Hong Kong      | 24,443                        | 434                         | 297.6                   | 92.9                                                           | 78.5                                       |
| China          | 4,300                         | 292                         | 12.2                    | 82.8                                                           | 69.8                                       |
| Australia      | 24,743                        | 706                         | 469.2                   | 99.0                                                           | 78.3                                       |

Sources: *World Development Indicators 2001*, World Bank; *Human Development Report 2000*, United Nations Development Program; Economist Intelligence Unit.

<sup>a</sup>1998

<sup>b</sup>1995-2000 average

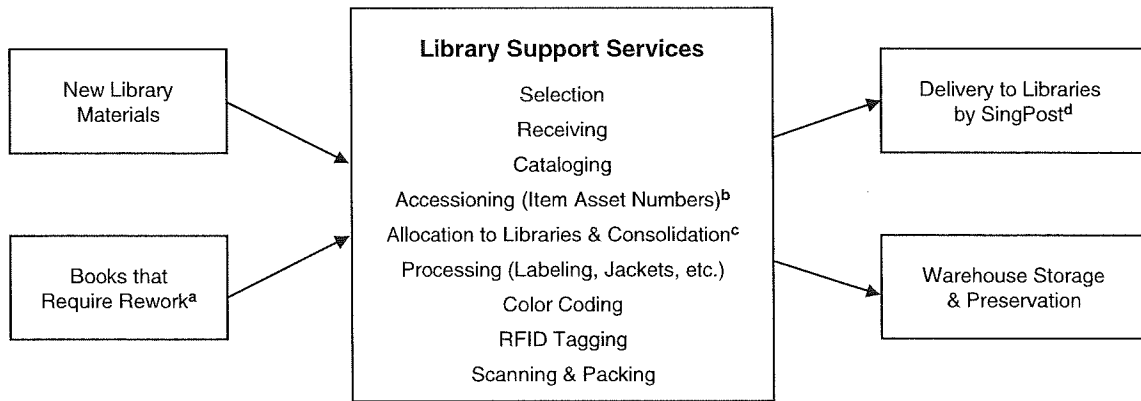
**Exhibit 2** NLB Values

Source: NLB

### Exhibit 3 Summary of the Three-tier Library System

| ATTRIBUTE                                | REGIONAL LIBRARY                                                                                                                                                                                                                                                                                                                                                                                    | COMMUNITY LIBRARY                                                                                                                                                                                                                                                                                                                                               | NEIGHBORHOOD LIBRARY                                                                                                                                       |
|------------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <b>Number</b>                            | 5 planned/2 on-stream in May 2001<br>(Singapore is separated into five regions)                                                                                                                                                                                                                                                                                                                     | 18 planned/18 on-stream in May 2001                                                                                                                                                                                                                                                                                                                             | 100 planned/45 in May 2001                                                                                                                                 |
| <b>Size</b>                              | 8,000-10,000 sq. m. (prior to Library 2000, each branch library was about 4,000 sq. m. and one was built each time an area reached the critical size of 200,000 inhabitants)                                                                                                                                                                                                                        | 2,000-2,000 sq. m.                                                                                                                                                                                                                                                                                                                                              | 200-500 sq. m.                                                                                                                                             |
| <b>Collection</b><br>(in four languages) | <ul style="list-style-type: none"> <li>• About 500,000 items</li> <li>• Multiple media</li> <li>• Large lending and reference collections</li> <li>• Special collections in selected areas</li> </ul>                                                                                                                                                                                               | <ul style="list-style-type: none"> <li>• 180,000 to 300,000 items</li> <li>• Multiple media, full range of multimedia services, including not only CR-ROMs and videos streamed from the NOC via SingaporeOne, but also internet access and online databases.</li> <li>• Popular and general lending collection</li> <li>• Small reference collection</li> </ul> | <ul style="list-style-type: none"> <li>• 10,000 to 15,000 items</li> <li>• Small lending collection of popular materials</li> </ul>                        |
| <b>Services</b>                          | <ul style="list-style-type: none"> <li>• Loan of books, journals, audiovisual materials, and computer software</li> <li>• Reference and information searches</li> <li>• Customized information services</li> <li>• Exhibitions and educational programs; e.g., Showcase IT products</li> <li>• Wide range of activities and promotional programs for different target groups of all ages</li> </ul> | <ul style="list-style-type: none"> <li>• Loan of books, journals, and audiovisual materials</li> <li>• Programs aimed at inculcating reading habits, promoting usage of library resources and services</li> <li>• Paraprofessional and professional librarians onsite to assist users and provide services</li> </ul>                                           | <ul style="list-style-type: none"> <li>• Loan of books</li> <li>• Focused promotional programs aimed at nurturing reading habits among children</li> </ul> |

Source: Library 2000 report, 1994

**Exhibit 4** Backroom Library Support Services

Source: NLB

<sup>a</sup>Reworks refer to repairs on torn or damaged materials sent back to LSS.

<sup>b</sup>Accessioning refers to creating an asset number for the book and includes pasting a barcode label that comprises a book ID linking the book to a particular branch.

<sup>c</sup>Allocation and Consolidation refers to separating materials into different bins for routing, etc.

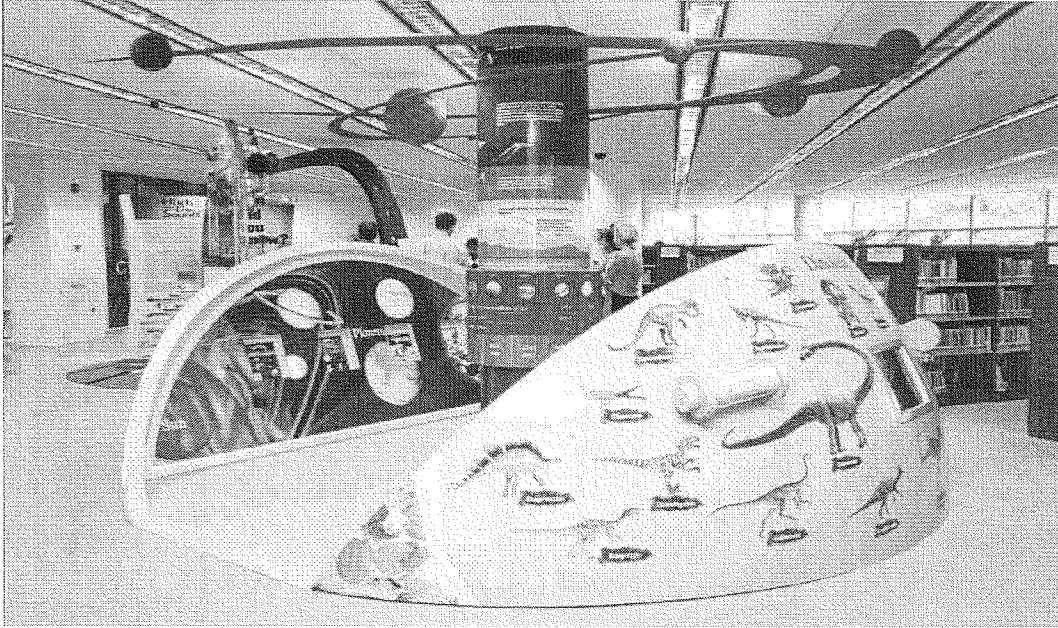
<sup>d</sup>Collection and Delivery is outsourced to SingPost, a postal agency.

**Exhibit 5** Pictures of New Libraries

## Exhibit 5 (continued) Pictures of New Libraries



Exhibit 5 (continued) Pictures of New Libraries



## Exhibit 5 (continued) Pictures of New Libraries



Source: NLB

## Self-Check & Electronic Library Management System

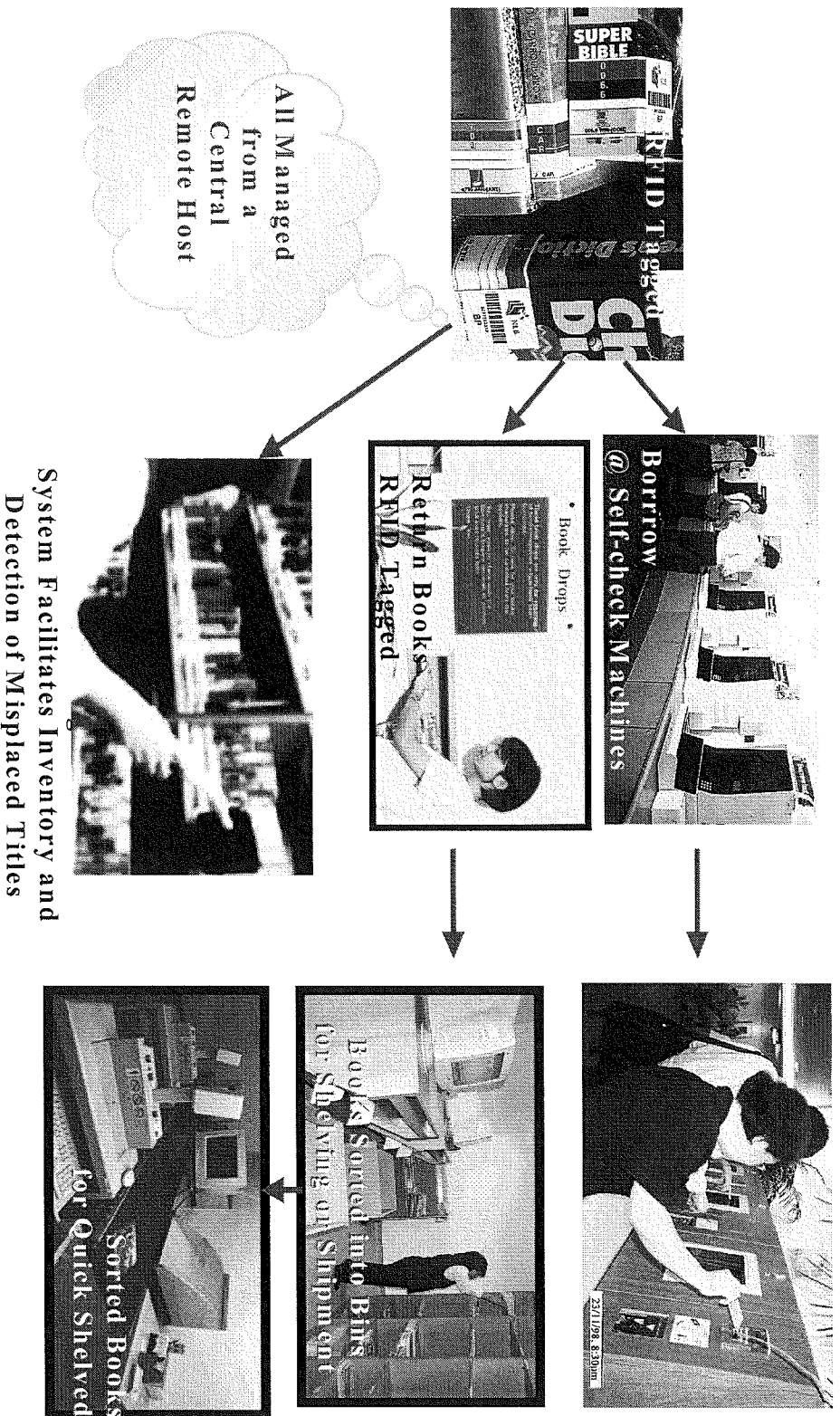
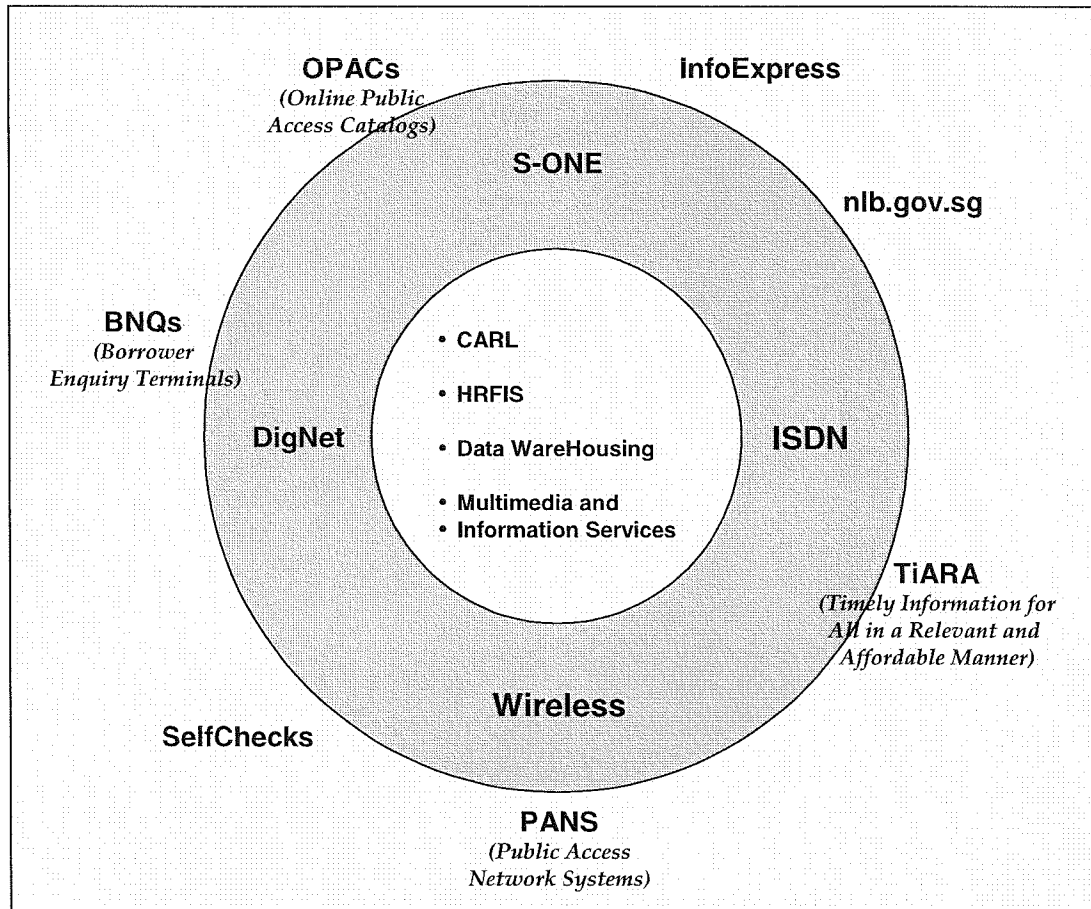


Exhibit 7 Overview of NLB Back-end and Front-end Systems



Source: NLB

## Exhibit 8 Selected Milestones

| Date                  | Service Introduced/Milestone Achieved                                                                                                                                                                                                                                                         |
|-----------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| September 1995        | NLB formed.                                                                                                                                                                                                                                                                                   |
| October 1995          | NLB Website (NL.Line) established.<br>Internet@the Library launched allowing library users to access Internet.                                                                                                                                                                                |
| January/February 1996 | Reference Section at branch libraries opened to public on Sundays.<br>Book drop @ the Library service launched.<br>First Staff Forum held where Chairman and Senior Management briefed all staff on plans and directions. This became an annual event to communicate to all staff.            |
| March 1996            | Singapore Information Resources Online, a joint project with Singapore National Heritage Board and Information Technology Institute (ITI), launched.<br>First Shopping Mall Library @ Jurong West was officially opened.<br>Staff assigned PCs.                                               |
| April 1996            | Reference Point established.<br>Reading Conference "Never Too Young to Read" organized.                                                                                                                                                                                                       |
| June 1996             | Government approved Phase 1 eight year budget of S\$1 billion.                                                                                                                                                                                                                                |
| June 1997             | Major Business Process Re-engineering (BPR) initiated to increase the efficiency of the NLB's key processes. (Concluded in Jan 1998).                                                                                                                                                         |
| September 1997        | Establishment of the Chinese Library Services.                                                                                                                                                                                                                                                |
| October 1997          | MOUs signed with the National Library of China (NLC) and Shanghai Library on October 20 and October 22 respectively.                                                                                                                                                                          |
| November 1997         | TiARA (Timely Information Access, Relevant and Affordable), first nationwide digital library linking libraries and information databases launched (tiara.com.sg).                                                                                                                             |
| March 1998            | Unveiling of NLB's Digital Library on Singapore ONE at Digital Libraries Asia 98 Conference and Exhibition.<br>Library Cooperation Memorandum of Understanding signed with the British Library.                                                                                               |
| April 1998            | Color coding on books first introduced. Coding books by subject categories (Class numbers) was to facilitate shelving and easy retrieval.<br>Return of Books to any branch service introduced. (the return @ any library service).                                                            |
| July 1998             | School Library Services Division established to work in partnership with education sector to serve the needs of the academia and students.                                                                                                                                                    |
| September 1998        | <u>SingaporeONE@libraries</u> introduced at nine community libraries and 15 community children's libraries promoting access to broadband services and help bridge the digital divide.                                                                                                         |
| November 1998         | Electronic Library Management System (EliMS) piloted.<br>CD-ROM and Video Streaming services made available via the Public Access Network Systems (PANS) at the libraries.<br>InfoXpress Kiosks piloted at three libraries facilitating access to quick reference resources about Singapore.  |
| December 1998         | Library went totally cashless with the implementation of Cash Card payments for overdue fines and renewals, saving queue time at the Customer Services Counter to collect and process payments.                                                                                               |
| March 1999            | NLB Customer Service Standards rolled out to establish targets for operations and customers service.<br>Library cooperation Memorandum of Understanding signed with the Russian State Library.<br>Top library professionals and senior librarians from ASEAN invited to two programmes under. |

| Date           | Service Introduced/Milestone Achieved                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      |
|----------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| April 1999     | Customised Information Services launched targeted at business, government and research groups.                                                                                                                                                                                                                                                                                                                                                                                                                                                                             |
| June 1999      | First Customised Information Literacy Programme conducted.<br>Library Manners Programme launched to inculcate library etiquette among young.                                                                                                                                                                                                                                                                                                                                                                                                                               |
| July 1999      | VISTA, NLB's library automation system, was implemented to provide better and more user-friendly electronic information services to library users and allows access from home, office and school. It was designed to shoulder the escalating loan transactions of approximately 25 million a year.                                                                                                                                                                                                                                                                         |
| September 1999 | Prototyped Cybrarian Service, an online reference enquiry service using video-conferencing. It provided users with easy instructions and friendly instructions at multimedia stations.<br>Library Premium Service was launched to enable customers to borrow additional four items at a subscription fee of S\$20.60.<br>Centralised sorting of books returned to libraries introduced. Turnaround time for materials returned by users at any library was vastly improved to 24 hours. The return-at-any-library was first implemented at public libraries from May 1998. |
| October 1999   | <u>Library@orchard</u> , the first lifestyle library at a shopping mall was opened.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        |
| November 1999  | Surf N Save Promotional exercise launched to promote use of the library's electronic services. During the promotional period the library's e-services were available at half the nominal rate.                                                                                                                                                                                                                                                                                                                                                                             |
| December 1999  | Library Cooperation agreement signed with National Library of China and the Shanghai Library to collaborate on exchange of library materials, document delivery and inter-library loans, information search and packaging services and mirroring of each other's websites.                                                                                                                                                                                                                                                                                                 |
| January 2000   | NLB and e-station announced collaboration to form Asia's first fully-electronic library called the e-library. The e-library was first franchised and prototyped at e-station, Singapore's premiere online electronic edutainment centre.                                                                                                                                                                                                                                                                                                                                   |
| February 2000  | HuayiNet, an online Chinese overseas databank was launched.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                |
| May 2000       | Marine Parade Community Building was officially opened by the Prime Minister. It became the first library to be co-located in a community facility and featured a kids discovery center and a Starbucks Café.                                                                                                                                                                                                                                                                                                                                                              |

Source: NLB

## Appendix

### NLB Library Types

#### *The National Reference Library—Stamford Road*

The \$2.6 million renovation of the National Library doubled its usable space in part by moving some back-office functions to less desirable real estate. An old courtyard, that had been used as a storeroom, was restored, featuring a coffee stand and tables and chairs where people could gather for performance. Nearby, talks were held around a renaissance-style fountain. Programs such as Xpressions@courtyard—which featured a Chinese program one Friday and a Tamil program the next—targeted several community groups. The number of computer terminals for library users increased from 12 to 102, including 40 multimedia workstations. More books were displayed in the open to encourage browsing. New InfoXpress kiosks allowed walk-in users to view quick reference data on Singapore, access a database of frequently asked questions, and post on-line inquiries. Some 150,000 volumes were added to the collection, including 8,000 multimedia items. Visitorship increased from about 30,000 to 153,000 per month in the first year after the renovation.

Stamford Road's Student Reference Center was created containing materials for youngsters 12 and above. "Youngsters come in groups," a librarian noted, "so it is easier for them to have their own space."

#### *The Lifestyle Library—library@orchard (the library at the Ngee Ann City Shopping Mall)*

Because Singaporeans enjoyed shopping, managers noted that one way to "bring the library to the people" was to set up libraries in shopping malls. These libraries were about half the size of standard libraries. Orchard was the sixth NLB library to be set up in a mall. NLB managers surmised that library@orchard's presence had made the mall's top floor, once less desirable space, prime real estate. To design and position the library, the NLB team consulted focus groups, lifestyle journalists, and staff from organizations such as Tower Records and Sony Music. "There was a blank canvas," the team leader recalled:

We decided to be more focused. The main irritant to many young adult patrons is little children running around. So we decided not to have a children's section. This was against everything we have ever done before. Fifty-five percent of loans are children's books, so with one fell swoop we could lose half of our loans.

The Orchard area where the mall was located was very upscale, yet popular with a younger crowd. The library@orchard targeted users between the ages of 18 and 35 "who no longer came to libraries," an NLB manager noted. "Now some people come in who would never have come in before. From here they have a good impression of libraries."

Orchard opened in 1999, drawing about one million visitors a year. The collection was weighted toward fiction and computers. Booths to listen to music were set by windows. A meeting room displayed modern art "as a way to educate people." Its high-tech appearing glass, wood, and metal décor had lured confused book buyers who initially thought it was an upscale bookstore. The modern background music was popular with most patrons. One prominent program, music@orchard, offered a wide variety of live musical experience in the library every Thursday at 7:00 p.m.

### *The Community Library—Marine Parade*

Marine Parade was the fourth oldest NLB library. Since its renovation in 2000, circulation increased 40%. Of note was the children's section, which was a prototype of future children's sections. "It is about creating an unstructured and informal atmosphere for kids to learn in a fun way," a librarian explained. Industry sponsors donated the elaborate, interactive displays, on topics such as space exploration and ecology. A Starbucks welcomed visitors on the ground floor. "Marine Parade fits with our concept of the fast food library," an NLB manager explained: "come, grab, and go."

### *The Regional Library—Woodlands*

In late April 2001, 100,000 visitors attended the opening of the 12,000-square-meter Woodlands Regional Library, gathering in its generous foyer. At Woodlands, patrons could listen to new releases in a music lounge, or watch an educational video in a slightly separate viewing room seating about 20 adults plus myriad children on the floor. This library was also located in a civic center and across from a shopping mall in line with the overall strategy of co-locating libraries to increase reach. The location of the coffee bar at Woodlands, however, spoke to NLB's continuous innovation. While in the reading space at Orchard, the counter at Woodlands was slightly removed from the main floor to reduce noise.

### *Neighborhood or Community Children's Libraries (CCL)*

Helping children discover the world and learn was an NLB priority. Established on the ground floor of large housing units, the CCLs brought libraries to the doorsteps of 10-year-olds and under. CCLs featured puppet shows, arts and crafts classes, and storytelling. CCL members automatically became NLB members. In FY1999, CCLs had 75,926 members who borrowed 1.75 million books. With no professional librarians on site, CCLs provided basic lending and limited multimedia services (CD-ROMS and video streaming). About 10,000 titles were available. CCL collections were limited to books of interest to children.