Digital Strategies Division Strategic Plan

This is a transformative time for research libraries, and nowhere more so than here at the UCSB Library. The broad shift in information storage and communication in our culture, and in science especially, from analog to digital and from digital to online, has affected not just the types of objects the Library works with and the tools it uses and the services it provides, but also affords the Library opportunities to expand its mission, to embrace new technologies in information dissemination, to promulgate and uphold new norms in open science, and to play new roles in the research ecosystem. The formation of the Digital Strategies Division (DSD), and of the Digital Library Development department within, are timely and transformative and speak directly to this shift. DSD has the opportunity, if not the mandate, to play key, supportive, and in many cases newfound roles across many areas of Library activity.

DSD was formed by uniting four departments:

- **Digital Library Development (DLD):** responsible for developing digital platforms, tools, and content in support of teaching, research, and outreach. The department is organized into two teams: the Engineering Team develops and deploys software systems; the Digitization Lab supports large-scale digitization of (non-audiovisual) content from the Library's collections.
- **Interdisciplinary Research Collaboratory ("Collaboratory"):** provides physical spaces to researchers and students for collaboration, computing, and VR equipment usage. Provides access to licensed applications, licensed datasets, and pre-configured virtual computing environments, and provides consultation related thereto. Leads the Library's Carpentry workshops.
- **Research Data Services (RDS):** helps UCSB researchers and students manage and preserve their research data. Offers data management workshops and responsible conduct of research training. Manages the Library's research data repositories and other research data-related services.
- **IT & Library Systems ("IT"):** provides core hardware and software IT support and system administration. Supports Alma/Primo. Handles software purchasing and licensing on behalf of the entire Library. Works with campus Instructional Development on A/V design projects.

A fifth department, the Library's desktop support unit, technically resides within the campus-wide Enterprise Technology Services (ETS) unit. However, the staff therein are entirely dedicated to supporting the Library, and hence desktop support is in effect a Library department. Desktop support's areas include public computing, staff equipment, and working with Instructional Development on maintenance and servicing of A/V equipment.

This is DSD's first strategic plan. It lays out the current state of the Library's digital infrastructure and data-related services, the initial direction the division is headed in, and the principal challenges it is facing. The plan's 28 goals are divided into seven roles the Library plays: as guardian, engine, portal, resource, research partner, educator, and

infrastructure provider. The division of the plan by broad Library role, as opposed to department, is deliberate. In almost all cases the different departments have something to contribute to the different roles. Nevertheless, some roles and goals speak most strongly to one or two departments:

- **Guardian, engine, portal, and resource:** primarily DLD, with close collaboration and support from IT.
- **Research partner:** primarily RDS with close collaboration from the Collaboratory.
- **Educator:** primarily the Collaboratory with collaboration from RDS.
- **Infrastructure provider:** IT and desktop support.

N.B.: In the following, the discussion of a goal precedes the statement of the goal [should probably revisit this, is confusing in spots].

1. Library as guardian

As a memory institution the Library safeguards rare and irreplaceable artifacts. This is true not just for physical artifacts, but for digital as well: in many cases the digital artifacts the Library holds are either born-digital and for all practical purposes irreplaceable, or digitized but for which the cost of re-digitization would be too great. Safeguarding physical artifacts requires climate-controlled facilities, security controls, physical inventory systems, and policies and protocols. Analogously, safeguarding digital artifacts requires archival preservation storage, digital asset management systems, robust controls, proactive monitoring, and well-defined workflows. Unfortunately, the UCSB Library is far behind accepted practice here, for it has been operating without any of these tools, instead getting by using (risky) unreplicated local storage, tools such as Excel and Filemaker for file management, a purpose for which they are unsuited, and varying and undocumented workflow practices. It is no surprise then that curators uniformly report their collections to be in various states of disarray, and are looking for technological support. DLD has started work in this area as part of the Project Surfliner collaboration with UCSD, but it remains that *addressing this technology deficit is the Library's greatest infrastructural need.* Accordingly the division's first goal is:

> **► Goal 1.1: Develop and emplace a unified digital management and preservation infrastructure.**

Preservation storage is characterized by redundancy, mitigation against known risks, and decorrelation of copies in terms of physical location as well as administrative control and storage technology. For archival purposes the storage should meet National Digital Stewardship Alliance (NDSA) level 3 digital preservation requirements ("know, protect, and monitor your content") or better. It is difficult and costly for a single organization to assemble and support such a solution, and far beyond the Library's capacity to implement. Thus, preservation storage must be acquired as a service. To this end the Library has negotiated with UCSD the use of Chronopolis for Library collections on a "pilot" basis. This solution has not yet been tested in a production setting, and once in

use the question of long-term sustainability (of cost and contractually) will need to be addressed. Ergo:

> **► Goal 1.2: Employ and sustain a preservation storage solution for archival content.**

The development of a unified digital management and preservation infrastructure will not resemble the simple addition of another tool to the Library's portfolio. To be effective it must be used uniformly for the Library's preservation work. Given the variety of practices in place now, using this new infrastructure will represent a significant change, a culture shift even, in how much of the Library's collection-, cataloging-, and curation-related work is performed, which is to say that a lengthy training and transition period will be required. Library staff using internally-developed tools will place new demands on the division, and on DLD particularly, for outreach, training, technical support, and co-development of solutions for different use cases.

> **► Goal 1.3: Proactively support the transition to the new digital management and preservation infrastructure.**

2. Library as engine

The Library performs a vast amount of information processing in aggregate: consider all the digitization, inventorying, cataloging, transformation, augmentation, and curation that occurs every day. In this view the Library resembles less a repository of books and artifacts and more a humming engine of activity. Certainly processing information is what occupies staff time. The platforms that all this work is performed on are for the most part purchased (Alma/Primo being the largest and most significant), though some locally-developed applications are in use. The aforementioned digital management and preservation infrastructure will represent a large addition to the Library's portfolio of developed services.

Historically, Library tools have been acquired and managed by the IT department, which has played a somewhat circumscribed role—entirely comparable to other IT departments on campus—by focusing on provisioning computing needs upon request (machines, disk space, networking, application purchase and installation) but otherwise leaving users to their own work. This level of support has sufficiently enabled Library staff, but at the cost of a lack of coordination across the Library (the grant-funded audio digitization work in Special Research Collections being the prime example of development work being pursued almost completely independently) as well as unnecessary duplication (there are at least six project management tools in use within the Library). The addition of the Digital Library Development department, and the placement of these two departments under one division, affords new possibilities to play a more muscular role within the Library by offering greater hands-on support, training, and solution design support, all while ensuring that infrastructure decisions are aligned with larger strategic objectives. But, as with the adoption of a digital management and preservation infrastructure, seeing this role come to fruition will require a culture shift. The division must demonstrate that it

is capable of supporting the requisite infrastructure to a level it has not in the past while at the same time assuring users that no essential freedom is being lost. *Fulfilling this role is the division's greatest challenge:*

> **► Goal 2.1: Embrace the role of providing and supporting the infrastructure upon which the Library performs its work.**

The flip side of support is decision-making, or governance. There is currently no formal structure for making decisions related to IT, whether that be in the area of digital libraries, digital preservation, end-user services, or business computing. Some decisions are implicitly directed to the IT department for its consultation and approval via the budgetary process. Other decisions are made by the Library administrative group, though the discretion of the division AUL factors large here. Some form of centralized IT governance committee would give greater context regarding where and how and with what priority investments are made to a broader set of Library stakeholders. In addition, it would streamline the technologies used and reduce duplication. Questions regarding the constitution, reporting structure, and scope of the committee have yet to be addressed, so the goal remains:

> **► Goal 2.2: Establish an IT governance committee.**

The development of a Library-wide digital management and preservation infrastructure was described in the previous section, but one user and use case for that infrastructure deserve to be called out for their significance: Special Research Collections (SRC) and born-digital content. SRC is already beginning to see what will assuredly become a flood of born-digital content, particularly in the form of faculty collections, papers, media, and other works. This growing stream of content will require that new policy be developed and that the division of responsibility between SRC and Research Data Services (RDS)—as coordinator of the Library's research data efforts—be clarified. Developing workflows for handling this content will require close collaboration between SRC and DSD, for what services can be provided for born-digital content, and how they can be provided in a sustainable and scalable way, is as much a function of the capabilities of current tools as it is of curator desire. This area of work is ultimately SRC's responsibility, but for DSD the goal is:

> **► Goal 2.3: Support SRC in developing born-digital workflows and policies.**

Library processing has typically prioritized collecting content over its ability to adequately describe or create access mechanisms for that content. Too, the Library has typically prioritized the *quality* of digitization and cataloging (by investing relatively many staff hours processing relatively few items) over *quantity* or *breadth*. This has led to the result that, for some content types such as geospatial especially, the vast majority of Library collections are not easily accessible, or not accessible at all, or not even findable. A notable exception to this prioritization is the Library's audio digitization work, which has developed highly productive workflows by employing low-cost workers (students) to operate batch digitization and batch processing workflows, and as a result has been able to make a high percentage of the Library's audio works publicly available to widespread

acclaim. Collection decisions and prioritization do not reside within this division, but DSD is responsible for mass-digitizing photographic and print materials through the digitization lab and the division can and should contribute tools that support such workflows. This means also supporting incremental improvements to existing collections as staffing and resources permit. Ergo:

> **► Goal 2.4: Encourage and support workflows that prioritize breadth while enabling iterative improvement.**

Digitization has always been central to the Library's mission, for it is the Library's primary means of making fragile and limited physical resources available for broad public consumption. Yet digitization as an activity within the Library has undergone many iterations and changes over the years in terms of placement within the organization, staffing, tooling and resources, and mission. The current incarnation, constituted as the digitization lab within DLD, has been working to develop a new digitization capability from the ground up with respect to equipment, staffing, and workflow, with the goal of supporting large-scale digitization of small-size (e.g., negatives, photographs, manuscripts, books) and large-size (e.g., maps, posters) artifacts. The digitization lab already contributed greatly to course reserves digitization during and due to the pandemic, but for that same reason, has yet to complete its outfitting or to ramp up staffing and operations.

> **► Goal 2.5: Continue to outfit the digitization lab as a batch processing facility.**

The Collection Strategies department has embarked on a significant project to transform how the Library evaluates and acquires collections. Among the department's strategic objectives is the implementation of evidence-based approaches and processes to analyze, acquire, assess, and evaluate existing collections. Achieving this goal will require construction and maintenance of a data warehouse that encompasses such varied information streams as acquisition costs, circulation statistics, citation metrics, and alternative source comparisons. Requirements for the warehouse will be driven by Collection Strategies, but the development and operation of the warehouse is necessarily in Digital Strategies Division's province. Therefore:

> **► Goal 2.6: Develop a data warehouse to support evidence-based collection management .**

3. Library as portal

Discovery has long been a core Library service, yet it remains a difficult topic to address. This is at least partly because by "discovery" we refer to a broad and multi-faceted spectrum of concepts and services:

- Discovery *of* collections versus discovery of resources *within* collections, and maintenance of relationships between, and navigation between, levels of granularity.

- Discovery as a locally-provided service (search provided by an institutional repository, for example) versus the indirect discovery supported by external indexing by general indexing services (Google Scholar, Google Dataset Search, Web of Science, etc.), Library-affiliated services (DPLA, Artstor, etc.), and disciplinary services (tDAR for archaeological data, GBIF for biodiversity-related data, etc.).
- Discovery across different regimes of ownership and control (e.g., Library collections versus research data).
- Discovery as integrated within the broader campus context (e.g., a future UCSB research information management system) and systemwide contexts (CDL-provided services such as eScholarship, Calisphere, and Merritt).
- Discovery methods and services that are specific to resource type and/or format (full-text indexing for textual resources; map-based and placename search for geospatial resources; waveform search over audio resources à la Shazam; etc.).
- Discovery method: textual, spatial, network/graph, combination of the preceding.
- Discovery as an end user service versus a computational endpoint.
- Discovery as practically implemented across disparate and incompatible systems (Alma/Primo, ADRL, Dryad, Dataverse, the Library website, Libguides).

Taken as a whole, the discovery currently provided by Library services is fragmented and uncoordinated. A comprehensive solution has not been identified at this point, but is likely to be complex and likely to require that multiple discovery systems work together to provide an integrated and unified experience for users. At this point we can summarize the goal only as:

> ► **Goal 3.1: Develop a holistic approach to discovery.**

Discovery is often presented as a service directly interacted with by users, but discovery is also provided by references to and linkages between persistent identifiers (PIDs), often in the context of linked data and the semantic web. The major PID systems (DOIs for publications, data, and data management plans; ARKs for data; ORCIDs for people; RORs for organizations; RRIDs and IGSNs for samples and materials; etc.) all offer linking opportunities and related services. The Library has assigned persistent identifiers in a few places, but the practice is far from uniform.

> ► **Goal 3.2: Support PIDs for Library resources and participate in linked data networks.**

4. Library as resource

If *discovery* is a core Library service, then *access* to discovered resources is a close sibling service. Here we encounter a mismatch, for the repository platforms used by research libraries typically prioritize uniform description and common, lowest denominator functionality at the expense of format-specific interaction, content-specific organizational structures and browsing, and contextualization. As a result, access to collections is often sub-par and cannot be said to meet the needs of researchers. The

UCSB Library's recent digitization of a local historical newspaper offers a case in point. The content is compelling, yet access to the content, as provided by ADRL (an older Fedora-based platform), lacks a natural organization such as a timeline and lacks easily usable full-text search over the collection, making this resource arduous to use at best. Compare that user experience with the UCSB Cylinder Audio Archive or, looking outside the Library, with the English Broadside Ballad Archive (EBBA). Both these other collections provide far richer access, multiple means of browsing and navigating through the collection, and far greater contextualization of the resources. Collection preparation is ultimately a curator responsibility, but DSD can do much to provide the necessary means in this area. Thus:

> ► **Goal 4.1: Provide the infrastructure supporting high functioning, contextualized access to Library collections.**

An effort in recent years, launched at the UCSB Library no less, is to treat collections as data, that is, to augment traditional user access (which for the most part replicates the analog experience of viewing and reading in a digital environment) with computational access that allows content to processed over, thereby supporting computational methods such as text mining, topic modeling, machine learning, computer vision, and spatial and network analysis. The rise in the interest in data science parallels interest in such computational access.

> ► **Goal 4.2: Provide computational access to Library collections.**

The FAIR principles emerged out of the research data community. Research libraries have been slow to adopt the principles for library collections, yet they should because the motivations are the same: to support reusability and citability of resources. As mentioned in the previous section, the UCSB Library has made some progress in assigning persistent identifiers to online resources, but coverage is far from comprehensive.

> ► **Goal 4.3: Ensure that Library resources are FAIR-compliant.**

5. Library as research partner

The formation of the Collaboratory, and subsequently of Research Data Services, has allowed the Library to play newfound roles in campus research projects and in the research data lifecycle. Complementing the consultations traditionally provided by subject librarians in the areas of research strategies and information resources, the consultations offered by RDS and the Collaboratory initially centered around data management plans (the former) and finding open access and Library-owned data (the latter), but have expanded in scope to encompass every aspect of research data, including management, design, cleaning, analysis, visualization, privacy, licensing, archiving, publication, and citation. Services offered by the Library now include new types of instruction (discussed in the next section) and repository and computational services as well.

The vast majority of consultations are transactional in nature: a question is asked and answered. But faculty new to UCSB, and researchers embarking on new projects, have requested that the Library engage with their work on a long-term basis. And other researchers have requested ongoing consultation on, for example, the design and organization of their databases. Beyond an initial consultation, though, it has been unclear *how* to sustain such engagements. How does the Library actively participate in an ongoing project? Does it regularly attend team meetings? Does it somehow participate hands-on in the work? If the project does not heed advice given by the Library, what then? An early engagement with UCSB's WhatEvery1Says project, in which the Library's role as sustainability advisor was written into the grant, was instructive, but ultimately unsatisfactory and generated the same questions. Too, the Library's resources are limited, so criteria and policy must be established to guide the numbers and depths of engagements that can be sustained.

> **► Goal 5.1: Find ways of more deeply engaging with researchers and participating in research projects.**

The Library's role as research partner is greatly enhanced by being able to offer data-related services, which it does in the form of hosted services such as the DMPTool and EZID and locally-provided services such as pre-configured computational VM environments. For research data archiving and publication the Library offers the systemwide service Dryad. While Dryad is useful and used (we receive several deposits per week now), it leaves many data storage needs unmet. Like most other data repositories, Dryad becomes relevant only at the end of a research project, when the researcher is ready to submit finalized data. It excels as a data publication tool, but offers no support to the researcher looking to manage data over the course of a project. Researchers would benefit by having access to a platform that allows groups to collaborate on data, that supports richer mechanisms for organizing and searching over and within data, that allows projects to create websites to contextualize and advertise their work, and that is better integrated with computational environments for data analysis. Among the platforms currently available, Dataverse, a widely-adopted open source repository system, is the leading candidate. *This is RDS's highest priority.*

> **► Goal 5.2: Offer Dataverse as a means of supporting researchers across a greater portion of the research data lifecycle.**

An early partnership between the Library and the Earth Research Institute (ERI), the Life Sciences Computing Group (LSCG), and the Center for Scientific Computing (CSC) resulted in the purchase and installation of the "Data Collective," a distributed, redundant, on-campus storage pool dedicated to research data. These campus IT groups continue to express interest in collaborating with the Library, and have offered to assume full ownership of the Data Collective and to provide computational services on top of the storage pool as desired, for the benefit of campus as a whole, on the condition that the Library manage the end-user aspects of the service. Such a partnership would allow the Library to address the curation of very large and growing datasets, particularly those coming out of the Earth sciences. It would also provide a platform for piloting new data management services that blend Library curatorial control with continued

computational accessibility for researchers, and allow the Library to provide new types of pre-configured VM platforms and publication methods targeted at digital humanities scholars. Therefore:

> **► Goal 5.3: Collaborate with campus computing centers to bring new Library-managed data services to researchers.**

In 2020 RDS launched the UCSB Research Data Community which includes membership from the Office of Research, Enterprise Technology Services (ETS), the Data Science Initiative, the National Center for Ecological Analysis & Synthesis (NCEAS), and every major computing center on campus. The Library hosts monthly, themed meetings, and frequently brings in guest speakers. The community has resulted in new opportunities for the Library (e.g., being asked to co-sponsor UCSB's first Data Science Summit) and has provided a forum for conversations amongst the participants. Yet the burden remains very much on RDS to sustain the community and to encourage attendance and participation. We continue to work to find ways to more actively involve the participants.

> **► Goal 5.4: Encourage broader participation in the campus research data community.**

6. Library as educator

Scholarship is increasingly data-driven, computational, and interdisciplinary. This is true in the sciences and social sciences, but perhaps even more pronounced in the arts and humanities where, broadly, information technology is both a tool and a cultural artifact to be studied. This emphasis on data demands that students and researchers be facile in working with and managing data, and that in turn requires education— education that is not always included in disciplinary curricula.

For the last couple years the Collaboratory and RDS have been complementing the Teaching & Learning department's undergraduate-targeted, librarianship-oriented instruction with introductory Carpentry workshops targeted at graduate students, faculty, and research staff, that cover topics such as data visualization and analysis, programming with and collaborating on data, and data version control, management, and publishing. There has been great demand for these workshops, with participants attending from departments all across campus. The feedback has been positive.

This success has come at a price, however. The Library has neither the number of staff to handle the teaching load (up to almost a workshop every week now) nor staff with sufficiently deep experience to teach more advanced topics in Python and R. Instead, the Library has been relying on volunteer graduate students and post-doctoral researchers to help out, but that approach has proven to be unsustainable. While volunteers have contributed greatly to the teaching program, as a group they cannot be imposed upon or relied upon. Too, it takes considerable effort to attract, train, and retain volunteers. Attempts to hire graduate students have run into bureaucratic hurdles. *This is the Collaboratory's greatest challenge*. Therefore the goal remains:

► Goal 6.1: Develop a sustainable program of recruiting and training Carpentry instructors.

The Digital Strategy Division's teaching program has come to the attention of other units on campus, notably the data science programs including the UCSB Data Science Initiative, the Bren Master of Environmental Data Science Program, and the Student Engagement and Enrichment in Data Science (SEEDS) program. The Library has directly contributed instructional support to these programs, but largely on an *ad hoc* and pilot or even experimental basis. It would benefit all to have a better understanding of how and what the Library can sustainably and usefully contribute on an ongoing basis, and on what schedule, and also how the data science programs can in turn support the Library. Research Data Services has launched an effort to create a campus-wide shared calendar for data science-related events, and this represents a first step toward thinking of data science education holistically. Still, there is much more that can be done here, and thus:

► Goal 6.2: Coordinate Library data workshops with campus data science programs.

Research Data Services has been collaborating with the Office of Research to host data management workshops for faculty, and working with two departments now to provide in-person Responsible Conduct of Research (RCR) training for graduate students. Otherwise, RDS's engagement with departments has been limited. Other institutions have reported success in developing relationships with academic departments, thereby providing an avenue to promote library services to faculty. Such relationships can be particularly effective in engaging new faculty and in teaching standard curricula (e.g., data literacy, data management) to incoming students every year. They can also provide opportunities to introduce data management to existing research methods courses.

► Goal 6.3: Establish instructional relationships with departments and methods courses.

Library workshops are for the most part introductory and targeted at beginners, including those with no prior computational experience. This is perhaps the Library's niche to fill, for it seems that students and faculty attending Library workshops have no other opportunities for this type of education. But there are also opportunities to teach more advanced topics. A common student request following successful completion of an introductory workshop is to learn more advanced usage. Too, it happens too often that introductory courses (e.g., on git version control) omit essential topics (e.g., branching and merging).

In addition to developing additional workshops around assessed campus needs, more advanced workshops have the added benefit of pushing the Library's internal capacity forward. For example, teaching Python with Jupyter Notebooks increased the number of Library staff who are capable of automating geospatial collections workflows. Writing and conducting lessons such as Twitter harvesting and analysis with the twarc library prepares librarians and student workers alike

to perform text data mining with a wider variety of campus researchers. For these reasons:

> **► Goal 6.4: Develop more advanced workshops and continue to assess campus instructional needs**

7. Library as infrastructure provider

The history of computing is in part the progression of working at increasingly higher levels of abstraction, and of assembling solutions out of increasingly larger, more capable predefined components. On the software side, this evolution can be seen in how the earliest programming languages, which were closely tied to the underlying machine hardware, gave way to higher-level languages that provide abstract data types and the ability to express computation functionally, and from there to platforms that provide packages for doing everything under the sun, from creating websites to machine learning. A similar evolution is happening now on the hardware side. Decades of directly managing physical hardware (purchase, assembly, installation and configuration, maintenance and troubleshooting, disposal) have given way in recent years to provisioning entirely virtualized, functional services (servers, storage, databases, networking) obtained from large cloud providers, and to orchestrating those services in workflows.

The effect on IT staff is no less profound. Skills relevant only a few years ago (everything from power and HVAC provisioning to rack assembly to low-level systems administration) are being replaced by a new suite of skills that demand an understanding of the intricacies of and interplay between cloud services, an awareness of risks and dependencies, greater programming/scripting/API knowledge, and an understanding of cost models.

The cost of cloud services is of particular concern. While cloud providers gain efficiencies by operating at gargantuan scales, the costs they pass on to customers are at once complex, interrelated and interdependent, and novel. New types of costs never previously encountered (e.g., data ingress/egress charges) may be so significant as to determine system architectures. For this reason the cloud is not appropriate for some applications, large-scale research data for example. But it is appropriate for many of the Library's applications. The advantage cloud platforms provide is not so much in overall cost savings, but rather in vastly increased flexibility and power to quickly provision and deploy services and to quickly adapt services to changing demands. Sophisticated system architectures that would be very costly if not impossible for the Library to implement itself, such as elastic load balancing and real-time database replication, are available with a button click in cloud environments. Thus the goals in this area are:

> **► Goal 7.1: Migrate to, and take advantage of, cloud platforms and technologies.**

> **► Goal 7.2: Invest in cloud technology training for IT staff.**

With limited staffing, the Library must focus its resources on those aspects of its infrastructure that are unique to the Library and to its mission. IT services across UCSB have historically been decentralized to an extreme, but in a recent welcome change, services that are in common use across campus (JIRA, Confluence, etc.) are slowly being taken over by Enterprise Technology Services (ETS). While in some cases Library staff must contribute to the development and management of these campus-wide services (e.g., as is happening with identity services), overall, shared services provide economies of scale and redundancy in staffing and expertise.

An advantage of using vendor-hosted solutions is that, because maintenance and upgrades are built into the cost, they cannot be underfunded in a way that many legacy Library systems have been in the past and still are. Therefore:

> **► Goal 7.3: Migrate to hosted (campus-, systemwide-, or vendor-hosted) solutions where possible.**

The creation of DLD has had a profound impact on the IT department, for the new department represents not just an additional stakeholder to support, but a new kind of partner to learn to work with. While each department has its separate responsibilities, there is a substantial area of shared work that requires that the departments work cooperatively, with staff from each department addressing different facets of a combined solution. Current efforts to facilitate inter-departmental cooperation have included creating standing meetings, unifying ticketing systems, and directly assigning staff to work on tasks belonging to the other department, but these have proven to be insufficient, and it is likely that the departments will need to more deeply share planning, tasking, and control.

> **► Goal 7.4: Develop a model of sharing work processes and decision-making between DLD and IT.**

The IT department and desktop support unit have operated informally for many years, and along the way have developed a number of rubrics and informal policies that would benefit from being formalized, if for no other reason that staff in those departments have requested that decision-making be driven by administration-approved policy. Policy would cover, for example, what equipment may be provisioned to employees and on what cycle.

> **► Goal 7.5: Formalize *ad hoc* IT policies.**

In the same vein, a lack of formal, documented support levels for the Library's services has led to misunderstandings and mismatched expectations between the division and Library stakeholders. Formal support levels might specify, for example, response times to system issues depending on class of service.

> **► Goal 7.6: Formalize service level tiers and agreements.**