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The Role of Systems Librarian for Establishing and Developing A New Academic Library

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Abstract

Just like the King Abdullah University of Science and Technology (KAUST), its Library is also a brand new organization, which was opened in August of 2009. Built from scratch, it can be said the KAUST library started from point zero: whether it is organization structure, facilities and equipment, or human, information and intellectual resources. However, starting from zero does not mean starting from low: it is filled with modern library design ideas, equipped by advanced facilities and equipment, and had been implementing the most updated systems. This is a unity of contradictions, and this kind of environment brings to its staff members considerable and unprecedented challenges. As the first system librarian in the KAUST library who directly deals with cutting edge technology with updated high speed and ever more sophisticated networking relations with others, the systems librarian has to stand at the frontier to face the varieties of challenges presented. This paper tries to capture this rather specific but also a kind of typical background, using real world scenarios and first-hand experiences, to review the concept of the system librarian as a professional and its rapid evolution under the daily changing world; to reveal the on-going expanding and altering responsibilities in this position; to analyze its relationship with library itself, as well as with the other organizations within the campus (ex: campus IT). It will also explore and address how system librarians could wrestle these challenges.
Introduction

Just like its parent organization - King Abdullah University of Science and Technology (KAUST) - KAUST Library is a brand new library which serves the teaching and research needs of KAUST academic community. Built from scratch, it can be said the KAUST library started from point zero: whether it is the organization structure, facilities and equipment, or personnel, information and intellectual resources. When it opened in August 2009, there was quite a situation at hand. There was only about 10 library staff members, the rest of the necessary professional staff either have yet to arrive or those positions had not been filled yet, and most of the assistant staff had just graduated from university and did not have library background or work experience. Most of the book shelves in the spacious hall were empty with only several shelves at the front being lined with around 2000 books, which were purchased from a local bookstore by our director who drove 50 miles to pick up the books personally. The integrated library system had just been installed and inside the system, the bibliographic database and patron’s database were empty; necessary individual modules such as circulation, catalogue, acquisition and many more waited to be implemented. Moreover, the library staff members needed to be trained to understand each of the library's functionality.

After 14 long months of effort while the library simultaneously underwent continual developments, library staff training, as well as still providing services to patrons, the KAUST library successfully grew into medium sized academic and research library which now includes three units with a total of 25 staff members and still expanding rapidly. Its print collections have over 10,000 items and the number of subscription of electronic resources stands at approximately 70, covering the major science databases and e-journals and these numbers grows daily. Opened 24/7, the library supplies a comprehensive arsenal of facilities, including 150 networked workstations, 20 glass-enclosed collaborative learning spaces and a sea-view meeting room with video conferencing capability, a computer lab with specialized software for the sciences, and many more. Operating well, the library's integrated system has supplied the library with the automated ability to function in all the core tasks like circulation, cataloguing, acquisition, document delivery, etc. Based on a user-centered and user-friendly approach, the interface of the library systems has been customized and developed as a one-stop portal for searching library online catalogue, accessing electronic resources, self-tutoring information services, browsing library updated news and events, managing personal accounts, requesting materials, feedback etc.
To achieve such progress in such a short time, without doubt, all of the library staff members, either professional or non-professional, have each played their role and performed outstandingly to make this happen. Then, what specific role the systems librarian had played, and what experiences and lessons can be generalized from this unique environment and are worth writing down to be shared with peers? Before answering this question, first we should review about the concept of the systems librarian as a profession and its rapid evolution within the daily changing world.

**What Is A Systems Librarian?**

There are many definitions about what a systems librarian is and what this position entails. Some of them are quite general, such as “a systems librarian is a librarian who is responsible for managing the information technology used in a library”; some are vague like “the systems librarian's mission is to work with constantly changing technology”; some description are worldly and metaphoric: “the systems librarian is the middleman, the go-between of the supplier and user: priest-like interpreter of the mysteries; hippy-like dealer in good vibes”; some are more articulate and philosophical: “systems librarianship is the art and science of combining the principles of librarianship with the abilities of computing technology.” These variations and varieties are probably due to that fact that libraries, as an organizational structure, are widely different in type and function (what kind of library), size (how may staff members) and the level of technology (how advanced in their technical equipment). These differences translates into differing tasks and responsibilities to be undertaken by the systems librarians at each library, generating a wide variety of definitions of what it means to be a systems librarian. At the same time, the systems librarians need to keep up with the constantly changing and evolving technology, causing the role and responsibilities of a systems librarian to be constantly in evolution. To better understand what a system librarian is in the current technological environment and the specific setting that he/she is exposed to, we will define the environment addressed in this paper as academic and research library of medium size. It is helpful to look at what kind of technology was adapted and implemented to be used in the academic library for its overall automation and computerized procedures, and what kind of responsibilities, tasks, and roles that systems librarians generally play in this setting.
Present Scenario of Library Technology

The library has come a long way through the evolution from manual handwritten cards to typewritten cards; from mainframe and minicomputer technologies to microcomputer technologies, and from function-specific separate systems to integrated library systems\(^v\). Today, the library technology has entered the so called “re-integrating\(^vi\)” stage, which includes but not limited to the increasing attention being given to electronic resources and their management, the increasing use and adaptation of social computing and networking in the library due to their congenial characteristics, the ever-broadening array of innovative devices and applications that has become implemented and associated with the library. Let’s take a closer look at what today’s library technologies consist of.

Currently, the integrated library system continues to take center stage. However, this genre of software of today is no longer just the traditionally recognized functions centered on print collection management such as cataloguing, serials, acquisitions and circulations. In order to satisfy the ever growing demand for management tools of digital resources, the integrated library system has been rapidly expanding its modules and functionalities. The ERM helps to manage electronic resources. The Link Resolver based on the OpenURL protocol provides an infrastructure for context-sensitive linkage between indexes such as citation and abstract databases and full-text library services such as academic journals and other resource formats. The federated search engine enables the users to simultaneously search multiple separate resources through a single query request. The digital asset management system such as the institutional repository allows the library to deal with various contents that cannot be handled by ILS. The content management tool allows librarians to easily post content onto the website, such as resources and tutorials, without needing any HTML knowledge or having to go through a web developer.

Besides the new software that targets the library’s new services and needs, many social computing tools have also joined the family of library technology. “Blogs sprouted as a vehicle for continually updated content and to lend personality to a library's web presence. Wikis, intranets, and shared file systems house documentation, procedures, and other data that library personnel need for their work.\(^vi\)” Facebook, twitter, and youtube, etc, have also been vastly adapted by the library for exchanging messages, obtaining feedback, and social networking, which reflects the library’s value as a community and social experience, not just a facility. As
library systems have traditionally only consider desktop and laptop as their terminal devices, now they also need to consider smartphones, ipad, and e-readers among other digital devices. In the past, they only had to worry about how to design the interface to best display the information on the traditional monitor, but now they need to think of podcasting, streaming, and other methods for display in non-traditional screens. They need to consider increasingly more supplements like RFID and self-check machines, devices which are used to better equip the library’s automated functions for security, inventory, and others.

Today’s libraries operate in partnership with a variety of other organizations, including their parent institutions, other peer libraries, and suppliers of all varieties. Computer networking and cloud-based technology make exchanging data and services between different systems from different vendors possible. For example, through special API supplied by the ILS vendor, ILS can integrate with financial management tools such as SAP to transfer financial data to campus procumbent department. By integrating with bibliographical enrichment systems, the library OPAC can display much more content that are not included in their MARC records such as book cover image, table of contents, summaries, book reviews, etc. By joining the campus’ single sign-on system, library patrons avoid having to do duplicated work for authentication, managing personal account and other access controls. Library systems now shift away from stand-alone isolated silos that have previously dominated. A “re-integrating the integrated library systems” era is coming. The next image illustrates the present scenario of library technology and their relationship within each others.
The Roles Of The System Librarian

In such a technical environment, what should the systems librarian do and what should be expected from this specific position? The system librarian’s tasks can be quite numerous and varied, depending on the organizational structure, size, and many other relevant factors. Rather than attempting to define exactly what a system librarian is, it is more practical to describe the position by identifying the shared common responsibilities between most if not all system librarians. The list below attempts to create a summary of the responsibilities of a systems librarian:

• systems implementation, maintaining, upgrading
• server and host administration
• “tweaking”/customizing software
• training, documentation, and support
• application development
• planning and budgeting
• specification and purchasing
• technology exploration and evaluation
• miscellaneous technology support
• technical risk management
• communication and coordination
• consulting on technology perusing and usage in library

While a systems librarian may include all of the above, there are several roles of a systems librarian that are especially important in the process of establishing a new academic library. These roles are elaborated in detail in the following discussion.

As an organizer

With advanced automation and computerization, today’s library has a work environment with high levels of procedure and collaboration. At the same time, the library is also a labor-intensive profession. The library is like an accurate machine, with each staff member as a component of machine. Only when each and every part is functioning well, can the whole machine work properly and efficiently. However, it is not easy to achieve this. It needs time, experimentation, and work. For a new library under development, due to the lack of hands, lack of training, or lack of knowledge, it is important and imperative to realize the library systems’ functionality and make the library run as a whole organic machine. In a fully matured and established library, what positions are necessary and what tasks each position should be responsible for have already been organized. However, these organization and delegation of responsibilities are crucial for a new library. As a systems librarian, it may be necessary to take the responsibility to initiate action and organization.

For example, during ILS implementation, the systems librarian needs to spend a large quantity of time to work with all the units to analyze workflow, and identify the tasks and assign each task to specific staff members. Only when the tasks are distributed accordingly can the full capabilities and functionalities of the library automation be realized. Acquisition is high in demand for the new library. However, for almost a year at the KAUST library, acquisition orders
were still being done manually using excel. Why did the acquisition staff members not use the ILS acquisition module, which was the first module to be taught to the staff? After discussing the issue with the related staff, we found that the type of workflow the ILS acquisition was designed for did not fit the environment in our specific library’s environment. The circumstances of acquisition procedures were more complicated in our library’s case. The process involved collaboration between several units within the library, as well as between the library and the procurement unit. The staff members of research & reference review requests (from different channel like opec, email, list, etc), make selection, and obtain approval. The staff members from tech service create the orders and bibliographical records, send PO to procurement department, follow up the status, Tracking PO status, claiming overdue orders, and make invoice, etc. The staff members in administration take care of checking the arrival and organize the shelves. To have an intuitive understanding, the systems librarian drew a workflow chart to show the management for their discussion; the systems librarian also requested trainers from vendors to give further training to the staff, not only to help the users refresh their skills with using the tools but also become able to combine the tool with specific local practice and needs. Through using demonstrations and more detailed elaboration of each step, and also to resolve any problems (such as teaching the staff to change the file format from the text files which ILS gives into the excel files that procurement unit requires), the systems librarian worked with each related group of staff to make sure each part is working well and the chain is running smoothly.

For the first several months, the systems librarian was responsible for many catalogue related jobs. This situation could not last as there was increasingly more implementation, administration, training and other work the systems librarian needed to do. To resolve this issue, suitable assistant staff were selected and trained to take over the catalogue related work. A circulation team had also been appointed to take care of the circulation and administration work. The systems librarian worked closely with them to clarify the procedure, and to make sure the related staff understood their duties and tasks. In the normal situation, as Merri Beth Lavagnino pointed out\textsuperscript{15}, this kind of work may not be necessary or may not be time consuming to do, but this kind of organizational work is definitely necessary in the process of establishing a new library.

\textbf{As a connector}
The most common description about systems librarian is: “systems librarians bridge the two worlds of technology and librarianship.” This is true. However, Today’s networks are no longer merely linear connections. They have evolved into multi-nodal and nebular networks. They are interwoven and intertwined, dynamic and boundless. The systems librarian is more like a hub that connects different routes from different directions, and somehow makes all these connections seamlessly.

As library technologies become increasingly more complex and versatile, no single vendor can supply the necessary software and equipment to satisfy the entire library needs, or resolve all of the problems constantly emerging in the library. In this situation, the systems librarian has to deal with many different vendors, to cooperate and coordinate the work between the library and each of the vendors, as well as between the vendors themselves. At the same time, the systems librarian has to communicate between the campus IT and vendors, and help them build understanding and collaborations regarding network, security, and database backup. For example, there are more than 5 channels which need to be connected during the RFID implementation and integration: purchasing agent, equipment producer, software consultant, ILS vendor, campus IT, campus commissioning department, etc. There is tremendous communication and coordination involved. The location and network port need to be defined, the authentication schema needs to be designed, and the IT needs to set up static IP addresses and open firewalls. The system librarian also needs to request vendors to install SIP2 interface, purchase licenses, process related documents, and organize phone conferences through three continents and four countries with five time zones in order to discuss issues. In some cases, the system librarian might even need to help communication within another organization. For example, in one situation, the system librarian got a report from the vendor saying that they could not access the ILS server, but found out that another technician in their organization had no problems accessing the server. The systems librarian found out that the problem was because there was a lack of communication within their own organization, and did not informing each other of changes in the access policy. In this case, the systems librarian had to play the role of a messenger to help build the connection.

As the library technical services involve more and more networks, the systems librarian also needs to cultivate relationships with different groups within and beyond the campus. The current projects that the system librarian is engaged in, such as the single sign-on project
integrating online catalog with the campus portal, or the remote access for subscriptions and
electronic resources through proxy servers, all require a significant amount of communication
and coordination in order to build connections between several units. The systems librarian will
play an irreplaceable role for in the process of building connections between the parties involved
in order to keep the ball rolling.

**As an interpreter**

Due to the different levels of understanding and experience with technology among the
library staff, the staff members exhibit different expectations from the technology. Some of them
have the tendency to think the computer is omnipotent, or that the system should be able to obey
any and all requests. Some of them may not know what tools are available or how to use the
technology. In this situation, the systems librarian has to explain how the system works and why
it works that way, what the logic behind the functions is, what are the system’s capacity and
limitations, and how different circumstances would affect its potential. These explanations would
help them gain a better understanding about the system, and soothe any anxiety or frustrations
that may arise from their usage of the system.

As the library technologies become more versatile and more web-based, and because
each library unit has different focuses and emphases, it is natural to have different opinions and
arguments regarding the technologies arrangement, such as their usage and publication, or how
to market and guide the end users. As a systems librarian, it is necessary to use his/her
professional knowledge and experiences to give a detailed analysis and impartial opinions in a
holistic view. The system librarian may need to help the different parties come to an agreement
or compromise through acting as a mediator or interpreter to help the understanding between
each party.

During the new library’s development, the system librarian not only needs to resolve
technological issues, but may also have to deal with contract disputes and distribution of
responsibilities. For example, during the integration of the single sign-on system at KAUST,
there was a heavy dispute between the ILS systems vendor and the implementation team who
were a software consultant company. Each of them claims that the counterpart should do the
integration work. In order to resolve the issue, the systems librarian had to check through
hundreds email correspondents, as well as review the contract and other related documents
thoroughly. Based on the information obtained through thorough research, the systems librarian
wrote a detailed report which clarified the tasks and responsibility for each party for the management. Therefore, the systems librarian was able to help to resolve the issue and the implementation work can be continued.

**Challenges And Lessons**

There are a lot of challenges during the implementation and development of the new library. Some of the lessons learned during this experience may be worth sharing with peers.

**Emphasis on efficient staff training**

As mentioned above, during the period of establishing a new library, some positions are not filled immediately, most staff members are not familiar with the system, and many assistant employees do not have library work background. Due to the lack of sufficient employees, each staff member has to be trained to do several jobs. This situation brings a new challenge to the systems librarian: having to train the staff to do multiple jobs, and how to best divide the work amongst them. Besides the vendor’s training, the systems librarian also had to give special small group or individual training to specific employees because the general training from the vendor was not enough for all the tasks required of the employees. At the same time, while each member may have multiple tasks to take care of, they also need to be aware of their priorities. Certain members are especially responsible for certain tasks, which may be assigned to them based on their interest and competency at those tasks. Some of the assistant staff, who did not have any background in the library setting before, have now obtained the skills to do professional jobs such as circulation, cataloguing, acquisition, and electronic management, and others.

**Build cooperation by communication**

During the period of new library development, there were many tasks being undertaken simultaneously. In this situation, cooperation is important for the accuracy, efficiency, and success. In this new organization, people come from the all over the world. They bring their own knowledge, experience, values and preferences. It is stimulating and exciting to work in such a multi-cultural environment. However, it also brings with it a big challenge for cooperation. In this situation, the systems librarian should take the initiative to communicate with library staff members, administrators and campus IT technicians. Through communication, each need and requirement can be clarified. Through communication, the common understanding can be built up: “software used in one part of the library will have a direct or indirect impact throughout the organization.” Through communication, “help administrators understand the importance of the
funding technology projects, staffing technology departments, and allotting sufficient time and resources to your efforts xii.” The more the administrators understand about the key issues involved in library technologies, the more support the systems librarian will be likely to get.

**Conclusion**

In today’s library’s technology environment, systems librarians undertake multiple tasks and play multiple roles. Although managing the integrated library systems is still the most common duty, systems librarians also have the responsibility to take care of the library’s technologies from the planning to the final usage. This is especially important for small to medium sized academic libraries due to the limited number of technical staff members. During the establishment and development of the new academic library, organization, training, connection, and interpretation are most important aspects among the many roles that the systems librarian might play. Intensive training, strong cooperation, and improvement of communication are important methods to deal with the many challenges involved.
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