

“Serving the Graduate and Research Mission”  
Self-Study Team

Initial Report

February 25, 2007

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### **Executive Summary**

The University of Massachusetts Amherst is ranked, out of a total of more than 4,000 colleges and universities in the United States, in the “Top 50 Public Research Universities.” Similarly, UMass Amherst Libraries is a member of the Association of Research Libraries, which includes 99 of the largest university libraries in the United States, and only 68 public research universities.

Given this highly selective environment, the “Serving the Graduate and Research Mission” Self-Study Team (hereby referred to as *TheTeam*) concentrated on envisioning the future. In scanning the activities of other research university libraries, *TheTeam* found a common element to be that we are all trying to answer the question “*What is the future of the research library?*”

Writings of Chancellor John V. Lombardi, Rand Report P-8014 entitled *The Information Age and the Printing Press: Looking Backward to See Ahead*, and other “visioning pieces” like the *Janus Conference on Research Library Collections* and the *Taiga Forum Provocative Statements* led *TheTeam* to conclude the most useful report will be one that attempts to express the impacts technology is having, and will continue to have, on the library as part of the research university and how best to plan for maintaining a central, although different, role as we move forward.

*The Research University Library as Intellectual Nexus* focuses on the research library as a virtual center for scholarship but, at the same time, retaining its place as a social and intellectual nexus lying at the heart of the university. Librarians play a vital role in transforming the process of digital scholarly communication. Collaborations and partnerships on campus are being redefined in the 21<sup>st</sup> century. UMass Amherst Libraries and its staff represent scholarship, service, open access, close attention to the rights of individuals, a means to satisfy curiosity, a place for engagement or solitude, discovery or creation, tradition and innovation. The Library reflects the intellectual values and commitments of the research university as a whole, belonging to none individually, but to all collectively.

*Access and Content Development to Support the Graduate and Research Mission* discusses collections, access, information discovery, and collaboration. Selection, licensing, digitization of print, access to unique collections, preservation and off-site storage are primary issues when dealing with collections. Integrating access into the fabric of the research process, transparency of information access, and unmediated access to library services and resources are all important as our philosophy changes in regards to evolving user expectations of access to information resources. Traditionally, discovery of library resources has been provided through the library catalog. As the world of information resources becomes richer and more complex, users need a robust suite of tools for discovering information.

*Budget* and the difficulties of determining “appropriate” expenditures are examined briefly. A comparison of expenditures for library materials per teaching faculty member indicates UMass Amherst Libraries has a significantly smaller budget for materials than do other research libraries.

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Of the approximately 4,000 colleges and universities in the United States, only a very small subset can be called true “research universities.” *TheCenter*, a research enterprise focused on the national context for major research universities, defines the fewer than 200 “major research universities” as those having more than \$20 million in annual federal research expenditures. The University of Massachusetts Amherst, with over \$60 million in federal research expenditures and over \$113 million in total research expenditures, is included in this very competitive group of the institutions. In fact, UMass Amherst is ranked solidly in the center of the list of “Top 50 Public Research Universities” published annually by *TheCenter*.

Universities require information to fuel the “engine of research.” It is not by chance that the largest research universities in the United States have also built the largest libraries. The Association of Research Libraries is an organization comprised of 123 members. ARL member libraries are the largest research libraries in North America. Of these, 99 represent U.S. universities, 14 are affiliated with Canadian universities, and 10 are public, governmental, and nonprofit research libraries (such as the Library of Congress and the New York Public Library). The University of Massachusetts Amherst Libraries has been a member of ARL since 1968 and is one of sixty-eight (68) U.S. public research universities represented in the organization.

Given this highly selective environment, the “Serving the Graduate and Research Mission” Self-Study Team (hereby referred to as *TheTeam*) concentrated on envisioning the future. While documenting accomplishments and analyzing statistics can provide a foundation for envisioning the future (and these can be added as attachments to the final Self-Study Report) it can also tie one’s expectations to the past and present circumstance. In scanning the activities of other research university libraries, *TheTeam* found a common element to be that we are all trying to answer the question “*What is the future of the research library?*” Conferences are being held. Articles are being published. Even our own Chancellor John V. Lombardi has written:

In those simpler times we understood the library’s purpose, we knew where it was, and we knew how to rank its significance to our world. Unfortunately for those of us who love these places and their objects, technology has undermined this idealized world. ... What then is this library in a digital age, do we need it, should I care about it? ... Librarians, whose lives and remarkable expertise have been focused on the collection and care of these things, these books and other materials, feel this challenge even more than I. They struggle to justify their existence, purpose, and value in an amorphous, digitized, and universally accessible world. ... Librarians also looked to their customers to validate their existence. ... This survey approach, valuable as it might be for identifying the service value of librarians, also represents an admission of defeat. ... Yet, in providing valuable current services, the librarians lose their central role in building a research library that defines the quality and reach of the research university. Their service produces current satisfaction to transient consumers, surely a useful activity, but in their previous role, as builders of the research library, they controlled, managed, and guided the continuous development of a critical and permanent institutional asset, a resource regarded as one of the defining characteristics of the great university. ... We fear that the old model that defined the research library as physical books assembled in a physical place is likely obsolete. ... Yet, we are not sure what should replace the library and its functions as arbiter and classifier of knowledge, as guide through the endless range of collected human expertise. ... In truth, we, who are administrators, do not know what to do. We look to the librarians to provide us with a plan, a strategy. ... Our librarians have

engaged this discussion with imagination and commitment, although as yet we do not see a convergence on a new direction. Perhaps there is too much reticence in the library profession that leads to an over reliance on surveys rather than the bold leadership that charts new directions. Or, perhaps, the notion of the research library as a focus for understanding the organization and management of knowledge is indeed obsolete and we should allow this activity to shrink to a size appropriate for an information access center. ... While we work with our librarians on these difficult questions, we may find that time is our enemy. Each budget cycle at many research institutions finds the research library with a declining share of the university budget; not intentionally, not maliciously, but by default as other parts of the university with clear goals, objectives, and needs demand resources and have explicit purposeful uses for them. We may find that as we take the time required for a careful and cautious evaluation of the future of research libraries, we are left with precious little to decide.

In addition, *TheTeam* reviewed Rand Report P-8014 from 1998 entitled *The Information Age and the Printing Press: Looking Backward to See Ahead*. Its author, James A. Dewar, argues

“the parallels between the printing press era and today are sufficiently compelling to suggest:

- *Changes in the information age will be as dramatic as those in the Middle Ages in Europe.* The printing press has been implicated in the Reformation, the Renaissance and the Scientific Revolution, all of which had profound effects on their eras; similarly profound changes may already be underway in the information age.
- *The future of the information age will be dominated by unintended consequences.* The Protestant Reformation and the shift from an earth-centered to a sun-centered universe were unintended consequences in the printing press era. We are already seeing unintended consequences in the information age that are dominating intended ones and there are good reasons to expect more in the future.
- *It will be decades before we see the full effects of the information age.* The important effects of the printing press era were not seen clearly for more than 100 years. While things happen more quickly these days, it could be decades before the winners and losers of the information age are apparent.

These and other “visioning pieces” like the *Janus Conference on Research Library Collections* and the *Taiga Forum Provocative Statements* led *TheTeam* to conclude the most useful report will be one that attempts to express the impacts technology is having, and will continue to have, on the library as part of the research university and how best to plan for maintaining a central, although different, role as we move forward.

This role is seen in two ways:

- The Research University Library as Intellectual Nexus, and
- Access and Content Development to Support the Graduate and Research Mission.

## **THE RESEARCH UNIVERSITY LIBRARY AS INTELLECTUAL NEXUS**

The nostalgic notion of the library as scholarly refuge has come under increasing pressure in the digital age; at research universities, this notion has been slowly eroded in the face of competing demands for space and resources. Yet the research university library has always been more than a collection of books and services, more than just a physical space for study, and more than a storehouse of knowledge. Occupying a unique position within the university, transcending the structure of departments, institutes, and centers, belonging to all, connecting all, the research library has long been a key partner in the process of scholarly communication, and a key site for collaboration in the production of knowledge. As the research library has evolved into a virtual center for scholarship, it retains its place as a social and intellectual nexus lying at the heart of the university.

For the past forty years, and particularly the past decade, librarians have adapted and shaped the emerging digital environment, and they have increasingly become full partners in research and learning on campus. Librarians have assumed responsibility for the acquisition, organization, preservation and dissemination of knowledge regardless of format. However, digital resources require new infrastructure, new skills, new thinking as they are made available and accessible by library staff. Still, digital formats and capabilities merely add a dimension to the traditional, physical importance of the library.

While not every resource need remain on site, library buildings house an abundance of unique, non-digital collections that are regularly used. More importantly, these library buildings fulfill the need for scholars, aspiring and arrived, to meet in a real, physical, resource-rich environment. The serendipity of browsing may have been upstaged by the virtues of full-text retrieval, but there is no substitute for the serendipity of minds and bodies meeting face-to-face. The library is more than its collections; it is an environment in which learning, teaching, and research are nurtured in countless encounters.

### **Scholarly Communication**

Just as the nature of scholarly communication and publishing is changing, academic librarians, too, are in the midst of transforming their profession. Librarians, long recognized for their expertise in acquiring, organizing, preserving, and disseminating traditional means of scholarly communication are now responding to the need to organize, preserve, and keep accessible the digital material of the future. A core mission of librarians is to preserve scholarly output for future research and study, and they are leveraging the research library's position as an intellectual center of the campus to become the institutional leader in new scholarly communication models. New roles:

- Create and manage a digital repository for the preservation and presentation of scholarly work of faculty, researchers, and graduate students.
- Create platforms for online scholarly journals, complete with the essential peer review process.
- Engage actively in the research grants process from application through publication of results.
- Provide and facilitate instruction in the use of primary documents, manuscripts, and government documents. Partner with faculty to insert these primary data sources into curriculum.

- Develop colloquia, seminars, and instructional programs on issues in scholarly communication and ethics, including author rights and intellectual property.
- Provide support and infrastructure for promoting faculty and graduate student understanding of information fluency.

## **Collaboration**

Collaboration and partnerships between librarians and scholars are at the heart of the research library as intellectual hub of the campus. These connections are being redefined in the 21<sup>st</sup> century. No longer content to be passive participants in the scholarly life of the campus community (“build it and they will come”), libraries have positioned themselves to take on more active roles in the university mission. Some collaborations and collaborators:

- University governance - Librarians are building visibility by serving on strategic faculty senate committees, councils, and administrative search committees where we can make significant contributions; and by taking active part in essential campus conversations of educational goals and core competencies.
- Academic support - Interdisciplinary nature of the Library means it is uniquely qualified to take on certain academic support issues that transcend departmental boundaries, such as citation management software, plagiarism education, copyright compliance, and the protection of privacy of information sought by individuals.
- Office of Research - partnering in grant writing assistance, providing information clearinghouses (Internano and the National Nanomanufacturing Network) increasingly required by some grant-funding agencies, and publishing and preserving the results of research (institutional repository and campus e-journals).
- UMass Press – cooperating, along with academic departments and individual authors, to publish journals, including peer review; and online academic clearinghouses
- Interactions between librarians, faculty, and grad students – both formal and informal meetings provide rich benefits for each party. Foster a proliferation of these encounters by increasing librarian attendance at academic department gatherings, and encouraging the presence of faculty and graduate students into the library by hosting workshops, lectures, colloquia, and other formal and informal gatherings that address their specific research needs.
- Research Commons - promoting interaction between faculty, graduate students, and library staff by creating for them a facility like the Learning Commons, providing library research services, IT support, e-repository, seminar space, and sophisticated communications systems. Again, the non-aligned nature of the Library allows easy interdepartmental interactions, and would benefit the Library as the center of social and intellectual intercourse.

Finally, reckon with the power of the Library as a symbol. Libraries and their staff represent scholarship, service, open access, close attention to the rights of individuals, a means to satisfy curiosity, a place for engagement or solitude, discovery or creation, tradition *and* innovation. The Library reflects the intellectual values and commitments of the research university as a whole, belonging to none individually, but to all collectively.

## **ACCESS AND CONTENT DEVELOPMENT TO SUPPORT THE GRADUATE AND RESEARCH MISSION**

Traditionally, research libraries have supported the intellectual work of academic institutions by developing and maintaining collections of information resources, providing access to materials, and enabling the discovery of the resources. While it is arguable that these roles remain as constants, several developments in the past decade, especially the last five years, have profoundly affected how best to support the research needs of the campus in a rapidly changing environment. These include different user expectations due to rapid technological changes that affect learning and research, increased demand for online access to materials, and increased publishing, especially of digital information.

The UMass Amherst Libraries have a rich collection of resources in a variety of formats: print, electronic, microform, and audio-visual. We face a challenge in achieving a balance of these different media to serve the research needs of the academy while simultaneously making them accessible and discoverable when and where users need them. We envision a future in which we will become increasingly reliant on technology and collaborative relationships to meet research needs. Further, while we have already been headed in this direction, we increasingly need to focus our efforts on information outcomes – how we meet researcher needs.

This section of the report discusses collections, access, information discovery, and collaboration. It is difficult to deal with these roles separately, since they are intimately related to one another, but we will try to do so.

### **I. Collections**

The UMass Amherst Libraries employ a number of strategies in building collections and ensuring access to materials. These include collaboration with faculty to identify the highest priorities for collections that best support research and teaching for all academic disciplines. However, to meet future needs we must also guide the campus in becoming less reliant on print as well as reducing duplication of content. Most members of the campus community have already discovered the benefits of being able to access materials from home, their office, or on-site research facilities. Library staff will continue to work closely with faculty, staff, and students to maximize the benefits of these materials.

#### **Assess use of collections**

Given the competing demands for physical space and the limitations on our budget, the Libraries must increase efforts to develop and implement mechanisms to evaluate the use and effectiveness of our collections.

- Identify methodologies and best practices to assess print collection use, including constituencies using materials.
- Capture collection use statistics on a regular basis and share them with staff.
- Gather use data for electronic resources and perform cost/benefit analysis for these materials.

## **Selection**

The Libraries are committed to providing access to information resources that support campus research and instructional needs. Yet we recognize that as purchasing power erodes and budgets remain flat, we cannot afford to acquire and maintain information in both print and electronic formats. We need to leverage every opportunity available to us to its fullest advantage. One example is our participation in a number of cooperative collection agreements through the Boston Library Consortium (BLC). These agreements allow us to assign purchase responsibilities by subject area or across BLC members. The result of all of these efforts is a richer aggregate collection than any single institution could achieve alone.

- Implement a selection policy that prefers online over print formats, which would provide access to users at their point of need and save on shelving space.
- Expand and analyze cooperative collection agreements to ensure depth of collection access available locally and through consortia.

## **Licensing**

The Libraries leverage the collection dollars we have to maximize the resources needed for instruction and research. We have joined with other institutions to negotiate for discounts that would not be available to us if we were to contract with vendors individually.

Regardless of whether we license products jointly with other institutions or by ourselves, we review all of these agreements to ensure that each contract meets the following basic standards:

- Provide perpetual access to information.
- Allow lending of copies under copyright law.
- Permit use in e-reserves, course-packs, and content management systems.
- Standards-compliant use statistics provided at timely intervals

## **Digitization of Print, Access to Unique Collections, and Preservation**

Studies conducted by the Google<sup>5</sup> Libraries indicate that 60% of the materials digitized are unique to one of those institutions. Digitizing our own unique concentration of materials opens up access to those resources that may be overlooked through conventional discovery tools. This also has the added benefit of preserving the materials and freeing up shelf space. Many materials in Special Collections, especially the W.E.B. Du Bois papers, are likely candidates for this treatment, as are dissertations and theses (beyond those provided through ProQuest).

Further, while electronic may be the preferred format for many users, the majority of our collection is print materials. We have a responsibility to ensure that print and digital collections are available in perpetuity.

- Develop a preservation plan that combines best practices for print formats and evolving standards for digital resources.
- Develop a plan in collaboration with consortia and other libraries to select unique material to digitize.
- Use the WorldCat Collection Analysis tool to identify potential resources for digitization.

- Register digitized materials with the Digital Library Federation Registry available through OCLC.
- Explore possible collaborative relationships with other libraries or consortia on preservation efforts.

### **Off-site storage:**

Electronic collections do not require the same kind of physical space as print collections. This opens up the possibility of moving physical collections to off-site storage and re-thinking use of the physical space in ways that support collaborative research activities. For example, the section of this paper on the research library as intellectual nexus refers to growing support for creating an interdisciplinary “Research Commons,” on the model of the Learning Commons. Since we have to assume we will not have additional space for such developments, the only possibility is to move little-used print collections to off-site storage and transform existing space. A major challenge facing the Library in the immediate future is to identify a new off-site storage facility, since very little space remains to us in the existing site.

- Identify criteria and develop a plan to determine which materials to send to off-site storage.
- Catalog certain materials directly to off-site storage.
- Explore possible options for additional off-site storage solutions, including consortia opportunities and expanding existing facilities.
- Ensure quick access to materials requested from off-site storage facilities.
- Collaborate with other libraries or consortia to develop policies that ensure sufficient redundancy but avoid unnecessary duplication of materials sent to off-site storage.

## **II. Access**

An important change in the philosophy of providing access to information resources is a shift from expecting our users to come to us, on our terms, to recognizing that we have to accommodate our services to evolving user expectations. The Library has made some important steps in this direction, including expanding the Du Bois Library hours to 24x5, setting up librarian “office hours” in several academic buildings, such as Thompson and the School of Management, establishing electronic reference service, and working with faculty to get electronic library materials into course management systems. Many of these efforts relate more to undergraduate instruction. We need to look for ways to reach out to the graduate and faculty researchers.

### **Integrate Access into the Fabric of the Research Process**

Our liaisons need to become more involved in the research and scholarship process. Too often faculty, researchers, and graduate students are unaware of the rich array of services and materials we offer. There are several ways in which this could be accomplished. One suggestion for greater outreach to graduate students is for our liaisons to become more involved in the graduate student orientation process. Too often graduate students seem unaware of who the library liaison is in their area, or even that there are library liaisons.

- Conduct orientations on services and resources for faculty, researchers and graduate students.
- Hold regular “office hours” in academic departments and research centers.

- Attend graduate student seminars to understand how best to support instruction and research needs.
- Attend department lecture series and events to make certain faculty, researchers, and graduate students have opportunities to meet their library liaison.
- Sponsor colloquia or brown-bag events.

### **Transparency of Information Access to Meet User needs**

The Libraries participate in a robust resource sharing infrastructure with libraries around the world. Although users may not be aware of this, our memberships in RAPID, NELINET, and the BLC open up a wealth of resources to them. We need to create an environment where users can submit requests for materials 24/7/365 from the home or office through the Libraries Web site.

- Provide a “Get This” button that is present when the context warrants, offering a fulfillment option regardless of the collection.
- Continue to expand resource sharing relationships with existing and new consortia to provide availability to resources needed to support research.
- Explore whether the Library should offer direct delivery of physical materials to faculty and graduate student offices.

### **Unmediated Access to Library Services and Resources**

Unlike in the print dominated information environment where users had to function in library-constructed environments, technology allows them to function in their own environment. Many users want unmediated access to library services and are frustrated by perceived barriers. While we recognize the importance of trying to unmediate access, doing so will require librarian expertise and support, partnered with sufficient infrastructure

- Explore where barriers or restrictions in providing access to resources or services exist and remove them.
- Improve access to research collections and information resources of all formats, regardless of the user or the collection.
- Enable users to identify, locate, evaluate, and use research collections through a variety of research services.
- Deliver services where users are and enable library content to be integrated into campus learning environments/course management systems.

### **State of the Infrastructure to Enhance Collection Use**

Obsolescence of media is a fact of life. We house legacy formats that impose certain barriers to use for the foreseeable future. One example is microforms which can be a very awkward format to use yet which have been shown to preserve information for hundreds of years.

- Improve access to differing formats by providing state of the art equipment that enables users to scan the content and access it electronically.

### **III. Discovery**

Traditionally, discovery of library resources has been provided through the library catalog, now in the form of the OPAC. While we must look at ways of improving the OPAC, we must also recognize that the traditional OPAC has inherent limitations and is no longer sufficient in itself as a means of discovery. It is too restricted to a narrower view of library collections, is too rigid in its presentation of resources, and is more cumbersome to use than preferred interfaces, such as Google. At the same time, the Library OPAC remains a powerful tool for delivering more precise and controlled retrieval results than other methods. The challenge for the library is to find a way to balance these different goods, recognizing that there are different kinds of users with different needs. As the world of information resources becomes richer and more complex, users need a robust suite of tools for discovering information.

#### **Enhance Information Discovery**

One possibility for enabling discovery of the broader world of research materials is to turn to a catalog that represents a wider set of holdings than the local OPAC, for example WorldCat. The integrated library system (ILS) would then be restricted to local control functions, such as invoicing and circulation. There are also other options that could be integrated into the local OPAC as technology evolves.

- Explore making OpenWorldCat available on Library Web page.
- Study feasibility of other places where the Open WorldCat button should be placed.
- Review open source solutions that provide direct access to library resources, such as LibX.

#### **Metasearch Capability**

A related kind of enhancement to discovering information resources is the introduction an overarching metasearch, in which the OPAC is only one of numerous resources that are searched. This type of search interface is more like what users have come to expect from a variety of sites.

- Explore existing metasearch tools, such as Ex Libris' Primo, North Carolina State's Endeca, University of Rochester's CUPID extensible catalog, and the III product, to see if the technology can help meet researcher information needs.

#### **Content Enrichment**

Content enrichment, for example tables of contents, cover art, and reviews, could further improve discovery of library materials through the OPAC. This provides added value for material being sent to off-site storage, since such material cannot be easily browsed before being requested.

- Explore integrating content enrichment services into OPAC, either alone or collaboration with Five College Libraries.
- Create TOC for material sent to off-site storage where content enrichment cannot be provided through commercial means.

### **Personalization**

There is evidence that users would appreciate more personalized approaches to research materials than currently provided in most OPACS. The ability to set up personal profiles that would select specific areas in which to receive automatically updated information, e.g. through RSS feeds, would be a good step.

- Enable personalization features and RSS feeds available through the OPAC, institutional repository, and other discovery tools.

### **Social Tagging**

Another example of a personalized approach would be the ability to provide personal tagging of library resources, i.e. a researcher's preferred key words, comments on the material, etc., in accordance with the ways that a given researcher views a set of materials. This would go some way toward overcoming the rigidity of traditional library metadata, without losing the precision of such tools when needed. Further, these personal tags could be made socially available in ways that would enhance the development of communities of interest on campus.

- Explore PennTags and other social tagging software.

## **IV. Library Collaboration**

The UMass Amherst Libraries have participated in various library consortia for over thirty years, primarily through union list of serials, shared online catalogs, and resource sharing. In the past five years, collaboration with other libraries has assumed an increasingly important avenue for supporting campus research needs.

Why do consortia matter? They provide economies of scale in emerging areas that require broad expertise that cannot be provided by a single institution. They create political leverage. There is access to additional labor for projects. There is also the opportunity for obtaining additional funding to support collaborative projects and initiatives. Collaboratively we can provide access to a richer array of information resources and services than we could ever acquire on our own.

## **BUDGET**

*The Team* spent some time looking for ways to express budget needs tied to serving the graduate and research mission. Looking at comparable research library expenditures is one common way of justifying budgets. Unfortunately, this method is fraught with pitfalls. For example, in examining total library expenditures and expenditures for staffing, standard comparisons of ARL statistics do not take into account such important variations as regional salary differences or the number of branch libraries and staffed service points.

One area of comparison that seems to have merit is the comparison of expenditures for library materials per teaching faculty member. While it is true that individual research universities do have programmatic/curricular differences and significantly differing numbers of faculty, some targeted comparisons can be made using ARL annual statistics.

For example, in the campus research process all departments were asked to include three institutions: UC Berkeley, University of Illinois Urbana, and University of Indiana Bloomington. The average expenditure for library materials per teaching faculty member of these three institutions in 2005 was \$8,168 as compared to that of \$4,602 at UMass Amherst.

Examination of similar sized faculties at public research universities (Utah / 1175; Nebraska / 1159; Massachusetts / 1147; Iowa / 1137; and Florida State / 1126) indicates that the average expenditure for library materials per teaching faculty member of these four institutions is \$6,367 as compared to that of \$4,602 at UMass Amherst.

Finally, looking at the eight public research universities (with ARL libraries) closest in rank to UMass Amherst (Illinois Chicago; Kentucky; Purdue; Wayne State; Colorado State; Louisiana State; Hawaii; and Washington State) indicates that the average expenditure for library materials per teaching faculty member in 2005 was \$5,550 as compared to that of \$4,602 at UMass Amherst.

Using these comparison expenditures for library materials per teaching faculty member would add (in 2005 dollars) anywhere from \$1 million to \$4 million to the UMass Amherst libraries acquisitions budget per year.