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Smarter Libraries through Technology: Distinctive Characteristics of Special Libraries

By Marshall Breeding

I observe in my work with different types of libraries a growing difference in the roles they play for their clientele and in the technology they need to support that work. Although there are some common core functions, each group seems increasingly distinct.

Common ground includes the acquisition, organization, and fulfillment of information resources on behalf of a defined body of stakeholders. In academic libraries, the stakeholders are the students, faculty and staff members of a college or university. Public libraries provide resources for the general public of their service area, and school libraries work mostly with enrolled students. The services that each type of library provides to these stakeholder groups each take quite a different form.

In broad strokes, academic libraries serve the information needs of a college or university for its curriculum and research activities. For most universities, the majority of this information comes in the form of subscriptions to the scholarly and professional literature provided mostly in electronic formats. New spending on print monographs and serials represents a small—and diminishing—proportion of collection budgets. Most have substantial legacy print collections, increasingly relegated to off-site storage facilities. Public libraries—serving populations spanning all ages, ethnic

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groups, and income brackets—aim to provide a broad selection of materials for their patrons. Print materials continue as the lifeblood of public libraries, with interest in e-books and audiobook lending ever rising. School libraries provide appropriate materials to students by reading or grade level, working closely with teachers and administrators. These diverging operating assumptions also translate into different needs for technology infrastructure.

Special libraries represent yet another category of libraries with an even more distinct set of assumptions. While still within the common mission of acquiring, managing, and providing access to information resources for its stakeholders, special libraries—especially those within corporate environments—generally work within a more strictly defined set of operating principles.

A diverse set of organizations fall within what is generally considered the category of special libraries. Examples include libraries or information centers that serve corporations, law firms, government agencies or departments, non-governmental organizations, and non-profit organizations. Libraries serving each of these types of organizations will naturally collect and manage resources in distinct subjects or disciplines, but they share some common characteristics. These include that:

- they focus on materials in electronic and digital formats, including:
  - subscriptions to electronic resources in relevant academic or professional disciplines acquired form commercial publishers;
  - proprietary content, such as reports and other documents published internally that may be restricted from use outside the organization; and
  - digitized images or video.
- they have less of an emphasis on print formats. These libraries may have relatively small collections of published books, but they may deal with historical reports and archival materials created in print.

For many of these organizations, there is no expectation that library resources will be available on the open web. Corporate libraries mostly exist behind a firewall. The concept of an intranet pervades where most company business is conducted within their private networks, with an entirely different set of content presented through their public web sites. These intranets provide a set of resources of interest to personnel affiliated with the organization. These resources are often sensitive, intended only for internal use by specific departments within the organization. Access to the intranet is provided only once authorized users authenticate using their corporate credentials.

The primary users of special libraries are usually the employees of the organization. The library is responsible for providing the information resources that employees need to perform their work. Some may be expected to provide at least an initial level of analysis of the information rather than simply providing the information in raw form. Some special libraries may also offer research services to external stakeholders, such as customers or the general public.

The traditional integrated library system, with its emphasis on print materials and business rules for lending, is not necessarily a good fit for special libraries.

Special libraries often work with a much different set of expectations regarding privacy and confidentiality than what applies to public or academic libraries. Since their use of the library is part of their work responsibilities, there is usually no assumption of anonymity or privacy in the use of the information resources provided.

These trends in collections shape the types of technology tools needed by these organizations. The traditional integrated library system, with its emphasis on print materials and business rules for lending, is not necessarily a good fit for special libraries. The index-based discovery tools oriented to academic libraries are less applicable. These libraries may also need to provide access to the body of published scientific literature, but also must include proprietary resources.

Instead, other products and services have been developed to meet the specific needs of special libraries. These products may include vestiges of functionality from integrated library systems, but mostly deliver functionality consistent with the collections and organizational characteristics mentioned above.

Key categories of functionality for these organizations might be built around concepts such as enterprise knowledge management. These organizations may work more with document management systems or digital asset management platforms. These tools often need to have strong analytical components to identify and distill needed information from large quantities of textual or rich media content.

Given the requirements for access control and to work within the firewall, these libraries often have needs for

authentication authorization. Library tools and information resources need to be available through the single sign-on the organization may have in place for access to its other productivity and business applications. Public and academic libraries may be used to exposing their online catalogs to the general web, but it is common in special libraries to allow only internal access, often requiring individual authentication rather than anonymous access.

Given these distinctions in organizational and functional assumptions, it is not surprising that these libraries are served by a distinct group of companies and product offerings. While the companies offering integrated library system products to public and academic libraries may also include some special libraries within their customer base, they are usually offering them to special libraries with more involvement with physical collections.

The roster of companies specializing in technologies for special libraries includes:

- **Lucidea**: a consolidated company that includes SydneyPLUS, Inmagic, and Cuadra Associates, and Questor Systems. (See the June 2010, December 2011, and July 2013 issues of *Smart Libraries Newsletter* for more information on the evolution of Lucidea.) This company specializes in libraries serving law firms and large corporations.
- **EOS International**: now a part of SirsiDynix, this organization serves a diverse range of special libraries as well as smaller academic libraries. (See the December 2013 issue of *Smart Libraries Newsletter* for the company background and acquisition by SirsiDynix.)
- **Soutron Global**: a more recently established company offering library management software originally developed in the United Kingdom. (See the April 2012 issue of *Smart Libraries Newsletter* for more information.)
- **Softlink**: based in Australia, this company has developed its Liberty library management system for special and academic libraries.
- **CyberTools for Libraries**: specializes in libraries in healthcare organizations.
- **TDNet**: a spin-off of Teldan Information Systems that offers discovery, portal, and authentication tools primarily for special libraries.

This issue of *Smart Libraries Newsletter* includes a feature on TDNet, which has not previously been given extensive coverage in this publication. Discovery products represent an important genre within the overall library technology sector. EBSCO Discovery Service, Summon, Primo, and WorldCat Discovery service have been seminal products for academic libraries, and BiblioCommons has created compelling interfaces for public libraries. The technology products of TDNet provide an opportunity to consider aspects of discovery and access to content through the lens of special libraries.

TD Net: Discovery and Resource Management for Corporate Libraries

Smart Libraries Newsletter has provided extensive coverage of index-based discovery services and tools for managing electronic resources oriented to academic libraries. These include products from ProQuest, Ex Libris, EBSCO Information Services, and OCLC. These products compete vigorously in the academic library sphere, with some also expanding into other markets such as public libraries and schools. Another company, TDNet, also offers these types of products, oriented to corporate, medical, and other special libraries. This article rounds out our coverage of discovery services, providing an overview of a company and its products that may be less familiar to those in academic and public libraries.

Company Background

TDNet is based in Tel Aviv, Israel, with offices in West Chester, PA in the United States. The company was founded in the year 2000, with backing from venture capital firms Landmark and Delta Ventures, in addition to Teldan Information Systems, its corporate parent. Asher Sofrin serves as Chief Executive Officer for TDNet and as the Managing Director for Teldan Information Systems. Moshe Efron is the Vice President of Sales. Doug Madigan joined TDNet in September 2015 as its Sales Manager for North America. As a private company, TDNet does not disclose its business details, such as the specific number of employees or annual revenue. In a telephone interview,

with both Efron and Madigan, Efron stated that the company serves several hundred customers, with about 65 percent in the United States and the remainder in Europe, which characterizes the size of the company as smaller than other industry players.

TDNet operates partially as a subsidiary of Teldan Information Systems, which was founded in 1978. Teldan's core offerings include subscription management services, aggregated databases of e-journal content primarily in the fields of science, technology, medical, and engineering. The company also offers tools for managing military information and operates the annual INFO conference and exhibition. Teldan offers e-content management and discovery services via TDNet.

The founding of TDNet came about to help Teldan Information Systems respond to the trend playing out in the mid 1990's of publishers shifting to electronic formats. As a major subscription agent, the company perceived the opportunity to expand its business by creating tools to help manage these emerging electronic resources. Development of the TDNet knowledgebase and electronic resource management applications commenced in 1998. TDNet was officially launched at the IFLA General Conference held in Jerusalem in 2000.

TDNet works primarily with corporate libraries and those supporting health care organizations, though its customers do include some academic and other types of special libraries. This orientation to special libraries drives significant differences compared to those from Ex Libris, OCLC, and other companies that are oriented more toward academic libraries.

TDNet's products are based on an e-resource knowledge base and a discovery index it has developed. The knowledgebase is oriented toward the resources of interest to its key customer base of libraries in the corporate environment and healthcare. These organizations often subscribe to much of the same range of titles as academic libraries. The TDNet Knowledge base currently describes 324,000 journal titles, over 830,000 books, and 2,900 aggregated databases of full-text content from over 52,000 different publishers. Each library receives its own copy of the knowledge base that is frequently updated and can include coverage of private or proprietary collections that are not part of the global distribution. Efron indicated that several company personnel work directly or indirectly with the upkeep of the knowledge base, but that increasingly parts of this work can be automated as vendors deliver holdings data in standard formats, such as KBART, and with improved quality control.

One of TDNet's early products was an OpenURL link resolver called TOUResolver, which is able to determine appropriate links for articles based on metadata in its knowledge base. TOUResolver functioned much like Ex Libris SFX and was purchased directly by libraries and licensed through partners, such as Endeavor information Systems. The knowledge base can also be used to generate A-Z lists of journal titles or other finding aids.

The TDNet Knowledge base currently describes 324,000 journal titles, over 830,000 books, and 2,900 aggregated databases of full-text content from over 52,000 different publishers.

The TDNet Electronic Resource Management (ERM) product includes a variety of components to assist an organization in the acquisition and management of subscription-based content and can be configured for consortial or single-institution deployment. The ERM includes the ability to manage vendors, collect and report usage statistics, track the holdings contained within each package, and to manage renewals and cancellations.

In recent years, TDNet has reshaped its product lines away from traditional modules such as ERM tools and link resolvers and more toward higher-level functions. TDNet currently organizes its offerings around three categories of functionality: Discovery, Portal, and Authentication.

Discovery

TDNet Discover brings together a variety of technologies and content components into an environment designed to enable library users to search and view results from across the entire set of electronic content offered by the library. This discovery tool makes use of both pre-indexed content held in the central index maintained by TDNet as well as federated search technology directly accessing external targets of resources. This hybrid approach contrasts with other index-based discovery services that rely entirely on a central index.

The TDNet Central Index forms a core part of its discovery product. This index is populated from a large number of sources such as PubMed, PubMed Central and content from many other publishers. The index includes full text of articles when available in addition to the citation metadata. The central discovery index of article-level metadata and content also incorporates the knowledge base of metadata and holdings at

the journal title level. This approach facilitates the presentation of valid results regardless of whether the searcher is looking for a given journal title or for relevant articles.

TDNet Discover blends index-based retrieval with federated search, with the ability to blend all results from all sources into a single relevancy-based list. The central index continues to expand. Popular federated search targets can be incorporated into the index when the publisher is willing to provide content to TDNet.

Many of TDNet's customers are corporations or other organizations that manage private proprietary collections in addition to their subscribed resources. TDNet is able to manage these private collections in the copy of the knowledge base and indexes used by such an organization without exposing that content publicly.

An important capability of TDNet Discover relates to providing reports and statistics on the use of resources. The environment includes a built-in Sushi harvester, which automatically collects COUNTER statistics for each of resource.

TDNet is currently working toward merging its electronic resource management tools into its unified discovery environment. The core functionality of the ERM addresses the complete lifecycle of electronic resources, including acquisition or renewal, tracking license terms, vendor contacts, and authentication or authorization details. The environment also collects and aggregates use statistics. These capabilities will gradually become part of the back-office console of TDNet Discover.

Madigan noted that TDNet is one of the few remaining providers of discovery and electronic resource tools that is not also a content provider. This independence assures no bias in how these products perform relative to content resources from any given publisher.

Portal

TDNet has also created a content management system that provides a complete web site or landing page for the library. This portal environment surrounds the core discovery component with relevant content items and searches. Many libraries in a corporate environment may not have ready access to the enterprise intranet in a way that enables them to make timely updates or incorporate specialized search features.

The TDNet portal enables personnel in the library to easily create content pages, either for specialized topics or to serve as the library's main website. Functions based on TDNet Discover can be formulated into widgets, which can in turn populate the portal or external web-based resources. These widgets may provide general search capabilities or can be personalized for any given user.

Especially when implementing the TDNet authentication services, the view seen by a library user can be customized according to roles defined or inherited from a single sign-on process.

Authentication Services

Another area of functionality TDNet addresses involves authentication services. The needs of its typical customers, such as pharmaceutical companies or other corporate entities, come with very sophisticated requirements for interoperability with local authentication services. The requirements of these kinds of organizations differ considerably from colleges and universities that continue to rely mostly on IP-based authentication.

TDNet provides a variety of tools to enable users to leverage their single sign-on for access to the discovery environment as well as to external content resources. TDNet works with a variety of authentication services. It has a long-standing reseller arrangement with OpenAthens and has developed an integration layer with its TDNet Discovery environment. OpenAthens was developed by Eduserv, a non-profit organization based in the United Kingdom. The company also works with SAML (Security Assertion Markup Language) used in many corporate environments to provide a single sign-on with its discovery environment and with the electronic resources accessed. The company can also implement an option on a corporate network to automatically redirect access to a library content resource through the discovery environment. This redirect can even occur when the user attempts to access it via its native URL, enabling all use to be captured for statistical reporting. TDNet's authentication services are designed to enable access to authorized resources from any location and through any device, including tablets and smartphones.

Professional Services

TDNet adds value to its products through its professional services. Rather than using the products with their default deployments, TDNet offers services to integrate and customize its content and technology products into its customer's technical and organizational environment and with third party providers.

TDNet is able to implement specialized thesauri according to the specific requirements of the library. Some institutions may, for example, prefer to incorporate Medical Subject

Headings (MeSH) or other customized subject headings into the information architecture of their implementation.

Technical Details

TDNet does not publish the specific details of the technical components that underlie its products, but the company emphasizes that they are based on an open approach that follows applicable industry standards. The TDNet applications are based on APIs that can be used to create alternative interfaces, widgets, or other customized functionality. For more information on TDnet, see http://www.tdnet.com.

Atmire Acquires Open Repository

Atmire, a company providing services surrounding the DSpace repository platform, has acquired Open Repository, the platform offered by BioMed Central for institutional repositories of open access content. The Open Repository service is based on the open source DSpace application, implemented primarily to support institutional repositories. Organizations of many different types contract with Open Repository, including universities, non-profits, and other research organizations. Open Repository offers both a premium version with a more robust set of hosting, configuration, and support services and a lite version, providing organizations a lower-cost approach with more basic features and services.

BioMed Central, owned by Springer Nature, functions as a major open access publisher. Though founded in 2000 in the United Kingdom, the publisher is active globally with over 500 member institutions. BioMed Central publishes a variety of open access journals across a variety of scientific disciplines primarily related to biology, medicine, and health.

Open Repository was launched in 2008 to provide deployment, customization, support, and hosting services for institutional repositories. The open source DSpace software was used as the technical infrastructure for these repositories. BioMed Central began providing services related to institutional repositories as an additional way to promote open access publishing in addition to its formal journal titles. BioMed Central currently publishes hundreds of open access STM (Science, Technology, and Medicine) journals with over 30,000 articles issued each year. Divesting Open Repository enables BioMed Central to focus its resources on that core activity. As of August 1, 2016, Atmire, with well-established expertise in DSpace, will assume responsibility for providing support to all of the existing customers of Open Repository.

Taking on ownership and support for Open Repository fits well within Atmire's business niche of providing support services for DSpace. Atmire is based in Belgium with offices in Rochester, NY. It was established to provide a variety of services for organizations with repositories based on DSpace. Atmire has been providing DSpace services since 2006. The company was founded by Lieven Droogmans, Ben Bosman and Bram Luyten as a spin-off from Katholieke Universiteit (KU) Leuven. Prior to founding Atmire, Droogmans was involved in the creation of LIRIAS (Leuven Institutional Repository and Information Archiving System), a customized implementation of DSpace for KU Leuven.

DSpace was originally developed by Hewlett-Packard and MIT Libraries. It was initially released in 2002 as an open source platform for institutional repositories that could be deployed with a relatively low level of technical difficulty. Fedora, another open source repository application, is generally seen as more complex because it requires at least some technical development by each institution to deploy and customize. DSpace and Fedora now both reside within DuraSpace for coordination of development and governance. Residing within DuraSpace does not preclude other commercial organizations, such as Atmire, from providing services surrounding DSpace.

BioMed Central has no business relationship with PubMed Central, operated by the National Library of Medicine and the National Institutes of Health in the United States.

Another Round of Funding for CollectionSpace

The Andrew W. Mellon Foundation has funded a new grant for $850,000 to Lyrasis for its ongoing involvement with CollectionSpace, an open source museum management application. These funds will help support ongoing development of the software and for further exploration of business models to sustain the project. Lyrasis will work closely with the community of institutions engaged with CollectionSpace.

This grant builds on an initial $1.5 million funding provided by the Mellon Foundation in December 2013 to establish Lyrasis as the organizational home for CollectionSpace. The initial funding was intended to help Lyrasis build the organizational capacity for support, development, and governance of the software and related activities to promote its adoption by museums and related organizations.

The University of California at Berkeley continues its active role with CollectionSpace. The University operates five instances of the software to support its multiple museum collections, administered through its Research IT Museum Informatics team.

The initial development for CollectionSpace began in 2008 through a project led by the Museum of the Moving Image in Astoria, NY, the University of California at Berkeley, and in collaboration with several other European and American institutions. The Mellon Foundation provided funding for this initial development effort as well as for two other grants to Lyrasis for ongoing support and sustainability.

In addition to its support for CollectionSpace, Lyrasis has also been designated as the institutional home for ArchivesSpace, the open source tool for managing archival collections. ArchivesSpace was developed with funding from the Mellon Foundation as the forward migration platform for Archon and The Archivists Toolkit. Lyrasis provides hosting services for CollectionSpace, ArchivesSpace, and other open source software applications as part of its revenue-generating activities.

Lyrasis had entered a process to consider a merger with DuraSpace, the organization providing governance and services surrounding DSpace, Fedora, DuraCloud, VIVO, and other open source repository initiatives. That proposed merger, covered in detail in the March 2016 issue of *Smart Libraries Newsletter*, was dissolved according to a May 2016 press announcement.

Lyrasis has been quite successful in pursuing grants from the Andrew W. Mellon Foundation. According to information available on the Foundation's website, Lyrasis has awarded Lyrasis a total $8,682,900 in funding for 14 different projects since 2006.

Questions or suggestions for topics in future issues?

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