

## Leveraging Organizational Expertise Taxonomy for Collection Development

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### Abstract:

*Organizational taxonomies have been used to organize content and aid navigation. This paper describes the experience of using an organizational expertise taxonomy and its corresponding subject matter experts, to aid collection development and to raise user awareness of the collection. Leveraging on subject matter experts in the organization provided a degree of balance to patron-driven acquisitions, and tapped on the subject matter expert's community links to increase awareness of information resources in the collection. The use of organizational expertise descriptors to complement Library of Congress Subject Headings in the library catalogue yielded the benefits of precision and user familiarity to facilitate discovery, and resilience in case of changes to the organizational expertise taxonomy. Using the library catalogue to tag information resources to competencies is more efficient than manual updating by the subject matter experts, and provides an overview to aid collection analysis.*

**Keywords:** collection development, organizational taxonomies, patron-driven acquisition, discovery of collections, promoting collections.

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## 1 INTRODUCTION

The Defence Science & Technology Agency (DSTA) implements defence technology plans, acquires defence equipment and supplies, and develops defence infrastructure for the Singapore Ministry of Defence (MINDEF). The DSTA Information Resource Centre (IRC) manages DSTA's collection of information resources (books, journals, and library electronic resources), as well as provides information services to the staff working in DSTA.

As a government organization, DSTA has been guided by the Ministry of Finance to practise fiscal prudence. Since the library's budget cannot grow at the same rate as the annual cost increase of the information resources, DSTA IRC needs to make the best use of the budget to obtain information resources that meet users' needs.

The nature of work in DSTA ranges from engineering to information technology, building and construction, procurement, and corporate functions such as law and human resources. A

traditional collection development approach would require a team of librarians to be familiar with subjects in these domains, so that they are equipped to assume selection responsibilities. However, fiscal prudence means that DSTA IRC assigns less than 1 Full-Time Equivalent (FTE) librarian to conduct selection for the entire organization – hence, the librarian is unlikely to be familiar with all domains. Leverage is needed, so that DSTA IRC can fulfil its mission with limited staffing resources.

Selection is not the end of an information resource's life cycle – it is meant to be discovered and used. DSTA IRC assigns Library of Congress Subject Headings (LCSH) to information resources, in order to facilitate user search and retrieval in the library catalogue. Using LCSH as a sustainable controlled vocabulary offers the advantage of resilience against changes in organizational structure. However, users are more familiar with keywords in their domains when searching for information resources. Hence, a balance between indexer-assigned descriptors and user tags (i.e. user-assigned keywords) needs to be found.

## **2 LITERATURE REVIEW**

Johnson suggests that the collection development portfolio includes collection analysis, assessment of users' needs, selection, weeding, and liaison and outreach activities related to the collection and its users, amongst other responsibilities.<sup>1</sup>

Collection development has typically been carried out by librarians. White describes a trend beginning in the 1960s – where librarians became better trained, and the primary responsibility for collection development for academic libraries shifted from teaching faculty to librarians.<sup>2</sup> Nixon, Freeman, and Ward noted that traditionally, librarians selected “the vast majority of titles”, even if they did take users' requests into consideration.<sup>3</sup>

Various tools are used by librarians in collection development. Martin described the use of catalogues from books publishers and vendors, professional journal literature, reviews, books fairs, colleagues from other organizations, author solicitations, and faculty suggestions.<sup>4</sup> Nixon et al. described the use of knowledge about users' interests, book reviews, publisher reputation, and professional intuition to select books.<sup>3</sup> Bullis and Smith reviewed literature on the use of Conspectus and WorldCat Collection Analysis for collection analysis, and the comparison of usage statistics, cost, and citation analysis to assess a collection's utility to users.<sup>5</sup>

However, it appears that the traditional model of librarian-selected titles has not been as effective as librarians expected, and that changes to collection development practices are needed. Johnson cited a study by Truwell which showed that 20% of a library's collection receives 80% of circulation.<sup>6</sup> A study by Kent and others found that 26.8% of monographs in the University of Pittsburgh Library accounted for 82.2% of circulation, and a low 60.1% of the librarian-selected collection circulated.<sup>7</sup>

Fiscal constraints have also played a role in changing how libraries approach collection development. Bullis and Smith cited multiple libraries that have struggled to manage their information resources while budgets stagnated.<sup>5</sup> The Association for Library Collections and Technical Services (ALCTS) Sudden Selector's Guides have acknowledged the necessity of assigning subjects to selectors without backgrounds.<sup>8</sup> Selection may not even be a full-time job, as Clement and Foy found that small and mid-sized libraries did not have a librarian assigned solely to manage collection development.<sup>9</sup>

Libraries have adapted collection development to the changed environment. Thomas cited multiple libraries that have moved from a “just in case” approach to a patron-driven “just in time” approach in order to make the best use of funds to acquire information resources that users would use.<sup>10</sup> Nixon et al. suggested that patron-driven acquisitions resulted in “cost-effective collection development, user satisfaction, high subsequent circulation”, and Bracke found that it augmented collection development performed by the librarian.<sup>11</sup> Nevertheless, Hodges cautioned the long-term impact of patron-driven acquisition on the balance of a collection, since users would typically focus on immediate needs.<sup>12</sup>

Upon completion of the selection and acquisition phase, the “last mile” to inform users of newly-acquired information resources is important, and is typically performed by the liaison librarian. Yang found that faculty ranked the notification of new books in the top 50% of liaison services.<sup>13</sup> Glynn further suggested that the digital environment could be used by liaison librarians to communicate more effectively with faculty.<sup>14</sup> As libraries continue to provide more services with no increase in staff, part of this liaison work could be automated. Breeding<sup>15</sup>, and Wang and Dawes<sup>16</sup> suggested the use of automation tools to make workflows more efficient, and improve information resources discovery. Content-wise, Wang, Chaudhry, and Khoo created an organizational taxonomy to organize content and aid navigation.<sup>17</sup> Lu, Park and Hu found that social tags enhanced LCSH to improve discovery, as expert-assigned subject terms were often too technical and specialized for users.<sup>18</sup>

### 3 TAXONOMY OF ORGANIZATIONAL EXPERTISE

In order to continuously deliver value-added solutions and services in a complex and turbulent environment, DSTA needs to stay relevant by ensuring build-up and sustenance of capabilities. To achieve this, DSTA created a Competency Development Framework to develop staff expertise in one or more competencies, each of which is overseen by a subject matter expert (SME). An extract of this taxonomy of competencies is shown in Figure 1. One of the responsibilities of being an SME is to define a learning roadmap that staff can follow, consisting of training courses, on-the-job learning, and information resources for reference.

Category	Competency
Platform	Airworthiness and Certification
	Naval Platform Systems Integration
Information Technology	Knowledge Management Technologies
	Database Technologies
	Software Safety, QA, and Testing
	Corporate IT Management
Building	Facilities Maintenance Management
	Construction Management
Procurement	Procurement Policy, Processes and Execution
	Knowledge-based Strategic Procurement
Corporate	Legal Services
	Learning Design and Delivery
	Career Development

Figure 1. Extract of DSTA Competencies

## 4 DISCUSSION

### *Challenges*

DSTA IRC has continuously worked to build a collection relevant to users' needs, in order to make best use of public funds. However, DSTA IRC has found that beyond the acquisition phase, the "last mile" for the information resource to reach the users is equally important. Through staff surveys conducted in 2010 and 2011, DSTA IRC received feedback that more could be done to increase user awareness of the information resources in the collection. At that time, DSTA IRC was already reaching out to users via the organization's intranet, a monthly email bulletin, and a thematic display. However, this was typically done at the end of the acquisition life cycle, when information resources were already in the collection. To further increase user awareness, DSTA IRC has started to involve users more actively at the beginning of the acquisition life cycle, i.e. during collection development.

Since there is less than 1 FTE librarian assigned to the functions of collection development and liaison, DSTA IRC has leveraged on organizational expertise to ensure requested information resources are relevant. Previously, a user would seek support from his department head before submitting a form to DSTA IRC to obtain an information resource, either through purchase or inter-library loan (ILL). The assumption was that the department head would possess the expertise to assess the request. However, the department head was not always the SME, and the focus was typically to address immediate work needs. Although this patron-driven acquisitions approach made efficient use of DSTA IRC's budget, it would likely create an imbalance in the collection since the focus was on immediate needs. In addition, since the user would not need the information resource after his project had ended, there was no impetus to familiarize himself with other information resources in the collection, or spread awareness of the information resource beyond his team.

In effect, DSTA IRC and users treated the form as a typical service request to start the acquisition process, to be discarded after the user had received the information resource. Consequently, there was no process to transfer useful information in the form to the library catalogue. For example, because the user's department information was not transferred to the library catalogue, a department head or another user would not have an overview of what information resources had been purchased for her department by looking at the library catalogue, even though this would have helped in collection analysis and increased awareness of the information resources relevant to that department.

Even though assigning LCSH to information resources is supposed to facilitate retrieval of information resources through precision and discovery through grouping of information resources into subjects, typical users are not familiar with the LCSH and how they are mapped to the competencies (which are descriptors they are more familiar with). At the other end of the spectrum, the experience of social tagging is that it improves discovery through indexer-searcher consistency, since users perform both indexer and searcher roles. However, social tagging has quality issues due to imprecision, ambiguity of tags, and lack of hierarchy.<sup>19</sup> To yield the benefits of precision, discovery and user familiarity, DSTA IRC identified the use of competencies as SME-assigned descriptors, as a middle ground between the controlled vocabulary of the LCSH and the uncontrolled nature of social tagging.

## *Implementation*

To manage the long-term imbalance in the collection that a patron-driven acquisitions approach would likely create, DSTA IRC had to identify the “right” group of users that would address both immediate and future needs when supporting information resource requests. It was opportune that at that time, DSTA had implemented a taxonomy of competencies to manage organizational expertise more effectively. For each competency, DSTA had identified an SME responsible for organizing technical training and sharing, which included defining and sharing reference books and journal to staff developing in his competency “community”. DSTA IRC identified the SMEs as the “right” group of users to support information resource selection and weeding, since their business needs coincided with DSTA IRC’s goals of building a relevant collection and spreading awareness of information resources.

Beginning in 2010, these changes were implemented in the renamed Information Resource Request (IRR) form, which had changed from just a service request form to become a process to support collection development and increase user awareness. The following changes were implemented:

- During selection, the user would fill up the IRR form and map the requested information resource to a competency from DSTA’s taxonomy of competencies. The request will then be assessed by the SME overseeing that competency, before submission to DSTA IRC. This ensures that information resources purchased are relevant, of quality and cost-effective, and acts as a feedback loop to the SME who can then spread awareness of the new information resources to all the staff in her competency “community”.
- During weeding, DSTA IRC would seek confirmation from the SMEs before removing information resources. This prevents weeding of information resources that have not been used regularly, but are still valid reference materials. Where approved for weeding, this process acts as a feedback loop to inform the SME of information resources tagged to his competency which will be removed.
- During cataloguing, DSTA IRC would complement LCSH by tagging each information resource with the SME-assigned competency information found in the IRR form. Instead of manual updating by the SMEs, DSTA IRC would just need to update the bibliographic record twice – once during selection and once during weeding – and users can immediately view the updated lists of reference books and journals (organized into competencies) in the online library catalogue. This is more efficient for both the SME and users over the long run, as the SME does not need to maintain a list of reference books and journals, and the users do not need to request the SME for an updated list on an ad hoc basis. In addition, dual-tagging with LCSH and SME-assigned competencies provides resilience, as the LCSH acts as a fall-back for subsequent re-tagging in the event of changes to the competency structure and/or competencies.
- During collection analysis, DSTA IRC and the SME can immediately refer to the list of reference books and journals in the library catalogue to identify gaps in the collection, instead of generating a new list each time.

## *User Feedback*

User awareness of information resources in DSTA IRC has shown improvement. In the 2012 staff survey, users' ratings of the quality of service provided by DSTA IRC hit the stretch target by improving from 98% to 99%, and user feedback showed better appreciation of the "wealth of knowledge" within DSTA IRC.

## **5 CONCLUSIONS**

By leveraging on each SME's competency expertise, DSTA IRC has been able to build up a relevant collection with less than 1 FTE librarian assigned to collection development and liaison. The SMEs add a degree of balance to patron-driven acquisitions, as well as act as a channel to spread awareness of information resources to their competency "communities".

By leveraging on the taxonomy of competencies, DSTA IRC has been able to dual-tag information resources with LCSH and competencies, which yield the benefits of precision, discovery, user familiarity, and resilience. The use of the library catalogue to tag the information resources is more efficient, as SMEs no longer need to manually maintain lists of reference books and journals. The library catalogue can give DSTA IRC and the SMEs an overview of the collection for each competency, so that strengths and gaps can be identified during collection analysis.

While the implementation was prompted by fiscal and staffing constraints, the use of patron-driven acquisitions and organizational taxonomy to build a relevant collection, as well as the dual-use of LCSH and assigned descriptors from the organizational taxonomy to improve precision, discovery and resilience, is applicable to academic, school, and special libraries.

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