Changes in Scholarly Communication: What Repository Programs Can Do for Faculty

Tyler Walters
Associate Director, Technology and Resource Services
Library and Information Center
Georgia Institute of Technology

USG Faculty Seminar
GT GLCC March 6, 2009
The Future of Libraries

- **What will academic libraries look like in the future?**
  - What information will they hold?
  - What services will they provide?
  - What infrastructures will there be?

- **Your Campus’ Intellectual Output:**
  Libraries are helping to produce, collect, organize, and disseminate it

- **Product of Education and Research:**
  Diverse and voluminous
  Must be well-managed for the long run

- **Research, Learning, Communication:**
  Study/analyze contemporary academic processes

- **Repositories are proliferating:**
  Over 1300 Repositories listed in OpenDOAR in 8 yrs!
The Problem - Revealed

- Much of a university’s intellectual product never appears in a permanent, published form

- Exists as disorganized pockets of digitally born objects & media scattered among individual hard drives, departmental servers, and removable storage media across an institution

- While digital scholarly output reflects substantial investment of resources, assets, and effort, it:
  - Lacks curatorial stewardship;
  - May be inaccessible;
  - Exists on unsustainable hardware, software, or lacks individual support;
  - Needs future-proofing migration strategies
Scholarly Research Content Types

**Newer Types:**
- Open access journals
- Virtual communities
- Research data sets
- Computer programs
- Digital audio/video
- Wikis, blogs, etc.
- Learning objects / Instructional
- Simulations, visualizations and virtual models
- Web sites
- Other myriad information resources that are created in academic institutions

**More Traditional:**
- Electronic theses / dissertations
- Organizational documents
- College and university archives
- Annual and organizational reports
- Institutional planning and evaluation documents
- Service publications
- Research proposals
- Research and technical reports
- Pre-print research
- Post-print research
- Working papers
- Conference papers
- Lecture and symposia materials
The Life-Cycle of Information

Production (internal info & external info)

Collection/Organization/Access (IRs)

Long-term sustainability (preservation)

Information Use & Integration
Institutional Repositories

“Down to Brass Tacks:”

1. Enhance access to the faculty’s intellectual output

2. Provide stewardship for digital scholarship and research-related content

3. Accelerate the use of scholarly communication across institutions
Institutional Repositories

As a trend:
335 registered IRs in the U.S. – 1,335 worldwide. IRs started in ca. 2000

Proportion of Repositories by Country

- United States (335 = 25%)
- United Kingdom (147 = 11%)
- Germany (131 = 10%)
- Japan (72 = 5%)
- Australia (60 = 4%)
- Netherlands (47 = 4%)
- Italy (45 = 3%)
- Canada (44 = 3%)
- [63 Others (454 = 34%)]

Total = 1335 repositories

OpenDOAR 10-Feb-2009
Repositories: for capture of the university intellectual output in support of its teaching and research missions

- **SMARTech (DSpace, 8/04) – 2007/08 Stats:**
  - 23,000+ objects
  - 38 communities/85 sub-communities/325 collections
  - 1,399,135 items viewed
  - 1,156,861 items downloaded
  - 480,926 searches and 7,440 items added

- **SMARTech is the:**
  - In Top 7 largest of 81 institutional repositories in the United States
  - Top 3% of any repository platform in the world (#30)
Four Types of Intellectual Output

The four major categories of output being reviewed are:

1. Faculty and researchers’ scholarly communications
   (i.e., pre-/post-prints, journal articles, conference papers, research reports, technical papers, etc.)

2. Student intellectual output

3. Learning objects and other multimedia-based works

4. Digital research data sets

- These resources pose new challenges, also present new opportunities
- Libraries are extending capabilities to manage these resources for future
  - becoming integral to knowledge dissemination processes in academia
Faculty & Researchers’ Scholarly Communications

- **Formal** (i.e. Journal publications, research papers, technical reports, working papers, conference papers, lectures, records, personal papers)

- **Informal** (i.e. Listservs, threaded discussion lists, chat, virtual community sites/collaboration spaces/social networking, blogs, wikis, e-mail, etc.)

- Conversational/transactional elements of research process more important as libraries capture disciplinary debate and development

- We need to study informal modes, design solutions for capturing and providing additional access to these resources

*IR can be a central tool in organizing and accessing both formal and informal scholarly communications. Increasingly, they will be created, transmitted, and maintained in many digital forms*
Student Intellectual Output

- Undergraduate Research Programs
  - Growth of UG research - programs, scholarships, awards, int’l research
  - GT: Submit output to SMARTech

  GT Examples:
  - Summer Undergraduate Research Experience
  - Undergraduate Research Scholars Program
  - Undergraduate Research Award

* Collaborations with Director of Undergraduate Research, LCC

The Tower: GT’s Journal of Undergraduate Research (electronic)

GT Library East Commons: Student creative activity, research/digital renderings: SMARTech

The Technique (student paper) w/GT Student Publication Bd, OIT
Digital Research Data Sets

- New class of digital-born output: digital data sets generated from modern research processes

- **Major Disciplines:**
  - Sciences and engineering fields
  - Social sciences
  - Medical disciplines
  - Humanities
  - Behavioral Sciences

- **Examples:**
  - Geospatial data
  - Social science / economic, statistical data
  - Historical / observational data
  - Biological / medical data
  - Astronomical data
  - Nuclear physics data
  - Genomic and protein data
Digital Research Data Sets

Is Your Scholarship linked to Your Data?

Why?
1. Research data is a primary source that must be made available to support and advance research
2. Data is extension of scholarly publications, e.g., raw, digital data accompanying journal articles and technical papers

Challenges:
- Need clear university and agency policies, and incentives to share/link data (NSF, NIH)
- Need Scholar/Library/IT Partnerships
- Data curation tools, interoperable technologies
  - tools for data / metadata extraction, database emulation, data provenance tracking
Schol Comm Svcs: EPAGE@Tech

- New Library Services:
  Support creation, use of digital resources in new/different ways

- Publishing
  Electronic Books
  eJournals
  eConference Proceedings

- Capturing
  Instructional Materials
  Multimedia

- Hosting
  Conferences
  Symposia
  Lecture Series

*Cultivating active partnerships with faculty is how libraries will continue as highly valued hubs of information services*
Journal Publishing
Conference Proceeding Publishing

Join us for the Sixth International Planetary Probe Workshop, or IPPW-6, on Monday, June 21-27, 2008, at Georgia Institute of Technology in Atlanta, Ga., U.S.A.

Explore technological challenges and scientific opportunities associated with entry, descent, landing, and flight in planetary atmospheres with fellow scientists, technologists, engineers, mission designers, and policy-makers interested in the exploration of solar system bodies with substantial atmospheres.

Building on previous successes, the workshop will promote international cooperation in probe missions to solar system worlds and planets with atmospheres and provide students—the next generation of planetary scientists—and spacecraft engineers, an opportunity to participate.

Session topics include:

- Mission concept studies
- Historical perspectives
- Ongoing and proposed technology development activities
- System challenges and innovative ideas for accommodating extreme environments
- Micro-probes and Mini-probes
- Sample return missions challenges
- Planetary entry science payloads
- The engineering and science of current planetary entry missions

The Georgia Tech Library and Information Center partners with DLPE/Conference Center.
Lecture Series & Symposia

- Microelectronic Res. Ctr. Nano@Tech Lecture Series
- Industrial Design Lecture Series
- Distinguished Lecture Series in Systems Biology
GALILEO Knowledge Repository: A Federated Repositories Initiative

- 4 repositories at 4 USG research/regional universities
  - Plus, 4 new hosted repositories for USG schools
- Shared standards promote use and interoperability
  - Metadata, Ontologies (terms), and Harvesting
  - Search and Discovery
  - Rights management

**GKR Services**
- Searchable repository of harvested metadata
- IR hosting service (DSpace): USG schools (GT)
- Locally managed content
- IR-related services:
  - Copyright research, Digitization,
  - Content submission, Preservation
USG Faculty IR Interest Survey

- GKR sponsoring a faculty survey to assess perceptions, experiences w/IRs, author’s rights, OA publishing activity

- Learn about perceptions held by faculty about IRs and Open Access models and build business strategies to address them

- Results analyzed by GKR Outreach and Evaluation Committee
  - Used to improve GKR the technologies, services, marketing
GKR’s IR Hosting Service (DSpace)

- Service Maintained by GT Library Technology Staff
- Host sites for: MCG, VSU, ASU, CCGA
- Storage server provided
- Local control for each hosted institution:
  - Assisted by Web Developer/GRA at GT
  - Will collaborate with hosted sites’ staff:
    - “front-end” design, including user interfaces, style sheets, branding graphics, and the community/collections structure
- Supports unique interface designs with distinctive branding and local institutional communities, collections
IR-related Services

Why?

- To Reduce Barriers to Collecting Scholarly Content
  - Rights management assistance (GT)
  - Digitization (UGA/DLG)
  - Content submission (GT/UGA/VSU)
  - Preservation (MetaArchive/GT)

*Services resulted from the USG-wide GKR stakeholder meeting of November 30, 2007, in Athens, GA, with web and phone access across the state*
IMPACT: GKR

- Promote info sharing & discovery of research among 35 USG institutions from a single web site
- Increase USG visibility, prestige through global exposure to its digital scholarship & research
- Improve access to learning for the citizens of Georgia at large
- Create outlet for new forms of instructional media & scholarship, including open access scholarship
- Provide stewardship for the least permanent (i.e. non-published) elements of the USG’s intellectual works
- Demonstrate the effectiveness of USG institutions & their faculty for assessment & accreditation purposes through enhanced access to their scholarly works
Concluding Thoughts…

- Libraries can be information and knowledge management centers for faculty
  - This includes production and dissemination

- In addition to our books and journals, there’s a whole world of other information resources out there! Think openly about what information is being created

- Libraries should be more about “process,” not just “product.” Information has a Lifecycle. Libraries can add value in each phase of scholarly/research work
Thank you!

Tyler O. Walters
Associate Director for Technology & Resource Services
Georgia Tech Library & Information Center

404-385-4489
Tyler@gatech.edu
TyWalters1 – Gmail, Skype, ooVoo

Don’t Forget:

4th International Conference for Open Repositories
At Georgia Tech – May 18-21, 2009
http://www.openrepositories.org