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Technology Strategic Plan Narrative

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Technology Strategic Plan Narrative

Version 1.0

Introduction

In contemporary culture, many analysts have worried that technology undermines the ability of college students to engage in sustained contemplation and disciplined analysis, that technology threatens the existence of the residential liberal arts college. Technology is neither an obstacle to student learning nor necessarily a threat to the future of Trinity University.

Quick to realize the potential of emerging technologies since the advent of the Internet in the early 1990s, Trinity has long understood how to strategically combine the promise of the new with this institution's considerable strengths. But we cannot rest on our laurels, our past. This document maps out a vision for the next decade, explaining how appropriate deployments of new technologies will position Trinity as a leader in the years to come.

Creative and mindful use of technology in teaching, in learning, and scholarship will enable Trinity to differentiate itself from our competitors, and present the college as a clear choice for prospective students. The very best students will seek the most innovative uses of technology, especially when applications introduce flexibility to their learning and develop their skills in the use of digital resources in their work and everyday lives.

Trinity has invested considerably in technology, but it doesn't matter how much money we sink into machines if our staff, faculty and students do not understand how to use them. For this reason, we have hired people who understand computers and who are also capable of explaining these machines to less technically oriented colleagues across campus. By nurturing a culture of open-mindedness, and by recruiting staff and faculty who share this vision, we put in place a strong foundation of the future.

The flood of new technologies is relentless and unending. As our colleagues in computer science remind us, the rate of technological change is exponential. This means that we will

never be in the position of having completed the agenda; we will never have the luxury of resting on our laurels.

This document is a result of a series of conversations among a group of faculty, staff and administrators who share an interest in the application and potential of new technologies in higher education. It is meant to serve as a companion to the more general Trinity University Strategic Plan, and also as a stand-alone piece intended to provoke discussions about the impact of technological innovation on postsecondary education, and residential liberal arts education in particular.

Technological disruption may manifest itself as the loss of pricing power with far cheaper and more effective alternatives for students to choose from, the loss of the residential component, full time faculty replaced with part time faculty and at the extreme, the loss of place and face-to-face instruction. One could imagine many other scenarios that would constitute disruption but the idea is that these would be changes in the very nature of Trinity University. The technologies that would effect such change presently include mobility and geolocation, virtual communities, MOOCs (massive open online courses), and crowdsourcing among others. Disruption does not necessarily mean decline, but rather a significant change in the very character of the university.

Sustaining technologies would be the incorporation of such technologies into the residential educational nature of Trinity as it currently operates with an emphasis on the importance of place. The idea of place is central to a Trinity education and is the thing most likely to be disrupted by a failure to incorporate place with emerging technology.[1] The present document is a view toward sustaining rather than disrupting.

Trinity needs to maintain the kind of infrastructure to support the wide range of technology in use, and staying ahead of the demand requires constant evaluation and upgrades. We are a campus that welcomes all types of computing devices (e.g., tablets, laptop computers, desktop computers, and smartphones). We must provide the internet bandwidth and wireless technology to not only support those devices but to do so in a way that is experienced as "seamless" by students, staff, and faculty.

Students arrive on campus with machines capable of basic Internet access and word processing, but they require access to computers that can perform advanced video editing, graphic design, and other resource-intensive tasks. Our computer labs should provide an enhanced experience in the speed and ability of the hardware, professional software programs, and user experience enhanced by professional-grade monitors and peripherals. This requires regular research, upgrades, and investments.

Technology and curricular flexibility

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[1] "Essay on need for colleges to define importance of physical campuses." 2012. 1 Nov. 2012 <http://www.insidehighered.com/views/2012/04/23/essay-need-colleges-define-importance-physical-campuses>

Study abroad provides an example of the sort of flexibility that technology provides. With web-based access and nearly ubiquitous wireless connectivity, students might go abroad and continue to take courses at Trinity--courses which take advantage of their location--while still allowing the student to earn Trinity credit. Summer sessions could include Trinity-based online courses, thus permitting students to take Trinity courses while living and working at home for the summer. (Both the study abroad and summer session models have the potential to generate additional revenue.) At present, Trinity's summer session is out of reach for many students, as it is so expensive compared to community college alternatives. Furthermore, the current face-to-face model requires students to stay in San Antonio, which means they must find short-term rental housing, and possibly jobs that will in turn accommodate their class schedule.

 As it is, many students choose to go to some other college to complete prerequisite or summer courses. Some institutions, such as Bryn Mawr and Carleton Colleges, are giving credit for courses that are taken online. Others, such as St. Olaf and Macalester Colleges, are teaming up to develop such core courses in an online-only format, allowing students to take them when it makes sense for them, at their own pace and schedule. Among the benefits of such an approach are the improved flexibility this model offers, by removing barriers to on-time or even early degree completion. Students who failed a course might be asked to re-take it from a summer Trinity offering, thereby insuring the level of rigor offered while still allowing the student to finish in four years.

Students' educations will include components of online and distance education. The continuing education of Trinity students after graduation will likely include opportunities to experience distance education--for training, pursuit of graduate credentials, and even personal enrichment. As such, current enrollees should be exposed to effective modes of distance education, to help them become intelligent users of the genre. In addition, blended learning uses many components of distance education. Trinity should offer both largely distance education-based courses as well as the above blended learning courses. Some components of the student schedule could contain a mix of such courses. National surveys indicate that students are already taking both types of courses while in residence. They then may transfer the credit back to Trinity. The case for offering them such opportunities from our own resources would meet the objectives of preparing students for the effective incorporation of technology into their living and learning. Such an approach could also enable Trinity to capture revenues lost to competing providers (i.e. community colleges near our students' homes.)

Trinity needs to gain experience in teaching in the online environment as there is little doubt that it will be a part of all education, either via a blended model or a mix of online and "off-line" courses offered as part of the regular curriculum. Online courses are expensive to develop and hence it should be expected that appropriate resources be devoted to the development of these courses.

Technology in the Residential Environment
Trinity University has a considerable investment in place, and we take justifiable pride in our extensive and beautiful campus. One of the first liberal arts colleges to embrace the Internet

during the 1990s, we have long understood that digital technologies do not spell the "death of distance" and the decline of place-based institutions such as Trinity University.These tools make it possible to amplify our considerable strengths, but *always* in the service of place. This insight has long been at the core of our technology planning.

Consider our creation of the AT&T Center for Learning and Technology which reflects the commitment to leading edge technologies in learning and teaching in the residential college environment: Advanced technology in the context of extensive support personnel. An equally strong example is the Coates Library which has become a model for the liberal arts library in a rapidly changing environment for information access. The library provides an inviting physical space for coffee and collaboration, as a social space that leans toward learning.

Students also live on the campus and as such we are compelled to provide digital resources for all aspects of their campus lives. Thus part of the idea of "place" in Trinity's education is also that the students live here. Hence programming for video systems and access to the world of the Internet is both educational as well as entertainment. A modern network is a converged network, meaning that voice, video and Internet access seek to be provided on one network while we currently only have voice and Internet on one network while TV runs on a separate network. We seek to converge those networks to provide efficiencies in support and to leverage the focus on one network.

Technology is a way to differentiate Trinity from the other schools' prospective students consider. Surveys indicate that our students view themselves as having better technology on the campus than their peers. That differentiation is a moving target which requires that we constantly upgrade campus digital resources. Visibility of technology on the campus is an important part of attracting students. The main floor of the library is one showcase for technology. That space must be upgraded frequently to maintain that visible edge. The CSI is another visible technology space. Make the technology visible!

Trinity will excel at the appropriate uses of technology in learning and teaching. That means that not only strong resources are available, that the less visible infrastructure is able to support the technology, but also that Trinity has analytics in place to demonstrate effective learning outcomes enhanced by technology.

Students and Technology[2]

An annual study conducted by the research arm of EDUCAUSE (ECAR – EDUCAUSE Center for Applied Research), a nonprofit that advocates for technology in higher education, found that more students than ever gave the thumbs up to their professors' use of technology in the classroom. From the national survey completed in 2012 (in which Trinity participated):

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[2] "ECAR National Study of Undergraduate Students and Information ..." 2012. 30 Oct. 2012 <http://www.educause.edu/library/resources/ecar-national-study-undergraduate-students-and-information-technology-2011-report>

68% of students reported that their teachers were effectively using technology, up from 47% in 2010.

75% of students said that technology helped them achieve their academic goals, but only 66% felt prepared to use that needed technology when they entered college.

70% of students report that they learn best in a blended learning environment.

50+% of students responded that they are more actively engaged in classes that use technology, but they wish their instructors used more open educational resources, simulations, and games.

Between 2008 and 2012, there was **a 107% increase** in the number of students who took a class completely online.

Students are taking courses at more than one college simultaneously (called "swirling"). This means that students at Trinity may take online courses from other universities and transfer them back here. The percentages are small (**15%**) but the efficiencies offered by swirling suggest the behavior will grow.

Students taking online courses has doubled from **15% to 31%** in the past year.

Teaching and Learning

Classrooms all need to contain the resources for effective technology in teaching. Faculty need access to the latest technology to enable the use of it in teaching and learning. Resources for the development of faculty skills in the use of technology, as in the AT&T Center for Learning and Technology, must be supported adequately. Maintaining a technology edge requires both vision and management skills in its effective acquisition and implementation. The Center for Learning and Technology will provide support for the development and use of technology in learning spaces at Trinity.

The effective exploitation of place combined with the effective use of technology requires that Trinity pursue blended learning strategies in teaching and learning. Blended strategies are those that combine optimal uses of technology with optimal guidance by the faculty. Trinity will not emulate those that pursue an exclusively online future, but rather exploit the potential of a combination of online and place-based strategies.

In the past, teaching effectively and learning outcomes have been, in many respects, an article of faith on the part of all participants. Faculty members hoped they were strong teachers; students felt their learning was demonstrated by their grade point averages. Significant discoveries in cognition and neuroscience now allow us to understand more completely what helps individuals learn. What kinds of activities drive brain activity that in turn results in deep learning? How can we create learning environments that consistently produce strong learning outcomes? How can we identify students who are struggling long before they fail, and then tailor their experience to their learning needs and styles?

Armed with better understanding of learning, and how teaching interacts with it, we can develop better learning goals for our students, determine ways to measure progress toward those goals,

and then perform those measurements. Based on the results, we can continue to create stronger and more effective learning experiences for our students. The end result: Trinity graduates who can truly claim that their education prepared them with the knowledge, experiences, and abilities they need to be contributors to society.

Mobile computing devices will supplant the fixed desktop. That means that all information systems must be able to function and display appropriately for wireless and smaller screen mobile devices. Faculty will increasingly use mobile devices as the interface controls in the various learning spaces on the campus. These mobile devices will take many forms and run various operating systems; hence the movement toward "bring your own device" (BYOD) requires that Trinity's infrastructure and software be device neutral, and our support teams cross trained on various platforms, including smartphones, tablets, and devices we cannot yet imagine.

It is important that Trinity University excel at video in all of its facets. As Trinity University works to both send students out into the world and invite the world into Trinity these are experiences are more often than not to include ever increasing video components. This will require continued investments in video infrastructure. One goal being to take any interaction on campus from a small audience to a global audience in a matter of moments.

Learning Analytics

Assessing Learning
Online learning provides the potential to capture enormous amounts of data. The most sophisticated systems, Like Carnegie Mellon's OLI, can tailor student lessons based on individual responses and offer hints on homework problems. As responsive educational technology improves, it creates opportunities for self-paced learning, offering multiple modalities to teach to different learning preferences, and moving beyond the credit-hour model to competency-based credentials. Institutions like Trinity have to start unpacking the learning process and determining which pieces can be best served by hi-tech, thereby freeing up the more expensive human resources to focus on the parts of learning that require "high-touch."

Microcredentials
Online tracking of student accomplishments makes it possible to document student learning at multiple milestones. Rather than focusing on a course grade, a diploma or transcript, microcredentials are awarded for learning achievements, for example Mozilla open badge architecture, allowing learners to take their credentials with them, displaying them on their own websites or on professional networks like LinkedIn. The most common form of microcredentials are "badges" which are associated with the "gamification" of learning. Badges may be awarded for learning achievements, but also for social contributions, like helping other students, or for effort, like time spent on practice problems.

> One of the most important functions of college degrees is signaling knowledge and skill to potential employers. Yet degrees and certificates often do a poor job of communicating detailed information about graduates. Grade inflation has steadily

obscured the meaning of G.P.A.'s, and there's no easy way to know what someone who got, for example, an A-minus in Econ 206 actually learned. A badge, on the other hand, is supposed to indicate specific knowledge and skills.[3]

Learning Portfolios

Like microcredentials, learning portfolios take artifacts of student learning out of the traditional boundaries of the classroom, transcript and Learning Management System. Students retain ownership of the essays, achievements and reflections accumulated both inside and outside formal classrooms, making them part of their "personal brand." Portfolios build habits of lifelong learning that include reflective practice. Blogging platforms are a common and easy to implement format for learning portfolios.

Technology for Entrepreneurs

Technology can hold a significant advantage not only for those that use it for purposes of communication and connection but to also make and create things. Maker culture has seen a dramatic rise in popularity over the last several years. Like many movements in popular culture, they are coalescing components of a movement first formed in the mid-90s.Many of the expressions around Maker culture have been born not only out of the professional programs of engineering and technology but art and the humanities as well. Much of this is summed up in the "About Make" page on the *Make Magazine* webpage. (Reference?)

This Maker movement has a significant experience around shared spaces that enable the self-driven projects brought to the table by its collaborators. This movement has a strategic value to Federal Government agencies who have set out to fund the expansion of Maker culture in school settings.[4] Trinity has a unique opportunity to lead in the Maker Movement by thinking creatively about how we use our space to invite and encourage this type of cultural development, work, and entrepreneurship. Space that supports Makers reaffirms tools and skills from across multiple disciplines and is the technology sponsor for entrepreneurship.

We are not alone in the endeavour. Universities like Mary Washington are beginning to develop and plan their spaces to educate the next generation of Makers.[5] These spaces are unique and not one size fits all. It will be important for Trinity to think about what the space, culture, and resources to create a Makerspace for us will look like. It has to be something that students want to be a part of. In some respects a good Makerspace is amorphous and open to change while at

[3] Kevin Carey. 2012. Show Me Your Badge. New York Times November 2.
http://www.nytimes.com/2012/11/04/education/edlife/show-me-your-badge.html?pagewanted=all
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[4] http://makerspace.com/about and http://blog.makezine.com/2012/04/04/makerspaces-in-education-and-darpa/

[5] University of Mary Washington Makerspace Faculty Discussion
http://blog12.facultyacademy.org/proposal/makerspaces/ and
http://www.educause.edu/library/resources/7-things-you-should-know-about-3d-printing

the same time supportive for those just starting to explore their "inner maker." Maker spaces embody not only a set of tools and spaces but an attitude about the type of people that participate. These are not people that simply consume goods while they are here but are actively becoming producers of new ideas and things.

Trinity's leadership in Maker culture locally will reap great benefits in terms of community exposure and potential applicants. Geekdom has taken the lead in offering technology and Maker trainings for San Antonio's youth with its SparkED program. Geekdom is positioning itself as an education company, with coaching, mentoring and peer-leader classes for entrepreneurs. (A number of Trinity students are already members.) Trinity should be on the forefront of maker and DIY education, not just for our students, but for the entire community.

Collaborative for Learning and Teaching

The Collaborative for Learning and Teaching is a "faculty development commons that provides space and context for scholars to advance their teaching practice within an interdisciplinary learning community"[6]. Established in 2011, the Collaborative is now a campus locus for innovation in teaching, a nexus for curricular and co-curricular interactions, and mast for effective integration of pedagogy and technology in support of student learning and faculty scholarship.

Prospects for catalyzing both real and continual transformations in teaching practice and faculty-student interaction through the Collaborative are high. Over 70 percent of Trinity's full time faculty attended a teaching seminar, curricular discussion, or related keynote address in the Collaborative during its opening year. This constituency included the entire range of departments and professional programs.

The Collaborative also serves the needs of campus administration in providing a forum for ongoing curricular discussions and strategic planning as well as support to University departments and programs. In support of the Trinity Tomorrow re-envisioning process, the Collaborative provided neutral space for faculty discussions and planning.

With new programs and projects for 2012-13, faculty incentives to encourage collective inquiry and excellence in teaching, and a partnership with Academic Affairs to support early-career faculty, the Collaborative's audience can be expected to grow and diversify. The Collaborative will continue to seek partnership opportunities with all sectors of the University to better advance the institution's mission and vision.

Challenges and Opportunities

As described here, the 21st Century heralds' unprecedented transformations in our ability to communicate, acquire information, and create knowledge through networked technology and

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[6] The Collaborative for Learning and Teaching (2012, October 31). http://ir.trinity.edu/collaborative/

collective participation. These changes present significant opportunities and challenges for higher education and the liberal arts community in particular.

To illustrate this point, we are now able to use geo-enabled mobile devices (iPhones, tablets etc.) to interactively link the classroom to field activities in real time. Scholars at Furman University[7] and Seton Hall University[8], for example, have pioneered new forms of teaching and learning that redefine and extend the residential experience. The confluence of networked applications has allowed students to engage in democratic, self-directed, actions to address global poverty[9] and women's rights[10] among other current issues. Networked technology has also opened up new forms of scholarship and scholarly communication as can be found in the digital humanities[11] [12] [13]and open science[14] movements. Significantly, networked technologies and social media scale to the individual classroom to support learning[15] [16]and provide a rich lense in which to view an institution from the outside[17] [18].

A primary challenge for educators is the need to negotiate rapid, ongoing changes, in technology while developing the habits of mind and conceptual frameworks necessary to effectively use these tools to advance scholarship and learning. The Collaborative is building capacity, with additional staff and campus partnerships, to insure that our faculty has opportunities to explore options and rationale for integrating teaching and technology while preserving student-faculty interactions and curricular excellence.

An additional challenge for Trinity is to establish itself as a leader in the development of new forms of digital scholarship and the opportunities for undergraduate research they afford. (Trinity currently lags behind a number of its peer institutions in this respect[19] [20] [21].) The Collaborative

[7] Winiski, M. and Benson, L. Mobile Mapping: Designing Learning Environments with Interactive Virtual Tours. Furman University. http://history.furman.edu/nitlegeo/mapwalk.htm

[8] Taylor M. Creating Reflective Digital Stories to Examine the Role of Place in Environmental Outlook. Seton Hall.http://teachingwithmobiles.blogspot.com/2009/02/creating-reflective-digital-stories-to.html.

[9] The Uncultured Project. http://uncultured.com/

[10]http://www.halftheskymovement.org/blog/entry/girl-up-fourteen-year-old-avery-mccall-raises-36000-for-girls-worldwide

[11] Digital Field Scholarship Program. Lewis and Clark College. https://sge.lclark.edu/dfs/this-dfs-site/

[12] DHQ. Digital Humanities Quarterly. http://www.digitalhumanities.org/dhq/vol/3/1/000024/000024.html

[13] The History Engine. University of Richmond. http://historyengine.richmond.edu/

[14] Bradley, J.C. Open Notebook Science. Drexel University. http://usefulchem.wikispaces.com/

[15] Torres, M.G. Blogging Culture. Introduction to Anthropology. Wheaton College. https://sites.google.com/site/torresmgabriela/bloggingculture

[16] Writing Nature. Swarthmore College. http://blogs.swarthmore.edu/writingnature/?page_id=17&center_lat=39.9055977&center_lng=-75.3568039&open_object_id=1043

[17] UMW Blogs. University of Mary Washington. http://umwblogs.org/

[18] LENS. University of Redlands. http://www.spatial.redlands.edu/lens/projects.aspx

[19] The Digital Scholars Lab, University of Richmond. http://dsl.richmond.edu/

can provide a context for understanding these changes and can serve as a point of organization for initiatives and projects that serve Trinity's educational interests. To this effect, the Collaborative also serves to raise awareness for the high standard of teaching practice and faculty innovation currently present on the Trinity campus.

Technology and Research

Instrumentation. In order to to attract first-rate teacher-scholars to Trinity, as well as give students high-level research experiences to prepare them for careers in academia and industry, Trinity must continue to make significant investments in scientific instrumentation. Targeted investments in cyberinfrastructure will allow Trinity faculty to communicate with collaborators across great distances. Two forthcoming instrument acquisitions, a confocal microscope and a scanning electron microscope (SEM), will be connected to a video display in the lobby of the Center for the Sciences and Innovation. If possible, these instruments might also interface with video conferencing systems in order to broadcast microscope images to collaborators and students in other locations. Investments in cyberinfrastructure make it possible to use instruments at other institutions remotely, thereby saving Trinity the cost of certain instrument acquisitions. Additional savings may be achieved through technology such as [ScienceExchange](#) a marketplace for researchers to seek bids from core facilities to carry out standard protocols and analyses.

Data Management. Policies must be adopted to ensure the adequate management, retention and sharing of research data. Faculty submissions of scholarly content to the [Digital Commons](#) soon will link to their cloud-based (and also open) data sets, code/scripts, imaging files and other artifacts of research, in order to broaden the reach of faculty research and to support broader scholarly goals of replicability and Open Science. Trinity scientists must explore the use of digital lab notebooks and other mechanisms for increasing efficiency in supply management, data sharing, protocol approvals, etc.

Faculty Development. In order to take advantage of new technologies to enhance research, Trinity must expose faculty to new ways of doing things. In particular, training in digital approaches to the humanities and data mining methods in the social sciences will allow faculty to carry out cutting-edge research that was impossible only a few years ago. Even in STEM disciplines, most faculty would greatly benefit from training in computer programming and data structures in order to be enhance their research programs.

Marketing and Branding

Marketing and communication strategies are social. This stands in contrast to the static forms of marketing and communication that characterize print materials. Even early websites were initially envisioned as one-way communication media.. Merely posting announcements to social

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[20] Digital Field Scholarship Initiative, Lewis and College. http://college.lclark.edu/programs/digital_field/

[21] Digital History Project. Wheaton College. http://wheatoncollege.edu/digital-history-project/

media is not an effective marketing or communication strategy, as it is impersonal and one-way. To be competitive, we need a full grasp of how users interact with our web presence: How do they land there? What was their search strategy? What were they seeking? Did they find it? Was it simple and intuitive? What impression of Trinity did they take away from the experience? Web analytics should be a part of every marketing initiative.

Trinity must develop a comprehensive marketing and communication strategy as we are far behind our leading peer institutions in that area. The website is the gateway to the university for 90% of prospective students. It needs to be easy to locate information and provide interactive resources and feeds for those who want to learn more. Newer programming languages provide far greater interactivity than those in play on Trinity's website. The website needs to capture a sense of the social and the collaborative. It needs to build reputation not reflect it. That website must reflect user input rather than executive belief.

Branding and marketing communication also includes communication with the students, faculty, staff, alumni and friends who are a part of the university community. The same things may be said about that group as about those external to the university. The caveat here is that the internal group is more diverse in the sense of utilization of technology in communication than those "prospecting."

Administrative Computing

Technology holds the potential to increase the efficiencies of running and managing the university. Achieving the greatest efficiencies often requires changes in business practices--lest the enterprise system be just another expense layer at the institution. Technology utilization in business practices should be regularly reviewed to ensure that we aren't simply layering technology upon old ways of conducting the management of the university.

One of the issues Trinity will face is at the very core of administrative computing. Should the university seek an integrated system operating off a single data base, as is the current model, or move to a "best of breed" approach with the attendant issues of maintaining the programming interfaces that meld the distinctive component into a virtual integrated system? The use of open source software, as in the system most advanced in that space, Kuali,[22] provides a community of user support in contrast to proprietary support from a single or multiple vendors. Should open source or a proprietary system support administrative computing at Trinity?

Document management with its digital workflows presents opportunities for paperless management, efficient data storage and access as well as secure backups of university records. The upfront investments are high but the longer term returns in efficiencies are considerable. Document management provides the foundation for disaster recovery by providing digital copies of documents off-site and routinely backed up. The loss of information is the loss of the organization's operational knowledge threatening the very organizational existence.

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[22] "Kuali Foundation." 2005. 30 Oct. 2012 <http://www.kuali.org/>

Technology Support and Training for Employees

We seek to create a culture that encourages professional development for Trinity employees by providing opportunities for it and consider it a priority for all. One way to accomplish this is to provide in-house technology support of the highest caliber. This requires that our staff who support technology continue to expand their skills and expertise through their own professional development and collaboration with peers and the Trinity community at large. Regular, consistent, and extensive professional development will help our staff to stay abreast of all new developments and will provide them the opportunity to be creative problem solvers in their fields, which ultimately provides Trinity with more efficient and effective ways to operate.

We also need to prioritize regular technology training for the Trinity community. Training should not just be limited to times when new software and systems are released, but should be offered on a regular basis. Investments in staff training over the years are a necessary part of the calculus of system change. Maintaining the investments in technology require sustained and continuous staff training to prevent the inevitable knowledge erosion that occurs naturally in tbe absence of training. Strong training programs allow increased efficiency and optimal use of the administrative software.

Coates Library

The library, is a teaching and learning resource first. The library is a gateway, an interface, to learning and information at Trinity. The Coates Library at Trinity has been a leader in the development of both spatial design for the library as well as the use of technology in delivering information to students and faculty. In recognition of that, In 2007 it received the prestigious "Excellence in Academic Libraries" award from the Association of College & Research Libraries division of the American Library Association.   The Library's track record is clear and leading edge. Our challenge is to keep up that pace of change and innovation--and stay abreast of changes in our users' information-seeking and -using behaviors. As the university develops online learning and blended learning as a learning strategy, the Coates library will be the digital repository and gateway to the information and research resources. The wealth of resources offered by the Coates library constitute a differentiating asset for Trinity's students and faculty. In that way the technology resources and the library resources will be part of the value statement for Trinity University.

The Library's Role in Learning and Teaching

The " Expanding Horizons"[23] information literacy program--developed in 2007 as part of our regional re-accreditation process--has had a significant impact on student learning, which has been documented by outcomes metrics. The library faculty will continue to contribute to the teaching mission of the university through their work on information literacy across the curriculum.

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[23] Expanding Horizons: Using Information in the 21st Century

The Coates Library as Learning Commons

Coates Library will continue to be the center of the campus for teaching and learning resources. The concept of the "information commons," which was implemented in 2003, is evolving into a broader, more inclusive "learning commons," with the aggregation of teaching and learning resources and support within the Coates Library building. Print materials are gradually yielding to digital formats, though we recognize that not all that is in print is or may ever be available in digital form. Nevertheless, we can anticipate a day in the near future when scholarly presses no longer print and distribute their monographs as physical books, but instead offer them as e-books. This shift to electronic access has been happening for over a decade in the scholarly journal and reference literature; the advent of functional and portable e-readers will force the same change in the monographs arena.

Beyond the physical building, the library will continue to support off-campus learning, and that role will increase. As students who study abroad have learned, much of the library is "open" 24/7, so students who are taking a web-based course from home or abroad will have access to the same robust set of resources that they have if they are on campus. The same is true for faculty members on leave, and those who wish to experiment with distance or blended courses. The library will support users on campus or off.

In that context, the library will continue to make format acquisitions decisions based on user behavior and preferences. As e-readers become more common and users demand greater electronic access, the library will continue to reduce its acquisition of physical materials (print books, journals and magazines, physical DVDs and CDs) and increase access to web-based content that may be used on computers or mobile devices. That will, in time, enable us to shift our space use from the storage of physical materials on shelving to the creation of inviting settings where students and faculty can do research, evaluation, and creation of new information. We expect to host spaces for collaborative teaching and learning, with strong support from technical staff and library faculty. Along with the Library, the Collaborative for Learning and Teaching will be a resource for enhanced teaching and learning. And with them, the Center for Learning and Technology will provide a high level of support for those efforts, both within the library and in the various classrooms and other learning spaces across the campus.

Increasingly, we observe that library users engage with the library's website in new ways. Librarians on the "web team" conduct regular usability studies to see how students and faculty search for information, whether it is library hours and policies, looking up the title of a particular journal, seeking content in one of our Digital Collections, or using the One Search feature. We have come to understand that Google's iconic search box and functionality have altered expectations for information seeking and retrieval, and that experience will never become static. As a result, our website (and its mobile-counterpart) must constantly change to reflect user behavior and expectations, so that students, faculty, staff and other users will find exactly what they need quickly and easily. The site must allow for significant interactivity on the part of users, and it must be ultra-current: broken links are unacceptable in a site that provides access to over

900,00 individual book and media titles, over 200 separate indexing/abstracting and full-text reference resources across all disciplines, and articles found in over 30,000 individual journal, magazine and newspaper titles. And the site must work equally well on full size desktops, laptops, tablets and smartphones. The library management system/portal will require significant staff resources devoted to its support and development.

Equally vital to the process of discovery is the assignment of high quality metadata. What library professionals formerly called "cataloging" has developed and grown into the sophisticated practice of assigning specific "tags," or descriptors, that enable search engines to match content with the user's choice of search terms. Trinity's Discovery Services librarians understand the use of metadata standards, as well as the use of natural language, to help searchers find what they need.

Scholarly Commmunication

Coates Library will continue its role as a participant and change leader in global scholarly communication systems. Trinity was one of the very first liberal arts colleges, maybe the first, to adopt an open access policy for faculty and student work. In the foreseeable future, Open Access will achieve a tipping point; higher education will abandon its support of for-profit publishers, and faculty will as a matter of course retain the non-commercial rights to their research publications--and expect to place that content into an institutional repository.

Trinity's Digital Commons[24] is already highlighting the intellectual output of its students and faculty; that will only grow in importance over time. The Digital Commons will become increasingly significant as a virtual showcase of faculty and student output. Librarians will assist faculty by creating links to their work from discipline-specific portals. These portals will eventually replace the old indexing and abstracting services. Meanwhile, the library will assume a discovery role vis-à-vis data storage and management. We will assist faculty researchers who must make data available to other researchers by creating metadata that point to their datasets.

Academic libraries will increasingly assume responsibilities for records management of born-digital business records and files, and Trinity's is no exception. Many libraries have contracted with firms that offer secure "web archiving"--maintaining and storing a reliable archive of web-only content generated by the institution. In the past, the archives retained copies of all Trinity publications: brochures, programs, viewbooks, handbooks, forms, college catalogs, graduation programs, etc. While some of that material is still issued in print, much of it has migrated to web-only. Yet the need to maintain an accurate record of Trinity's publications remains. At the moment, we are investigating services such as Archive-It and the Web Archiving Service. At the same time, our other focus in archives will be digitizing and making accessible unique and significant physical materials, so that they may be used and shared without visiting the physical collection.

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[24] Digital Commons @ Trinity

The Value of Unique and Digital Collections

One of the most exciting results of digitization is the impact it can have on scholars' access to unique materials, or those that were formerly "hidden collections." For example, many libraries realize that unique materials--manuscripts, photographs, archival materials, etc. can be made available to a wide audience through digitization. A new, national program to provide access to those locally held, digitized collections is underway, called the Digital Public Library of America. Ultimately, a person interested in civil rights, for example, could start at the DPLA site (which will serve as a portal and aggregator of content) and locate unique archival materials all over the U.S. Included there would be the materials from the Claude and ZerNona Black Papers, which are currently being processed at Trinity.

AT&T Center for Learning and Technology

The AT&T Center for Learning and Technology (CLT) has grown considerably since its origins as a multimedia resource in Laurie Auditorium. It has expanded its scope and responsibilities from multimedia resources to hosting the "best lab" on campus, responsibility for all A/V on campus and space design, and the support and growth of educational uses of technology. Its most unique role has been as an experimental "skunkworks" for emerging technologies and learning space design around technology.

Classroom Technology

Trinity will need to move quickly to adapt all of their rooms to digital over the next three years. This will require a higher than normal upfront capital investment but should allow for a smoother replacement cycle on the backend. Resolutions are always being pushed higher with the introductions of the first 2K and 4K units of displays. It is our belief that more of these displays will be making their way into common use. The horizon for this is 5 years from now. At present, like many innovations, the content is not yet available.
CLT Lab

The CLT media lab has been for some time the most advanced computing lab on campus. This distinction and open access policy for all students has provided powerful tools for media creation and project collaboration. This lab has seen significant growth over the last four years in terms of usage and capability. During peak times of the year, students are turned away due to the volume of usage. The move from digital to analog, the decreasing cost of equipment, and the access to high-end software, like the Adobe Creative Suite, have made this space valuable for Trinity. High-end labs like these should be reaffirmed both in their universal access and high-quality hardware. That lab needs to become more visible as technology by relocating to the third floor of the library.

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November 6, 2012

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