The Future [Technology] Is Now: Part 2

By Scott Garrison, Associate Dean, Public Services & Technology

Great changes have occurred since I first wrote about the University Libraries' technological foundations in the Gatherings article published in May of this year. Dr. John Dunn became WMU's president and among his early actions was the selection of Vice Provost for Academic Affairs Jim Gilchrist to be the Chief Information Officer (CIO). President Dunn's priorities include working together as a community committed to education, and providing quality service to students. In accord with this plan, Vice Provost Gilchrist is using technology to eliminate information barriers and frustrations across the University’s many arenas—instruction, research, communication, student activities, facilities, and management of each individual's official records. WMU is building on an ever-expanding computing systems network through which all functions are implemented and/or facilitated.

President Dunn and Vice Provost Gilchrist see the University Libraries as a mission-critical resource that the academic community, notably students and faculty, should actively use: each has expressed strong support for the Libraries. In response to that commitment, all units of the Libraries from Technical Services to Public Services to Systems and Administration work together, bolstered and facilitated by the strength of contemporary technology, to give our users what they need to be successful. In the end, almost everything can be reduced to one key goal: The University Libraries provides the best access to the best information in the most direct way possible. But, having said that, what does this concept mean from day to day, and into the future?

Here and now

Let me begin with a list of some soon to occur “happenings” that will definitely enhance searching and retrieval of information, i.e., make things better and faster as the Libraries' faculty and staff collaborate to serve the academic community. We plan:

• To pilot a book pull/hold/delivery service in the Education Library in Sangren Hall that will make getting books more convenient. When a user finds a book in the catalog that s/he can check out from Education Library, s/he will be able, online, to request that the book be pulled from the shelf and held. Faculty who specify a date and time when they'll be in their offices may have materials delivered, and students may pick items up at the library.

• To improve the performance of our online catalog, WestCat, for users, we will delete over 100,000 expired user records, and reindex our catalog more frequently than we do now. That will provide more accurate and “useful” data.

• To provide quick reference help, instant messaging (IM) access will be available during the Spring semester, continuing what was started this term by providing live online e-journal help via IM.

• To offer more instructional packages, we'll build more asynchronous online instructional screencast and podcast content to place within WMU's iTunes U service.

• To provide a wiki where English 1050 students may share, critique, and collaborate on writing for their assignments.

• To create Really Simple Syndication (RSS) feeds that advertise our new books, trial databases, and anticipated and unanticipated e-book and e-journal collection and database downtimes. Users will be able to subscribe easily to the feeds from our continually improving website, as well as from their personal iGoogle, GoWMU, or other favorite interface.

• To push the boundaries of what our new social software server can provide us and our users via blogs, wikis, online forums, and more.

• To improve the new e-reserves platform that debuted in the fall of 2007 so that students may securely log in using their Bronco NetID and password, whether directly or through the GoWMU portal.

• To make paying overdue and lost book fines and fees more convenient, we will connect the online catalog, WestCat, to WMU's payment processing portion of the student information system so that students may pay online through the GoWMU portal, as they pay other University fees.

• To refine the Libraries' presence in the GoWMU portal so that those content and services that most help our users are highlighted and emphasized.

• To establish a current set of user expectations for our public computers, and plan with the...
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Office of Information Technology and other campus partners to replace our aging iMacs with new systems that provide a user experience that is more consistent with other computing facilities on campus.

To break down conceptual barriers between Waldo Library and the University Computing Center by building a learning commons between the two halves of our building complex. Students and staff will work together to assist users create documents, posters, and presentations (paying careful attention to copyright, of course!)

As is already obvious, so much of this list of new and/or improved services has to do with the power of the Web. Indeed, most of enhancements will help us, the managers of the Libraries' resources, to do a better job of serving every user. In short, we plan on determining the 'what' of our site so we can figure how to run and maintain it better than we are today. We'll locate and evaluate tools such as content management systems to help us maintain our site, as well as develop our site to communicate better and realize our vision, mission, and program effectiveness.

Where are we headed?

"So what?" some of you might be thinking, "Nothing suggested is that unique." Well, yes it is when contrasted to past initiatives AND there's more to anticipate! For several years, the EDUCAUSE Center for Applied Research (ECAR) has published a Study of Undergraduate Students and Information Technology. The latest study, published in September 2007, is the fourth in a series looking at undergraduate students and information technology. The study is built on a literature review, a Web-based survey, student focus groups, qualitative analysis of student comments, and longitudinal analysis over several consecutive years. The 2007 study includes data from 27,846 students at 103 four-year and two-year higher education institutions.

The study found that 86.1% of students have simple cell phones without Web access. A further 12% have a smartphone (phone-PDA combination). More important, 99.9% send and receive e-mail daily. Some 82% prefer to use their institutional e-mail account to communicate with their institution while 94.1% use their library's website monthly (especially in the humanities and social sciences). Of significance is the fact that 84.1% of respondents use instant messaging daily (especially the 18-19 year old age group).

These data have already impacted our Libraries as, for example, in 2006, the Libraries began sending by e-mail, overdue and fine notices. In place for some time are a popular Ask a Librarian service that functions through e-mail access and a vast e-mail/online document delivery network of full-text files of articles and other materials. But, each additional service has a tendency to create new questions. Will we soon see the value of sending overdue and fine notices by voice or text message? Will smartphones be capable of e-mail, IM, and richer Web browsing offered at a price as good or better than today's simple phones? Will text messaging remain as popular as it seems to be today? Smartphones, such as Apple's iPhone, are bringing together or converging functions more than ever before, offering not just phone, e-mail, calendar, addressbook, and digital photo functions, but also music, video, and Web. And, these functions permit browsing that previously occurred only on traditional laptop and desktop computers. What will any user expect to access from any electronic device? Answers to that question, based on ongoing user studies, will determine other innovations within a few months.

Regardless of the final answer to these and other questions, our Libraries' Web site will be a place of experimentation as well as a source of the "right search" at the "right time." We do not yet have federated, cross-searching of our different databases, e-book and e-journal packages, but this is certainly a trend across the nation. Is it safe to say "yes" for scientists, with their controlled vocabularies, but perhaps "no" for humanists who use both precise and variant phrasing for multiple concepts? How can we make it easier for our users to discover and retrieve not just the books, journals, and more that we acquire every day, but also what we transform through digitization from our rare materials?

Finally, it is obvious that our look to the future will definitely have more questions than answers since there is no end in sight (or sight) to the potential of our changing technologies. We do see that

-Publishers, vendors, knowledge managers, researchers, policymakers, and information specialists or librarians are moving to make journals, monographs, pre-print and post-print publications, and other media available through open access models.

-Science-intensive fields and almost all disciplines, governments, corporations, and the invisible Web are generating enormous datasets that have just begun to be archived and organized.

-WMU Libraries must effectively keep our faculty, who have quite different user needs and habits, as well as the students emphasized earlier, apprised of what we have and what we can do for them.

-We must see the future as an opportunity to apply the latest technology to provide content and services that today's and tomorrow's users effectively use and, more important, value.

-Or as I said several hundred words ago: The University Libraries provides the best access to the best information in the most direct way possible.

A Revolution in Maps:
The New Technology

By Jason Glatz, Maps Coordinator

Over the last decade, there has been a revolution in the world of maps: a digital transformation. This revolution has been quiet—most don't even realize it has happened—yet it has substantially changed the way that maps are created, viewed, and used. Increased computing power, advanced mapping software, and access to the Internet has changed map making and map accessibility from an endeavor that once relied on artistic ability as much as geographic knowledge to one that is largely the province of computer users at both the beginning of the process and the end user. This has opened the field up to individuals like this author who have limited artistic abilities, but have an affinity for maps and geography, as well as to individuals who, through the newer technologies, can find or develop map resources as focused as one's own backyard or as extensive as the known universe itself.

Just as the Internet has changed the way people shop and gather news, by exposing us to many more retailers and news sources, the Net has also exponentially increased the quantity, quality, and accessibility of geographic information. The proliferation of websites, for example, MapQuest and Google maps, as well as stand-alone applications, notably Google Earth, have also facilitated every individual's access to maps. Meanwhile, navigation systems in cars and handheld GPS (Global Positioning System) receivers are quickly making paper maps a thing of the past for most tech savvy individuals. Other technologically engaged individuals are using services like Flickr.com and Panaramio.com to share "geotagged" photographs based on their geographic location.

Most users, however, barely scratch the surface of this technological revolution in maps. Looking up your backyard on Google Earth is fine, but there is much more to the digital map revolution than a spotlight on a treeless house. Needless to say, the University Libraries has participated in this revolution in a number of ways.
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ways. One major project underway is the creation of visual guides to hundreds of locations in the Army Map Service series. These guides are linked to our WestCat records. In the past, our records would simply list the sheets found in Waldo's map area (e.g., 12C, 13D-F, 14G, 14L, etc.). Unfortunately, this is of little utility if you don’t have access to the index map that shows the area that each sheet covers and each applicable number By digitizing and editing our paper indexes, patrons can view online our holdings and determine, without making a trip to Waldo, whether the Libraries’ holdings cover the area of interest. Examples of these maps can be viewed by clicking the link at http://www.wmich.edu/library/digi/waldo/maps/, or by clicking the “click here to view index” link in an individual record.

Here comes GIS!

In a second major project, the map room has also started to offer a complimentary custom mapping service for members of the University community. This service uses a computer program, commonly called GIS, published by ESRI (http://www.esri.com/) under the name, ArcMap, to create visual displays of geographic data. It is available to WMU faculty, staff, and students who wish to incorporate maps into their research, but lack the technical skills to create a map on their own.

GIS, taken from the phrase, geographic information system, is a fast-growing branch of technology. At its most basic level, it is a method of taking spatial data and representing it on a computer screen (or paper). The results can range from a mundane map showing the location of chosen cities to extremely sophisticated spatial models representing the three-dimensional spread of contaminants in soil, water, or air over a given period of time. Perhaps the most visible use of GIS occurs on election nights when news agencies display the election returns as they come in. Although this may be the most visible usage of GIS, it is also widely used in local, state, and federal government, the military, and business world.

Who and why GIS?

There is a wide range of interests among those who find GIS a valuable tool. Cities use it to keep track of land owner-

ship, tax assessments, public utilities, even the number and type of trees in the right of way! Public safety departments also use GIS to track crime incidents, traffic accidents, etc. State and federal governments use it to keep track of infrastructure, demographic change, public health issues, etc. The military uses GIS for logistics and intelligence analysis. Businesses use GIS to locate desirable areas for expansion, formulate delivery routes, etc. Utilities use the technology to troubleshoot and maintain power lines and sewage lines. GIS is also widely used in environmental research and resource management.

As just suggested, the reasons to use GIS are as varied as its users. In short, the cliché that a picture is worth a thousand words also applies to maps. Maps can display large amounts of tabular data in a manner that is elegant and easily understood. They can also illustrate trends that may not be readily apparent when information is contained in a spreadsheet or database. For example, the map included with this article shows the geographic distribution of WMU students, that is, where are their home counties and what percentage came from there to here in 2006. An Excel spreadsheet of these data, besides being cumbersome, would lend little insight into the spatial relationship between WMU and its students’ home-towns—even if the reader were intimately acquainted with the actual location of all of the state’s counties. The map makes it clear that the majority of Western’s students come from Kalamazoo, Kent, Wayne, and Oakland counties, which would come as no surprise to anybody familiar with the population distribution of the state. Western also draws heavily from the counties adjacent to Lake Michigan and the I-94 corridor. Significant representation from the Lansing area is conspicuously absent.

This particular Michigan map, however, is a rather simplistic example of what GIS can do. It examines the spatial relationship of eighty-three counties at one point in time. While basic analysis like this can shed light on the collected data, GIS truly shines when examining complex data sets containing thousands or hundreds of thousands of points of data. This software, combined with the processing power of modern computers, allows researchers to gain insights that were not available to traditional “pen and ink” cartographers.

Why the University Libraries and GIS

The custom mapping service provided by the University Libraries seeks to fill a niche in the University’s research program. Geography is, by its nature, a cross-disciplinary endeavor, and GIS software has a steep learning curve. The service seeks to assist individuals who would like to incorporate a geographic component in their research, but do not necessarily wish to invest the time to master the idiosyncrasies of the software. Past projects have included maps for the Discovering Peoples of Michigan series and preliminary research on the distribution of land cover in northern Michigan counties. Future projects may include maps for the WMU Fact Book and a collaborative effort with a graphic design class.

The geographic future

If past does indeed predict the future, it is safe to say that GIS will have an increasing role in every individual’s daily life—whether he or she realizes it or not. Advances in technology will allow GIS to integrate seamlessly with the user’s life. Increasingly user-friendly applications will make more “citizen cartographers” who will share their work with the world. Cell phones are already integrating their built-in GPS chips with mapping programs to give users pinpoint directions. Just as the Internet and the World Wide Web have impacted our lives in unforeseen ways, there will undoubtedly be innovations that will continue to push this geographic revolution in unanticipated directions. Not only is “all the world a stage,” but GIS is already there and working to illuminate every aspect of our lives.
O nline access to full-text journal, magazine, and newspaper articles as well as e-books has become one of most-requested library resources by the users of the WMU University Libraries. To provide that access, special software has been incorporated in our various database systems. This sophisticated software oversees our multiple full-text electronic sources by providing connections between our licensed vendors of full text and the citations located by users; the valued result is a simple Findlt@WMU link.

The OpenURL software is a unique product of the digital generation that utilizes the uniform resource locator standard. The OpenURL protocol was developed by the National Information Standards Organization (NISO) and has been adopted by several major electronic resource providers. OpenURL software creates connections from specific articles indexed in several hundred bibliographic databases licensed by the University Libraries to the online text of the article. The software framework is used to construct URLs in such a way that connections can be made between various databases. Users get seamless access to the full text of the article or publication wherever it may exist within the system.

What does this really mean?

For almost two decades, library users have used electronic indexing and abstracting databases to search the archives of hundreds of journals faster and more accurately than manual methods. However, the best list of references is most valuable when the full text of each citation can be quickly retrieved as well. Before selected databases offered full text that linked to the citations, the full text of articles was retrieved by a laborious and time-consuming process that involved locating a “call number” in the Libraries’ catalog and finding, on the library shelves, a print copy of the article. There is a link to the bibliographic citation tool RefWorks. By linking to this tool, the user can create and store a citation to each article or document that she wishes to record. These “ referrals” can be combined with other citations to create article bibliographies. A second valuable tool is the ability to create a Persistent link to the article. Links can also be used to create a URL which can then used establish a permanent link to the article. These links can be used to reference articles in course management software, bibliographies, and so on.

If one enters the phrase attention deficit disorder into the right hand search box on the Libraries’ main screen and clicks on the “Go” button, over 6,600 citations are retrieved. A second click in the Suggested Topics box on the same page, attention deficit disorder, will take the searcher to the “official” phrase results of 3,300 citations. As one scans the results, it is quickly evident from the icons under each citation which citations have “built in” full text. A click retrieves that material. But what if the entry notes only an Abstract and Find a copy icon? Here’s where OpenURL is a fantastic aide to the user. When one clicks on the “Find a copy” link under the article title “Improving Homework in Adolescents with Attention-Deficit/Hyperactivity Disorder,” a screen appears. On the upper right hand side of the Document View screen, there is a box: FindIt@WMU. Click on it and another screen appears with the Findlt@WMU menu that identifies other online, linked database(s) that do contain the full text, has a link to our library catalog, and if neither is a source of the text, the user can immediately order a copy online through interlibrary loan—from the same FindIt@WMU screen.

Also on the screen that appeared when the user clicks on Findlt@WMU are other tools to assist in using and evaluating this article. There is a link to the bibliographic citation tool RefWorks. By linking to this tool, the user can create and store a citation to each article or document that she wishes to record. These “ referrals” can be combined with other citations to create article bibliographies. A second valuable tool is the ability to create a Persistent link to the article. Links can also be used to create a URL which can then used establish a permanent link to the article. These links can be used to reference articles in course management software, bibliographies, and so on.

For example, not everything (articles, reviews, editorials, etc.) in a given issue or journal may be available in full text in a given database; different journals have different dates of full text coverage; and, in some instances, the most recent and/or older issues are still available only in print. Who would organize all of these sources and provide users with answers? The answer was the OpenURL software.

Step by step

At this time, the University Libraries have over 400 electronic indexing and abstracting databases that are searchable by students, faculty, and staff. The Libraries’ Web site at www.wmich.edu/library/ offers an Articles by Topic search box on the right hand side of the main page. The ProQuest Search line leads the user to a general index called ProQuest Research Library. Typing in keywords from almost any discipline will retrieve scholarly journal citations as well as popular and trade magazine and newspaper references. Let’s run a search and see one example of how FindIt@WMU locates full text through the University Libraries—either online or in print.

By George Boston, Electronic Serials Librarian

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The Findlt@WMU screen.

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Out of the Cold: E-Reserves Serves
By Julie Hayward, Resource Sharing

Gone are the days when students rushed across town and campus and dashed inside a library a few minutes before doors were locked to get an assigned reading found on course reserve—to be copied and/or read for the next day 8:00 a.m. class. Hurrah for new technologies: digitization has impacted the way libraries provide access and few such services are as useful as “on demand” course reserves. In touch with that demand, Western Michigan University Libraries launched, during the 2007 fall term, a new library course reserves system: a program designed with our users in mind.

A necessary service
In the “old days,” traditional reserves consisted of printed books and photocopies of articles or book chapters placed in folders that were kept under tight control behind a reserve desk in Waldo or one of the branches. Circulation was often limited to two hours within the library itself. These books and photocopied articles were deemed essential by the requesting instructor to supplement the required textbooks. Unfortunately, this tie to physical objects to be read created many problems besides the procrastinating student and Michigan weather. The time pressure brought competition for copies and the folder copies were so heavily used at certain times that pages were removed or lost and copies disappeared. Moreover, the instructor and the library staff were often as frustrated as the students when student needs could not be met. As with many other records of today, the answer rested in providing electronic reserves, that is, provide online full text to all “passworded” users of that material, at any time.

Electronic reserves are not new to WMU; a form of this service has been available since 2004, but the original software didn’t meet the evolving demand. After a review of other systems, Ares, created by Atlas Systems, Inc. of Virginia Beach, VA, was selected because of the unique features that the system offers. Ares is designed to automate library course reserves for fast, efficient service for faculty, students, and library staff. The Ares Web site (http://www.atlassys.com/products/ares/) states that the system offers a “complete hosted solution brought to you by the designers of the ILLiad ILL system.” And, as an added incentive, the University Libraries already utilizes ILLiad for its interlibrary loans and document delivery for off-campus students. As of December 2007, WMU’s University Libraries is one of nine academic institutions using this product. Ares streamlines the reserve process by allowing faculty to create their own course pages and add their course reserve material—provided that copyright guidelines are followed.

The University Libraries, by offering electronic reserves, increases accessibility and convenience to the user community with around-the-clock access. The Libraries no longer places photocopies on physical reserve. By using the electronic format, access is provided simultaneously to all users without the worries of pages being lost or torn. This system not only identifies electronic full-text documents, it also cites the print books the instructor may have placed on reserve. The end result is a one-stop shopping. One limitation exists, i.e., the complete physical book must still be accessed in person, at the library. Copyright law does not, without specific permission by the publisher, permit online access to entire or large portions of books.

Breadth of services
Ares, as a total system, offers a variety of additional options.

- This is a Web based product that is customized for the University Libraries’ Web presence.
- Each student/user creates a personal account with a username and password.
- Instructors have the capability to clone their classes to be used in a future semester, as well as cross-list their reserve items if they wish to use the same materials for other courses they are teaching.
- Any type of file format can be accessed, e.g., PDF, Word, Excel, JPEG, PowerPoint, etc., as well as short video or audio clips.
- For even more freedom, a reserve item can be created using a free text file if, for example, the faculty member wishes to announce an upcoming exam or send out other important information.
- Ares provides alerts via e-mail or RSS feeds to students to notify them when new materials have been added to their course.
- Each course contains Messageboard and Chat features where the class will have the opportunity to communicate among themselves in a way similar to electronic course management systems.
- Ares helps the Libraries’ staff keep track of copyright clearance of every item. Direct links to the Copyright Clearance Center from the staff client makes it easy to secure copyright permission for electronic reserves.
- A hot list feature allows students to add their favorite reserve materials to their personal menus. In addition, the system also has an indicator to let students know whether an item has been previously viewed.

Although the new system has been in place for only a semester, there were 2191 registered users within the first weeks of the Fall term including 179 instructors who reserved 1225 items for 191 classes. As the bugs are worked out, and more faculty become aware of the many benefits of Ares, usage at both ends is expected to triple or quadruple since on demand access from anyone with computer access saves the time of all who are involved in the University’s educational mission. And, of course, who wants to dash across a snowy, cold campus to the library in the middle of the night, in the winter, in Michigan. For further information, go to http://www.wmich.edu/library/reserves.
determine if, where, and how much of the text of a particular title can be found through our Web site. That information can be accessed from our main screen by using the left hand search box and selecting, from the drop down menu, FIND JOURNALS BY TITLE. Simply type in the title of the journal in the Quick Search box and the menu screen will appear with the same information for that journal as noted above. The location of the electronic journal finder can also be accessed at http://www.wmich.edu/library/journals/ where you can fill out an online citation form with the article title, journal title, and other information and use that link to discover our subscribed electronic or print resources. Note, however, that this site is searching for WMU’s access to a journal, magazine, or newspaper, i.e., periodical titles, not for individual articles per se.

The OpenURL protocol has also found acceptance among various Web search services. The popularity of the OpenURL protocol has extended to Google Scholar (http://scholar.google.com/) and Live Search Academic (http://academic.live.com/). While neither Live Search Academic nor Google Scholar supports the addition of the gold FindIt@WMU button, there are links to our resource discovery tool. Look for the text link FindIt@WMU displayed on the search results. This will create the FindIt@WMU menu, offering the user identical features.

What needs to be clearly understood from this brief summary of OpenURL is that thousands and thousands of full text articles, searchable through hundreds of databases, are now a “click away” for any user who is affiliated with Western Michigan University. Every WMU user can search, select, and, within seconds, begin to read key research, scholarly studies, literature reviews, national and international newspapers, popular magazines, technical reports, government documents, and a world of other information in multiple formats. Amazing technology, indeed, to find it in the University Libraries.