In the fall of 2009 – that is, over six years ago – candidates for a managerial position in Library Technical Services (LTS) were given the following topic for their public presentations: what will be the role of technical services in an environment in which Google will have achieved its goal to digitize all the world’s books “within the next five years” – that is, by the end of 2014. Although a challenging and provocative exercise for a job talk, it is not the kind of speculation on which we should ideally base resource allocation decisions, including staffing plans, at least not five years in advance. The reality of the academic library world, at least as I see it, is that we cannot predict revolutionary change in research habits and tools – except perhaps for the eventual inevitability of this change. Rather, we must deal day-to-day with evolutionary change and the short- and medium-term impact of progressive trends. For technical services, this means resisting the temptation to position ourselves too far ahead of the transformational curve – an allure we have not always renounced. Conversely, it also means resisting the temptation to wait and see what happens – another mistake we must try to avoid. Achieving this anticipatory balance is, in my opinion, the biggest managerial challenge in library technical services today. And it may remain so for as long as technical services exist – perhaps even as long as research libraries exist. Among the most important strategic goals for technical services operations must be to remain flexible, versatile, and well-informed enough to keep in step with perpetual, but variably paced transition – to catch time by the tail, if you will … and hold on.
As the announcement for my presentation indicates, I want to talk today about the history of LTS, as we currently call this central department within CUL, since its formation in 2005. Many of you recall that it was in 2005 that Cornell completed its consolidation of multiple technical services processing operations across campus into a single administrative unit, with the exception of Law Technical Services, which still operates independently today. But I don’t intend simply to present a chronology of events and developments that led to the current configuration and outlook of this division. Rather, I want also to talk more analytically and philosophically about the strategic and tactical elements of LTS’s vision, how the mission and priorities of LTS must reflect and support the mission and priorities of the Library as a whole, and how we in LTS got to where we are now.

To understand some of the context for this evolution, however, I believe it’s useful to go back even further – more than ten years further back, in fact – to 1994. This is the year in which Christian Boissonnas, Director of Central Technical Services (or CTS, as Cornell’s central processing operation was called at the time), issued a white paper entitled “CTS Cataloging Review.” This study was also known, a few of you may remember, rather ominously as the “Ides of March Report,” because of the date on which it was due for submission to Library Administration.1 This study, commissioned by former Associate University Librarian, the late Ross Atkinson, consisted of a formal review and cost-benefit analysis of cataloging methods and policies in CTS. It also contained recommendations for reducing a burgeoning cataloging backlog of nearly 100,000 print titles to approximately 50,000 titles within three to five years. Atkinson responded to the Boissonnas report with a call for fundamental changes in CTS’s processing philosophy in a memo to then University Librarian, Alain Seznec – a memo with the subject line “CTS Cataloging Adjustments.”2 This mandate for CTS – and I say “mandate” here,
because Atkinson’s recommendations were indeed approved and actively supported by Seznec –
this mandate contained a two-part goal: to “create a surplus of fastcat/copycat/authorities time
for response to critical needs beyond cataloging of newly received materials, [and to] establish
original cataloging priorities.” It is important to understand the pragmatic relationship between
the second and first parts of this sentence. CTS should no longer operate, could no longer
operate, under the assumption that we should supply the same level and extent of bibliographic
access to everything. Rather, catalogers and CTS policy makers should ensure exceptional levels
of bibliographic access only to those items that, in their judgment, warranted such treatment, in
order to “create a surplus of … time for response to critical needs beyond cataloging of newly
received material.”

These “cataloging adjustments” were a key development, I believe, in the cultural history
of CTS and, consequently, of LTS, as we know it today. They set the stage for the eventual
elimination in 2004 of CTS’s pituitary cataloging backlog, which had filled hundreds of presses
in the Olin Library sub-basement, and which at times required as many as two FTE of staff and
students to maintain. More accurately, the elimination of this cataloging backlog was actually a
reduction of this arrearage to “working presses” of several months’ worth of material, all of
which, however, had to fit within the department’s footprint. This project was successfully led
by Karen Calhoun, Boissonnas’ successor as Director of CTS. Its completion was characterized
by then University Librarian, Sarah Thomas, as a “feat that is almost unimaginable.” This effort
served to eliminate a cataloging backlog that at one point had reached a staggering 174,000 titles.
It also shifted the focus of Cornell’s central cataloging operation from the provision of so-called
“full” bibliographic access to all titles in the collection to the more pragmatic aim of delivering
resources into library users’ hands promptly, though with a somewhat reduced, though still
adequate level of bibliographic access for certain items. This utilitarian adjustment in processing philosophy provided, again in Thomas’s words, a “tremendous service for our readers, who can [now] easily find the works we acquired for their use.”

Although developed to address a severe cataloging backlog, this idea of generating a surplus of processing time to address other “critical needs” became a cornerstone for the operating philosophy not only in CTS but still today in LTS. Even before the conclusion of the backlog project, CTS had begun to turn its attention to the optimization of other cataloging and pre-cataloging activities. In the year 2000, for instance, CTS hired its first Information Technology Librarian, Adam Chandler, to provide support for new priorities in Cornell collection building. These priorities included virtual access to a rapidly growing number of scholarly journals newly available in electronic format, as well as our expanding effort to automate the creation and transformation of bibliographic data. Among Adam’s first assignments was the development of a method to create brief, title-level catalog records (called “sleek records”) in batch, for e-journal sets. Adam also participated in the development of the Integrated Tool for Selection and Ordering for the Cornell University Library (ITSO CUL), a program designed to facilitate more efficient acquisition of library materials through automation. This latter project was a collaboration between CTS and Library IT staff, an association that grew continually more productive in the years that followed. ITSO CUL was the brainchild of Scott Wicks, an acquisitions librarian by training and Head of CTS Acquisitions and Cataloging Services at that time. ITSO went into production at Cornell in 2004, eventually generating an estimated savings of $100,000 annually in staff costs before its subsequent sale to OCLC, who rebranded and redistributed the product as WorldCat Selection.
The point of this somewhat lengthy preamble to the analytic, strategic, and aspirational history of LTS, which I’ve promised this morning, is that the evolution of LTS’s operating philosophy – that is, our way of approaching changes in library user needs and, consequently, changes in CUL’s strategic goals – this operating philosophy has been informed, in great part, by the principles first articulated and realized in that call for “cataloging adjustments” in the mid-1990s. These principles also drove the subsequent effort to develop and increase our use of automated approaches to technical services operations during the following decade or so (that is, from 1994 thru 2004). This philosophy – or vision, if you prefer – also reflects the division’s ongoing pride in its ability to deliver efficient, innovative service. This collective self-esteem was ignited, I believe, by our accomplishment of that “feat that [was] almost unimaginable” and the innovative momentum to improve, re-imagine, and expand our entire suite of technical services that followed. This effect, I believe, also lies behind LTS’s dedication to seeking and assuming leadership roles in national-level technical services enterprises that support strategic and evolutionary practices for 21st-century research libraries, including our own.

Now, if we had to describe the mission of LTS in a single word, that word would be access. More specifically, we in LTS see our fundamental responsibilities as the acquisition of enduring access to both digital and physical material, and the creation, enhancement, and leveraging of bibliographic access to this material via traditional and innovative approaches and services, as well as through state-of-the-art infrastructure. We also support hands-on access to our physical collections, including the retrievability and security of this material, through the physical processing of new items – that is, the application of barcodes and security stripping, marking, and so forth. These guiding principles have not changed much over the past several
years. What has changed, of course, is the proliferation of a variety of digital information resources and the tools to retrieve and use them, as well as the corresponding, though disproportionate, decrease in the acquisition of physical material – and I’ll return to this disproportion in a moment. The use of technology to create and support efficient and economical means to acquire and enhance access to library resources has also played an increasingly important role in LTS’s ability to fulfill its mission, as has our cost-saving collaboration with CUL-IT. We must also acknowledge the relentless budgetary pressures – even more persistent now, it seems, than they were two decades ago – to increase efficiency and free up staff, to “create [that] surplus of time for response to [other] critical needs” within the library.6

Let’s look at some numbers, focusing in particular on LTS – that is, the division as we know it today since the completion of Cornell’s technical services integration in 2005. I’m not going to drown you in a river of statistics, although I could. As a large, production unit, LTS keeps a lot of stats, the majority of which are publicly accessible from the LTS website.7 Instead, I want to share with you just a couple of production trends that I feel are particularly useful for the points I want to make today.

Over the past ten years – that is, from LTS’s first full year of operation in fiscal 2006 thru the completion of the 2015 fiscal year last June – cataloging of titles in physical formats has declined from an average of just over 111,000 titles per year to an average of just over 78,000 titles per year, a decrease of 30%.8 Here is a graphic representation of a linear regression analysis of this trend, prepared by Adam Chandler, using the actual production numbers for each year in the target period. You’ll notice that the decrease in LTS work in this category trends downward, overall, though not as fast as we would have expected back in 2005 (or even in 2009, when we
asked those job candidates to imagine a completely digitized bibliographic universe within five years). In fact, you’ll note a slight uptick in new cataloging over the past two years. This rise is likely due to an increase in one-off projects to address pockets of long-held, but never processed material tucked away until recently in unit libraries.

The receipt of print serial issues has also declined over this same ten-year span, from an average of just over 81,000 items per year to an average of just under 40,000 items per year, a decrease of 51%. Here is a graphic representation of that trend. As in the case of new titles cataloged, the receipt of print serial issues has also trended downward, overall, but with a similar anomalous flattening over the past two years. This slowing of the downward trend indicates, I believe, that we may be reaching limits in our ability, and possibly our willingness as an institution, to replace as many print serial subscriptions as possible by e-only arrangements.

At the same time, the number of e-journals in Cornell’s collection has increased from approximately 38,000 in fiscal year 2006 to over 115,000 last year, an increase of 201%. Here is a graph of that activity, which you can see is trending more regularly upward. You’ll notice that these numbers do not represent new e-journals added annually to CUL’s collection, but the more useful measurement of total number of e-journals in the collection. I’ve chosen to represent e-journal processing in this manner because the care and feeding of access to networked electronic resources—especially serials—does not end with the initial acquisition and cataloging of these titles. Licenses must be updated, renewed, and in some cases renegotiated. Staff in Liisa Mobley’s E-Resources Unit must monitor access to these resources and troubleshoot technical glitches. Catalog records must be deleted, merged, edited, and/or reloaded as terms of access change. This work is difficult to measure (and we’ve not been scrupulous over the years in attempting to track it), but it is nonetheless considerable.
This composite graph shows the ten-year trends of these three select categories mapped together: cataloging of titles in physical formats (in green), receipt of print serials (in blue), and total number of e-journals in Cornell’s collection (in red). It provides a good, representative illustration, I think, of the evolving hybrid priorities of technical services processing. But this is hardly the whole story, of course. LTS has assumed responsibility for a number of new operational activities since 2005. This is work that was not even part of our charge ten years ago. For instance, begun as a Cornell grant-funded project in 2009, LTS has cataloged over 15,000 individual images for classroom use, employing the CCO and VRA core standards, in what has become today a mainstreamed workflow managed by Hannah Marshall, LTS’s Metadata Librarian for Image Collections. And with the hiring of Data Curation Specialist, Wendy Kozlowski, in late 2011, LTS became engaged in program development, service implementation, and education and outreach in support of science data management and scientific metadata services for CUL. Wendy’s work includes coordination responsibilities for Cornell’s Research Data Management Services Group (RDMSG). More recently, LTS assumed leadership for the development and maintenance of bibliographic access to CUL’s web archive, under the direction of Jason Kovari, an initiative that captured and preserved nearly 15,000,000 documents in fiscal year 2015. Concurrently, the LTS Metadata Services Unit and DSPS’s Digital Consulting & Production Services (DCAPS) have continued to nurture and expand their active partnership, with LTS staff providing metadata expertise, advice, and support for digital projects at Cornell and beyond.

At the same time, we have seen a significant decline in the number of LTS staff. In 2005, there were 97 staff members assigned to the responsibilities currently represented in LTS’s portfolio. Today, there are 68 of us in LTS, a decrease of 30% -- that is, the exact same rate of
decline as that of the cataloging of new titles in physical formats, _alone_, over the past ten years. How have we done this? How have we kept up with a steady, though hardly precipitous decrease in the acquisition and cataloging of physical material, while increasing our support for e-resource processing, VRA image cataloging, research data curation, web archiving, and Cornell’s digital production services?

Well, by creating a “surplus of … time for response to critical needs beyond cataloging of newly received material.” Put simply, we have aimed – often unconsciously, perhaps – to sustain the spirit of Ross Atkinson’s 1994 “cataloging adjustments” mandate. We’ve continued to streamline fastcatting and copy cataloging with some regularity, and original catalogers retain the freedom – the responsibility, in fact – to adopt and adapt a suite of MARC cataloging methodologies, most recently the use of FAST subject headings, to ensure that cataloging backlogs do not redevelop. We have fortified this effort through the purchase of preliminary and, on occasion, full catalog records from an increasing number of vendors. In this same spirit, and with the support of CUL as a whole, we have significantly reduced or eliminated a number of other traditional practices related to physical material – such as routine stiffening, series standing orders, and routine serials claiming. As a library, and more broadly as a library community, we may disagree about the relative merits of some of these decisions, but the driving force behind them remains the necessity to “create a surplus of … time for response to critical needs” beyond traditional priorities and to re-evaluate our values repeatedly as those needs evolve.

Then there’s automation. In support of the consistently expanding e-resources workflow (which now includes both e-journals and e-books), the increased automation of acquisitions processing, additional outsourced cataloging arrangements, temporary and permanent unit library
closures, and the regular export of Cornell metadata to be shared with such agencies as OCLC and HathiTrust – just to name a few of its activities – the LTS Batch Processing Unit, under the current direction of Gary Branch, has executed over 54,000,000 automated transactions since its creation in the summer of 2005. These include over 2,000,000 catalog records for new titles added to the collection; the editing or enhancement of over 18,000,000 catalog records; and the export of more than 33,000,000 records for shared use in other databases. In collaboration with CUL-IT and other key individuals in LTS, this unit has also been instrumental in the creation of, and support for, a number of automation tools. Most notable, perhaps, among these tools is the Pre-Order Online Form (or POOF!), a program that has eliminated a significant amount of the manual acquisitions work involved in the review and placement of orders for items in all formats. LTS staff has used POOF! to place firm orders for well over 20,000 items since its implementation, and we estimate that its routine use is now saving us up to 2.0 FTE of acquisitions effort annually.

It has also been important for LTS to nurture a culture of continual review of its practices through impromptu conversations, organized brainstorming, and formal research, as well as the judicial adjustment of staffing levels and assignments whenever circumstances for such repurposing are favorable – and sometimes even when they are not. We have also become increasingly alert to the advantage of addressing local problems at the national level, whenever possible and appropriate. To do this, we have become adept at finding seats at the national table from which we can contribute to discussions relating to issues not only of national but of local importance. In this way, we have aimed to influence cooperative technical services policies and practices nationwide, as well as library vendor policies and practices, in ways that will best support our mission here at Cornell.
For example, in addition to local development of acquisitions tools such as ITSO CUL and POOF! (both of which, as it turns out, were subsequently adapted for use beyond Cornell), we have also taken steps to expand, and in some cases even helped to create, vendor approval plans for acquiring new items, chiefly for Asian material: DKA (for South Asian titles), Bannawat (for Thai), and the Hong Kong University Library (for Chinese) – among others. In addition, Jesse Koennecke, LTS’s Director of Acquisitions & E-Resource Licensing Services, has been guiding the CUL task force that is working with ProQuest to further develop its OASIS acquisitions and selection system. This product promises to replace to a great extent, OCLC’s WorldCat Selection tool, which will be discontinued in June. LTS acquisitions and e-resources librarians, including Jesse, have worked directly and regularly with vendors and publishers over the past several years to influence the structure of patron-driven acquisitions (or PDA) models that will best meet user needs, while striving to minimize the workflow complexities associated with these programs. Along with Columbia’s Susan Marcin, Jesse has been pro-active in working with content providers to develop best practices for the delivery of streaming video, another material format new to our collections since 2005. And through the efforts of Adam Chandler, we have also played a role in improving the e-resource user experience, initially through local research into the quality of OpenURLs, but eventually through the creation of a national working group to examine and lobby for improvements in this area. This working group, sponsored by the National Information Standards Organization (NISO), investigated the feasibility of creating industry-wide, transparent and scalable metrics for evaluating and comparing the quality of OpenURL implementations across content providers.9

Since his arrival in Ithaca in 2013, Chew Chiat Naun has brought Cornell to the forefront of the national effort, within technical services, to greatly increase the scope and visibility of
library resource description. Working with organizations such as the PCC and OCLC, and through initiatives such as Linked Data for Libraries (LD4L),\textsuperscript{10} Linked Data for Production (LD4P), and the 2CUL Technical Services Strategic Alliance,\textsuperscript{11} staff in LTS’s Cataloging & Metadata Services (CMS) have been increasingly involved in a number of newly emerging and progressive endeavors under Naun’s leadership. To support this work – much of which, we believe, is fundamental to our future as information access providers – we have begun to reallocate resources to learning about and influencing the development of OCLC’s WorldCat Entities,\textsuperscript{12} as well as BIBFRAME\textsuperscript{13} and other linked data models. If developers, in both IT and technical services units, are able to deliver on the bright promise of some of these ideas, our early involvement in their testing and rollout will permit Cornell to get a jump on local implementation of routine linked data protocols. It will also allow us to begin leveraging the potentially transformative power of linked catalog data for Cornell resource discovery. Towards this end, LTS – in collaboration with both CUL-IT and partner libraries – aims to maintain its involvement in linked data planning, modeling, and testing, as well as the potential development of related models specific to authority control, which may prove particularly useful for our future as Kuali OLE users. We also remain hopeful that the 2CUL Technical Services Strategic Alliance, as we are now calling our ongoing relationship with Columbia technical services, will lead to increases in processing efficiencies and expanded scope for our skills, aptitudes, and collective foreign language fluency.

Now, none of this recent work is reflected in the productivity and staffing numbers I cited earlier. Those numbers tell only the story of our increased productivity over the past decade in respect to a decline in personnel that is precisely equal to the reduction in processing of physical material, alone. In other words, in spite of the significant reduction in LTS staff over the past
several years, we have somehow managed to keep our heads above water, though, truth be told, not without occasional floundering. Nonetheless, we have somehow managed also to swim forward a considerable distance. And this is important, because without our supplemental investment of staff effort in innovation, collaboration, and leadership beyond Cornell, meeting the demands of the evolving strategic goals of LTS over the past decade – and by extension, meeting the evolving strategic goals of CUL over the past decade – would have been even more difficult, and achieving these goals in the future may be impossible. It is also really important to acknowledge both the skills and determination of LTS’s outstanding supervisors, coordinators, and other key staff members who are shouldering a great deal of the responsibility for running day-to-day operations in LTS. Even more important, I think, are the skills and effort of the dedicated staff who carry out the preponderance of this routine work. Without this effort, it would be impossible for LTS senior leadership and others within the division to develop and secure support for important, innovative advances in service. I also want to acknowledge the outstanding leadership, guidance, and support that Xin Li, our AUL for Discovery, Assessment, and International Engagement, has provided LTS since 2011. Without her wisdom and advocacy, LTS would be in a far less advantageous position to address our priorities and to support CUL’s strategic goals now and in the years to come.

Twelve years ago, we demonstrated that we could accomplish a “feat that [was] almost unimaginable” in eliminating our unacceptably large cataloging arrearage. To preserve and advance our reputation for success during these even more challenging times, we will need to continue to maintain and fulfill our lofty ambitions through creative strategic thinking, well-timed staffing adjustments, and empowerment of a number of talented and dedicated individuals within LTS to investigate, develop, and implement ideas that stretch our tactical acumen. This is
not, and will not, be easy, but it is only through the continual re-examination, re-balancing, and re-development of our goals, skills, and aptitudes – in conjunction CUL’s goals and priorities – that we stand a chance of maintaining our precarious grip on the twitching tail of the endlessly evolving and expanding world of scholarly information over the next ten years.
Notes


6 The role of increasing fiscal pressures and advances in technology in the evolution of library technical services is not limited to CUL, of course – see Jeehyun Yun Davis, “Transforming Technical Services: Evolving Functions in Large Research University Libraries, Library Resources and Technical Services, 60:1 (2016), 52-65 – although the specificity of our utilitarian model is somewhat unique among our peers.

Given the variations in annual productivity for myriad reasons, I’m using an average of two years (i.e. mid-2005 thru mid-2007 and mid-2013 thru mid-2015) to derive these numbers related to the processing of physical material.


