

## INNOVATIONS IN COLLECTION MANAGEMENT

The pride of any library is its collections, and hence one of the National Library Board of Singapore's (NLB) key priorities is to ensure its collections are effectively managed. Behind its well-stocked library shelves are a team of staff dedicated to sourcing, procuring and processing library materials in ways that make it easy for both staff and the public to track and use these materials. NLB started its Knowledge Content Distribution Hub Services (KCDHS) programme in 2008, with the aim of further increasing the productivity and efficiency of its collection management processes. There are five key areas that the programme sought to improve and within each area, projects were identified and executed to achieve these outcomes.

### 1 Improvement of physical infrastructure

NLB processes all of its library materials at its Library Supply Centre. In order to revamp workflows and processes, physical spaces at the centre were reorganised and improved to ensure a smoother flow of library materials. In addition, better environmental controls were implemented for safekeeping heritage materials. As performing technical services and processing library materials in-house were still cost-efficient, NLB developed new workflows based on the **cellular manufacturing model**, revolutionising the way the library materials are processed, accessioned and made available to patrons. This enabled multiple materials to be processed simultaneously and made the system more flexible in the face of breakdowns. Productivity rose approximately 126% as a result of this improvement.



Figure 1: Previously, library materials were processed via a conveyor belt system (pictured left). With the new cellular manufacturing line (pictured right), multiple materials can be processed simultaneously, thus increasing productivity.

## 2 Strengthening IT infrastructures to support KCDHS systems

A crucial infrastructure for the many interdependent KCDHS systems to be implemented was the creation of a unified **data model**. Through the model, a common data dictionary was established across KCDHS systems. This reduced the complexities of integrating the systems, and made the systems more sustainable: future changes to one system could be accommodated without severely impacting others. A **data mart** was also built for ease of cleaning, transforming and storing the voluminous amounts of transactional data. The data mart could support analysis across NLB's multiple planning systems as well as facilitate the presentation of key business data using **dashboards**.

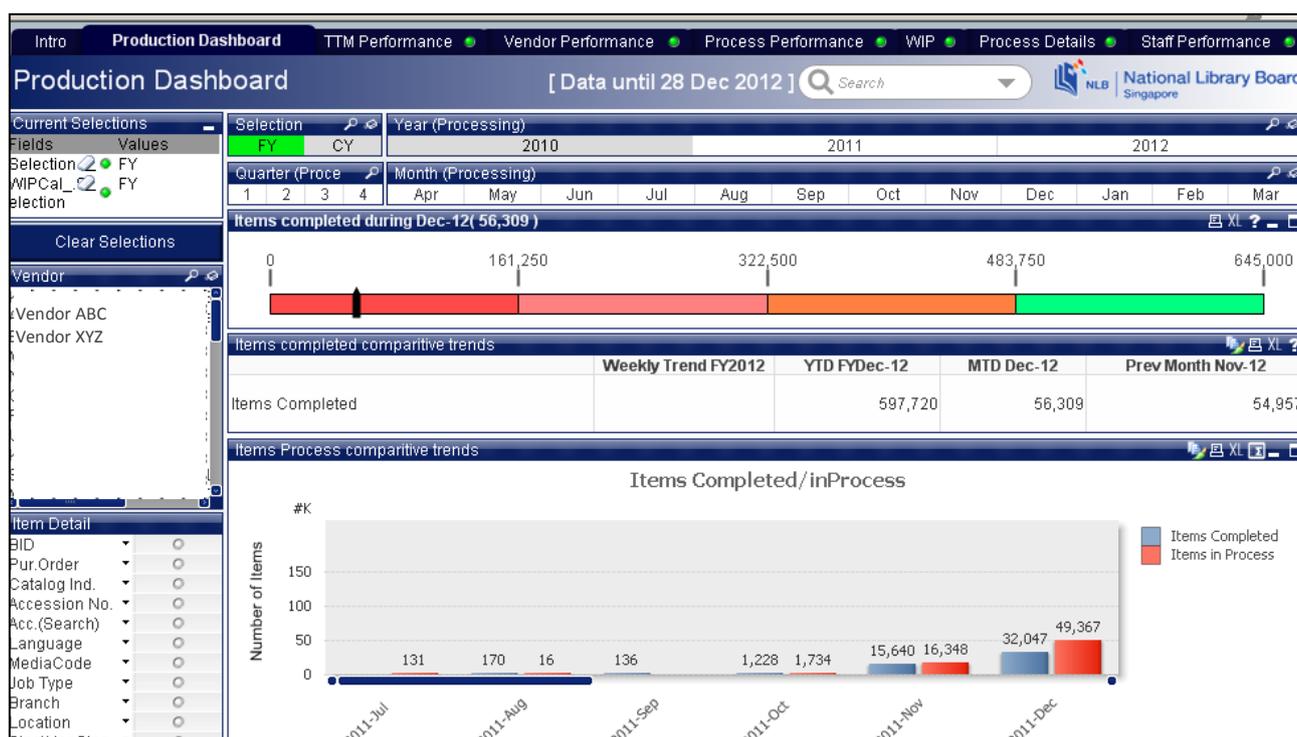


Figure 2: The Production Dashboard is one of the many dashboards developed under the Data Mart and Dashboard project in the KCDHS Programme.

## 3 Global sourcing of library materials

From 2008 to 2011, NLB published three **global sourcing** tenders for the sourcing and supplying of library materials. These included books, periodicals and audio-visual materials published in the four official languages of Singapore—English, Chinese, Malay and Tamil. The tenders reduced the previous supply base of about 400 vendors to a smaller and more manageable panel of vendors. The inclusion of some of the major global library distributors in the panel broadened the range of NLB's sources and enabled NLB to adopt more sophisticated selection tools described in the next section. Other benefits include efficiencies gained through higher economies of scale. NLB also received better discounts for English materials, and saw improvement in delivery times (even for overseas shipments). The delivery time was cut in half, from approximately six to three weeks, allowing materials to reach the library shelves faster.

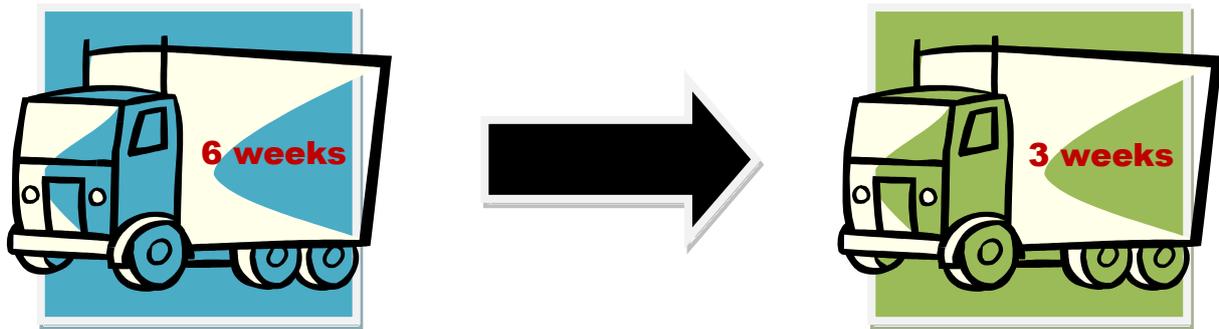


Figure 3: NLB enjoys faster delivery lead time and better discounts due to global sourcing initiatives.

#### 4 Improving efficiency of operational systems

Another objective of the KCDHS programme was to improve the efficiency of tracking the millions of materials being processed within the Library Supply Centre each year. With the implementation of a **Materials and Tracking Management System (MTMS)**, the movement of library material is captured at each step of processing, hence providing near real-time track-and-trace, and improving inventory visibility and accuracy.

Track & Trace Report

Job No: J11124699  NULL    Accession No:  NULL  NULL [View Report](#)

Transaction No:  NULL  NULL    Material Title:  NULL  NULL

BIDNo:  NULL  NULL    CTDNo:  NULL  NULL

Order No:  NULL  NULL    Order Line Number:  NULL  NULL

Ref No:  NULL  NULL    Processing User:  NULL  NULL

From Action Date:  NULL  NULL    To Action Date:  NULL  NULL

Bin No:  NULL  NULL    Branch Code: TEMP, >P, >R, >S, ~ lsc, ~IDIS

Location: \*\*ATT, \*\*CLOS, \*\*STAF, \*RQU

Processing Location: ~XDISCARD, Accessioning, Assi

Processing Step: AATransferOut, Accessioning, A

Job Type: Blank, Discard, Exception, Manu

TTStatus: Pending, Completed    Loc Type:  NULL  NULL

1 of 2    Whole Page    Find | Next    Select a format    Export

Job#	Material Title	Order#	Line#	BID#	Job Type	Accession#	Processing Step	Processing Loc	TT Status	Action Date	Bin#	CTD#	Branch Code	Location	Processing User	Ref#
J11124699	Play it again, Mozart! /	B1320002 13	1	00142484 37	1	B24868632F	Transfer	Accessioning	Pending	12/28/2011	PT00012 752NLB	00142484 37	JWCL	J	nblscopms6	
J11124699	Play it again, Mozart! /	B1320002 13	1	00142484 37	1	B24868633G	Transfer	Accessioning	Pending	12/28/2011	PT00012 752NLB	00142484 37	MPCL	J	nblscopms6	
J11124699	Play it again, Mozart! /	B1320002 13	1	00142484 37	1	B24868640E	Transfer	Accessioning	Pending	12/28/2011	PT00012 752NLB	00142484 37	JRL	J	nblscopms6	

Figure 3: MTMS' Track and Trace module provides the status and location of the materials.

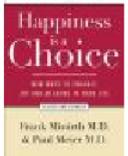
A new **Electronic Selection and Acquisitions (ESA)** system was developed to enable selection and acquisition to be conducted electronically in a more participative way. Patrons, librarians and vendors are able to recommend titles easily. The recommended titles are screened for duplication and matched with existing titles for estimation of likely usage and loan period. If a title is selected, the system works out the number of copies to acquire for each library, to meet the desired service

level for the category to which the title belongs. The system also facilitates the pacing of selection based on the allocated budget and streamlines the business processes of acquisitions, invoicing and vendor performance tracking under a single unified system. Previously, these processes were performed either manually or using different systems, and were subject to human errors and inconsistencies. The ESA system not only brings about productivity and efficiency gains, it also establishes better corporate governance in the entire procurement value chain.

### New Recommendation

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501.  **Happiness is a choice new ways to enhance joy and meaning in your life**

**AUTHOR(S)**  
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**TOTAL AVAILABILITY**  
58

**FORMAT**  
Book

**LANGUAGE**  
English

**SUBJECT**  
Health & Medicine

**AGE LEVEL**  
Adult

**SING TITLE?**  
 Yes  No

**STATUS**  
RECOMMENDED  
09-02-2013

**RECOMMENDATION SOURCE**  
SUPPLIER - 1

Figure 4: The Selection Module provides librarians a seamless and efficient electronic means of evaluating and selecting titles.

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### Awaiting Acquisitions Approval

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TITLE RFQ NO. PR NO. AGE LEVEL  
 FORMAT LANGUAGE DATE

All Save Clear Submit

All | None | Inverse | **Award**

NO.	RFQ NO. & TITLE	SUPPLIER	QTY	DELIVERY TIME (DAY)	PRICE	DATE
1	PR-13-01-30-00010 RFQ-13-02-07-0012 Title <b>Pinch hit</b> ISBN 9780062012463 Publisher Harper Publication Date 01-01-2012 Edition 1st ed. Author Green, Tim Series N/A	Please specify supplier to be awarded	1	10	Cover Price USD 19.99 Discount 25% Handling Charges 0% Nett Unit Price USD 14.99 Nett Price USD 14.99	PR APPROVED DATE 04-02-2013 RFQ ISSUED DATE 19-02-2013 RFQ CLOSED DATE 19-02-2013

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Figure 5: The electronic acquisitions process reduces the order processing time and minimises the likelihood of human error.

## 5 Smarter planning tools for better decision-making

In 2010, NLB also developed business analytic tools to gain greater insights into the myriad of factors affecting collection planning and management, including ways to cost-effectively preserve physical heritage content. These systems, which were innovative and new to NLB, are as follows:

**Demand Analysis** to forecast patrons' demand for new and old titles as well as to provide multi-year forecasts for collection planning. These forecasts are used by the ESA system to make informed decisions on new purchases as well as when to top-up certain purchases. The multi-year projections enable collection planning to be cognisant of trends and to be more forward-looking.

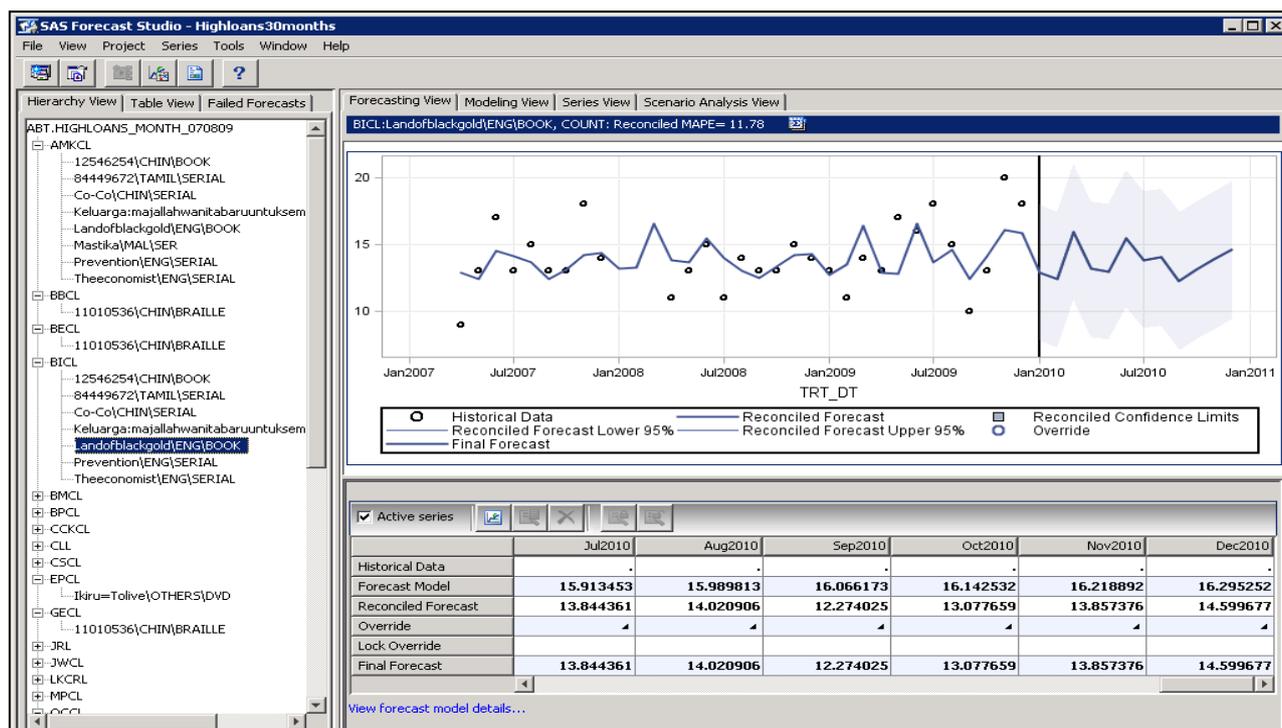


Figure 6: Demand forecast for an existing title.

**Collection Planning** uses optimisation technology to plan NLB's lending collections, by determining the category mix in each public library that will maximise loans given the constraints of space and budget. The solution considers the differing decline in readership with age of different categories in different libraries, as well as the fact that popular categories with lower on-shelf percentage require less space to recommend what to weed and what to buy each year. Setting maximum and minimum boundaries for each category in each library enables collection planners to steer the collection to a good balance between relevance and comprehensiveness. It also facilitates collaboration between neighbouring libraries to specialise and avoid holding categories with low or declining readership.

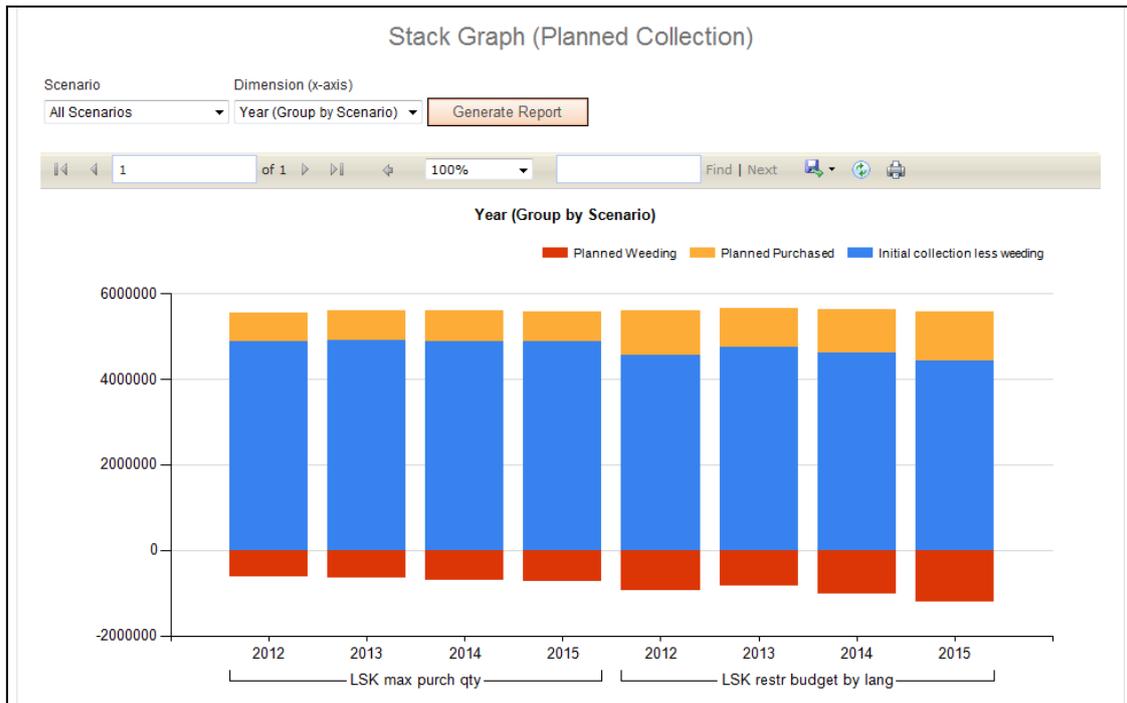


Figure 7: Planned collection for 2012 to 2015.

**Cost Modelling** uses the Life-Cycle Costing approach to examine how various costs are incurred over possible life spans to help determine how collections can be preserved in the most cost-effective way. In this project, collections are modelled to identify key cost drivers and project future cost, and to improve NLB’s organisational awareness of life-cycle cost.



Figure 8: Life-cycle cost for different library materials.