

## Introduction

Information technology is critical for the mission of William Paterson University and its successful operations. When information technology initiatives align with the strategic goals of the University, the impact can be transformative – empowering faculty to enhance students’ learning experience, improving business operations to deliver quality services, and providing an environment for improvements across the institution through the intelligent use of data.

The development of the Information Technology Plan 2018-2020 involved the Information Technology Advisory committee, the Faculty Senate Technology Council and the Technology Across the Curriculum committee. The Advisory Committee is made up of the CIO and members of the five Information Technology departments, one faculty member from each of the five colleges and Library, a representative from the Faculty Senate Technology Council, a student representative, and members chosen by the Vice-Presidents from each of the five university divisions. The Faculty Senate Technology Council is made up of a faculty representative from each college, a librarian, a professional staff member, an adjunct faculty member, and an administrative liaison. The Technology Across the Curriculum committee consists of one faculty member from every department. Thus, a large number of university stakeholders were involved with the development of the Information Technology Plan throughout the past year.

Information Technology made significant progress on the seven goals from our previous IT Plan 2015-2017.

- Goal 1: Technology will run on wired and wireless Internet Protocol (IP) networks.
  - Physical Security - Security cameras and online locks were installed in additional buildings and in all new building construction.
  - Voice over Internet Protocol (VoIP) - Copper inter-building telephone wiring was almost entirely replaced by fiber cable and all digital phones replaced with IP.
  - Internet Protocol Television (IPTV) - Coax cable infrastructure for TV was replaced by internet TV using the wired and WiFi network.
- Goal 2: To ensure application reliability and security, all applications will run on virtual servers with replicated/synced data storage or be cloud-based.
  - Cloud Apps - SPSS for Distance Learning at Mercer Community College provided over cloud services.
  - Cloud-based Office 365 is available to all employees and students.
  - Cloud-based 25Live Room Scheduling implementation complete with Shibboleth authentication.
  - Cloud-based CampusLabs CollegiateLink was also implemented.
- Goal 3: Provide and maintain Enterprise technology. Support professional development and expand usage of reporting and “big data” analytics.
  - WPCoconnect Portal Redesign – New WPCoconnect portal implemented.
  - Integration of numerous cloud-based systems such as CampusLabs/Collegiate Link, Starfish, and Digital Measures with Shibboleth authentication.

- Identity Management integration and controls implemented.
- With Human Resources, funded Lynda.com online training
- Goal 4: Assist with business objective-based operations, reporting and analytics.
  - Data Warehouse Extracts - Data warehouse extract design and creation completed with dashboards for student admissions and registration data.
  - Assessment Systems Assistance
  - VALE Academic Libraries Information Discovery (VALID) – project suspended due to abandonment of the Kuali OLE open source software project. Institutional repository implemented for research data management and other roles.
  - Flex Registration for Continuing and Professional Education (if funded) – project not completed due to non-IT issues.
- Goal 5: Continuity and protection for hardware and database infrastructure
  - Valley Road Data Center completed.
  - Generator Backup and Universal Power Supply (UPS) project completed in newly constructed buildings and Valley Road Data Center
- Goal 6: Facilitate technology between students, faculty, and staff
  - New WPU Web Design – Information Technology worked with Marketing and Public Relations to launch a new version of the WPUNJ website in Aug 2017, with a modernized responsive web design look and feel. Training and support was provided for new editing capabilities.
  - Web Print - Pharos UniPrint/Webprint has been relatively stable and well adopted by student users. The university is expanding use of the Pharos solution by offering Uniprint as a solution to university departments for their Xerox devices.
  - DegreeWorks - Degree Works implemented and adopted for all currently enrolled students. Student Educational Planner (4 year plan) and Transfer Evaluation modules are implemented.
  - Faculty Load Module - The FLM module added several enhancements as it relates to reporting of workloads at department, college, and university levels. A project is underway to implement Banner Faculty Load and Compensation (FLAC) for tighter integration between the FLM system and Banner's Payroll system.
  - Broadcast Studios HD Upgrade – Phases 1 and 2 completed.
  - Students going mobile - Enhancements to reflect BYOD for students. Group study rooms in University Hall and Preakness with displays for collaboration.
  - Faculty going mobile - Laptops with docking stations are now offered as an option for all eligible for Computer Replacement Program computers. Classrooms have adapters for projection of faculty laptops.
  - All mediated classrooms are now High Definition.
  - Documentation and Training - The ITWiki is robust and continues to be enhanced. IT's User Services YouTube channel has published various videos on IT services within the past 9 months. Lynda.com is offered as an online training resource for all Full-Time employees.

- Goal 7: Provide support and training for hybrid/online courses and program
  - Blended Learning Bootcamp has been offered each year since 2014, and is revised based each time based on feedback from participants.
  - Quality Matters Program - All CTT Instructional Designers have been trained as trainers and have certification as peer reviewers in the Quality Matters program. The timeframe for QM will be extended as we explore ways to increase faculty buy-in and involvement. Information Technology will continue to support institutional priorities that may arise and not currently planned, as well.

While the goals have been reformulated for this plan based on stakeholder input and other technological considerations, some of the objectives from the previous plan will be continued going forward.

All Information Technology goals and objectives will be assessed upon project completion or on an ongoing basis, as appropriate. Those areas in IT responsible for project work are expected to ensure quality and reliability of equipment installs and upgrades, and those responsible for software implementations will work with stakeholders to make sure these are up and running as expected. Ongoing support and faculty training activities will be assessed using ticket counts, feedback surveys (in the case of faculty support), and data analysis. Administrative offices are responsible for assessing the systems primarily used in their areas.

## Information Technology Plan 2018-2020 Goals and Objectives

Information Technology has developed six goals to be addressed over the three-year period from 2018-2020. They were formulated to align with goals from the University Strategic Plan.

- Goal 2: Administrative Process Support (University Strategic Goal 5)
- Goal 3: Data Governance and Business Intelligence/Analytics (University Strategic Goal 5)
- Goal 4: Leveraging Existing Software and Supporting Users (University Strategic Goal 5)
- Goal 5: Continuous Improvement/Upgrades (University Strategic Goal 5)
- Goal 6: Security (University Strategic Goal 5)

### Goal 1: Technologies in Support of Academic Programs (University Strategic Plan Goal 1)

Center for Teaching with Technology (CTT) (University Strategic Plan Goals 1E)

Redesign and upgrade of CTT to replicate Active Learning Classroom will allow for additional Active Learning workshops and individual training sessions on the same equipment and systems in the Active Learning Classrooms.

Faculty Instructional Technology Support and Training to increasing number of Online Programs and Courses (University Strategic Goal 1E)

In addition to programs already offered online additional programs are in the planning stages. These programs present a need to Increase training offerings in pedagogy, instructional design, and technology faculty teaching hybrid and online courses.

### Goal 1: Technologies in Support of Academic Programs (University Strategic Plan Goal 1)

Center for Teaching with Technology Programming (University Strategic Goal 1E)

Create shorter, more targeted workshops, as well as custom-designed sessions to support deeper faculty engagement with current and emerging instructional technologies.

Design, Build and Learn Lab (University Strategic Goal 1E)

Build on successes so far, reaching out to more departments and faculty about the possibility of integrating 3D printing into their courses.

- Better reporting: Newly acquired software allows for detailed reporting on printer usage
- Increasing Academic Usage: Records are being kept about academic/course-related usage
- “Satellite” Labs: More departments are purchasing their own 3D printers. Instruction and Research Technology (IRT) recommends equipment, provides support as necessary, and includes these in the new software to manage and report on their use as well.

Accessibility of Course Materials (University Strategic Goal 1E)

Implementation of accessibility support tool Blackboard Ally, which creates accessible versions of course content to accommodate multiple learning styles and disabilities. The tool converts text files into screen reader enabled versions and audio files. The product provides accessibility scoring for course materials and cues instructors to increase scores (for example, if an image isn't tagged, Ally prompts instructor to add a tag).

Blackboard Usage Data Analysis (University Strategic Goal 1B, 1E and 5E)

Set up regular process to gather and analyze Blackboard Learning Management System (LMS) usage by appropriate categories (faculty, department, college, etc.), taking into consideration use of Blackboard in general and specific Blackboard tools. Use these analyses to improve utilization of LMS in supporting faculty and student needs for teaching and learning, as well as to adjust and improve CTT offerings.

Digital Literacy Initiative (University Strategic Goals 1A and 1E)

This initiative is founded on an updated definition of Digital Literacy, based not on specific skills, but on problem-solving and the ability for our students to be self-directed, lifelong learners who can keep current as technology changes throughout their lives and careers. Rather than focusing on skill-based technology training (i.e. learning to use Excel), which was standard 15-20 years ago, this initiative will work to equip students with the skills to solve problems using

technology in creative ways, and to instilling in them an interest in self-directed learning so they can easily adapt to technologies not yet in existence.

Instruction and Research Technology (IRT) Collaborative Space and Activities to Support Digital Literacy (University Strategic Goal 1E, 2B, 2D, 4A)

The Media Services area is being reconfigured as collaborative space to facilitate Digital Literacy as well as serve as a location for on-campus walk up technical support. IRT will create physical space and opportunities for peer-to-peer student support, assistance with accessing self-directed learning resources, and informal venues for students to learn by doing.

Institutional Repository (IR) (University Strategic Goal 1B and 5E)

The IR is planned to consist of University archives, faculty/student research, datasets, presentations, and publications. The IR will increase the widespread recognition and appreciation of the University’s academic programs.

Search for new Library Services Platform

The Library is pursuing a consortia agreement with several New Jersey universities for a library services platform contract such as Ex Libris.

Goal 2: Business Process Support (University Strategic Goals 1B, 2B and 5E)

In coordination with functional offices, IT provides back-end support for business processes to ensure smooth functioning of University systems.

Product	Area of Ownership	IT Responsibilities – These tools have Shibboleth
<b>AcademicWorks</b>	Institutional Advancement	IT will continue to assist Institutional Advancement in ensuring the Data is being pulled accurately and from the most appropriate sources in Banner and/or extract files. IT will continue to provide ongoing support to ensure that accurate student data is imported nightly into Academic Works. IT and Institutional Advancement will develop a calendar each academic year identifying timeframes (i.e. semesters) that data should be pulled as well as any exceptions or exclusions that should be made for those timeframes.
<b>Acalog</b>	Provost’s Office/ Registrar/Colleges	Begin the Acalog curriculum management part of the catalog project including the integration of

		data back into Banner. (off-site hosting)
<b>Banner Document Management (BDM)</b>	Enrollment Services and Finance.	Web-interface coming - Expansion to addition areas (Budget, HR, Payroll, Accounts Payable and Accounts Receivable)
<b>CampusLabs Academic and Non-academic entities – includes analytics</b>	Academic Affairs Student Development (CollegiateLink) Enrollment Management Admin & Finance (Education uses Chalk & Wire)	Support expansion of tools in support for University assessment and planning
<b>Digital Measures</b>	Academic Affairs	Implemented & expansion – merging and integration of all Colleges, will augment / keeps data over time, tenure/promotion packets; annual reviews, Chairs and Deans can use for activity reports, web site will be able to pull this data rather than having to add it manually, Sponsored Programs can search for faculty expertise
<b>HireTouch</b>	Human Resources	Assisting Human Resources in the implementation is underway of their newly purchased applicant management software, HireTouch. This includes the export of positions and data from Banner, Shibboleth authentication, assisting in setup of data inside HireTouch, and extracting data out of HireTouch and pulling it back into Banner. Data back and forth linkage needs to be done.
<b>Starfish - advisors</b>	Academic Affairs Provost's Office & Colleges	Implemented interfaces will be expanded and additional ones developed.
<b>PAR (phase 2 of Starfish) student Assessment Tool</b>	Enrollment Management	Assist Enrollment Management in passing data into the PAR system to aid in predictive analytic reporting.
<b>Glacier</b>	Finance	Assist Finance in setting up the Glacier online nonresident alien tax compliance system.

<b>Safe Colleges</b>	Employment Equity & Diversity	Help the Employment Equity & Diversity office to get the new online compliance and campus safety application up and running. The setup includes getting single sign on working with Shibboleth.
<b>Data Cookbook (Data Governance)</b>	Data Governance Sponsors	Assist in deploying the Enterprise version of Cookbook with hooks into the Banner database.
<b>RAVE Mobility Safety/Guardian App</b>	Technology Services	Oversee implementation and promote awareness of enhanced services over previous emergency alert system
<b>Workforce Management</b>	Technology Services	University vehicle fleet tracking and management
<b>Double Map</b>	PPO	Real-time university shuttle tracking
<b>Ellucian Travel and Expense Management (Chrome River)</b>	Business Services	Travel and expense submissions and payments

**Goal 3: Data Governance and Business Intelligence/Analytics (University Strategic Goal 5)**

IT will partner with stakeholders in the areas of Data Governance and Business Intelligence/Analytics to work on determining desired outcomes, defining data sets and extracts, integrating analysis tools with Banner, making data usable and ensuring that analyses are distributable as visually impactful reports.

- Explore technology that automates collaborative planning, reporting, analytics and financial forecasting. (SAS Report Studio) (pending funding for licensing)
- Fully develop the Data Cookbook to serve the needs of the data users
- Create and disseminate workflow/process for data request
- Begin and complete the Predictive Analytics Reporting (PAR) implementation (assuming vendor delivers the necessary modules).

**Goal 4: Leveraging Existing Software and Supporting Users (University Strategic Goal 5)**

William Paterson University licenses a variety of software tools for use across campus. In order to leverage these tools and get the most out of the University’s investment, IT plans to expand communications across the community, providing support videos and text documentation. Ensuring that users know about IT Services and software offerings is fundamental to efficient use of these technologies, which support everything from teaching and learning to student engagement and business processes.

Software that can be leveraged for new purposes

- Office 365
- Dropbox (Macs)
- Qualtrics

Increase WPU Community Awareness of IT Services and Support

- IT Wiki and YouTube Channel
- Emphasis on outreach to students, including Social media, PSS sessions on IT, Orientations, etc.
- Promote resources on IT support services and training for campus systems and applications
- Provide support for Digital Literacy Initiative
- Establish and promote primary walk-up support location in Cheng Library

Goal 5: Continuous Improvement/Upgrades (University Strategic Goals 1, 4 and 5)

Software and System Upgrades

Migrate all WPUNJ employee email accounts from on-campus email servers to Microsoft cloud-based servers.

Migrate user folders to cloud (Microsoft 365 OneDrive for Windows machines/DropBox for Macs)

Establish system for automated configuration and perpetual upgrade of Windows 10 for all campus PCs

Promote and expand implementation of Pharos print management system for departmental multifunction devices.

Make significant progress toward implementation of a remote management solution for university laptops on and off-campus (Example: Microsoft's Co-management solution)

Upgrade all oracle databases to 12c. Oracle has announced that they will no longer offer extended support for Oracle 11.2.0.4 after December 31, 2018.

Upgrade to Banner 9 and related prerequisites (Ethos, Single Sign-On Manager, Application Navigator, Ellucian

Banner 9 (Solution Manager, etc.) Roll out the administrative pages and self-services modules to the campus community.

Complete migration of Appdata, Datamart, Archive, Legacy, Degreeworks, Degreeworksdev databases to virtual environment.

Upgrade of Microsoft Active Directory to 2016.

Standardize digital signage equipment and content delivery system for university-wide information as template for departments to display content appropriate to their services.

Wireless Coverage (University Strategic Plan Goals 4A and 5E)

Continue to evaluate campus wireless coverage improving indoor and outdoor coverage.

Replace dated access points.



- Continue to improve wireless access for residence students. Planning the upgrade of Matelson and White with in-room WiFi access.
- Outside WiFi/Surveillance coverage – 3 year project to include parking lot coverage, outside student gathering areas, and walking paths. (Pending Funding)

Classroom and Informal Learning Space Upgrades (University Strategic Plan Goal 1E and 4C)

- Hobart Hall
- Raubinger Hall
- Valley Road
- CTT and Media Services Renovations

Design support related to appropriate technology equipment for conference rooms and other spaces for online collaboration.

New Residence Hall (University Strategic Plan Goal 4C)

Plan technology as required for the new residence hall to open on FY19. Gather technology requirements, planning network connectivity, IPTV, IP telephony (VoIP), Access control, video surveillance components and classroom design. Estimate related technology costs for budget planning.

Goal 6: Security (University Strategic Goals 1, 4 and 5) Goal 6: Security (University Strategic Goals 1, 4 and 5)

Identity Management

Continuation of centralized Information Technology password and identity management process and automated feeds for provisioning and de-provisioning accounts. Multi-factor authentication expanded to Faculty/Staff/Students WConnect logon. Moving toward vendor system for Identity Management.

Datacenter Security (University Strategic Plan Goal 1E and 5E)

Establish redundancy and alternate datacenter failover for production Banner database utilizing Oracle Passive Dataguard.

Continue to build power redundancy at each campus building site through battery backup equipment in conjunction with generator power where available. (Pending Funding)

Electronic Locks (University Strategic Goals 4C)

Currently there are two lock systems in use on-campus - stand-alone magnetic strip locks (ONITY) and networked electronic proximity locks (Cbord).

- Install networked proximity locks in new construction and major renovations (Funding is included in new buildings and renovations)
- Replace stand-alone locks with networked electronic locks retrofits across campus (Pending Funding)

## Device Security

Establish hard drive encryption on university Windows laptops using Bitlocker.

Implement Microsoft Local Administrator Password Solution (LAPS) for improved local account security on Windows devices.

## Conclusion

This Information Technology Plan is the roadmap for IT work from 2018 to 2020, as well as confirmation of collaborations with and support for other areas of the University. As with all plans of this nature, stated objectives need to be flexible to adapt to changing institutional priorities, resources, and new initiatives that may arise over the next three years.

The goals and objectives developed for this plan align with the William Paterson University Strategic Plan, as well as a majority of the recently released EDUCAUSE 2018 Top 10 IT Issues. Specifically, the IT Plan 2018-2020 encompasses elements of (1) Information Security; (2) Student Success; (3) Institution-wide IT Strategy; (4) Data-enabled Institutional Culture; (5) Student-centered Institution; (8 - tie) Data Management and Governance; (8 – tie) Digital Integrations; and (10) Change Leadership.<sup>1</sup> EDUCAUSE uses survey data from Higher Education CIOs and other leaders to set national priorities for IT in Higher Education. Alignment with the Top Ten IT Issues for 2018 ensures that Information Technology at William Paterson University is focusing on the areas that are most important in the field for the duration of the 2018-2020 timeframe. As the Top Ten IT Issues are adjusted for 2019 and 2020, we will modify this plan accordingly.

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<sup>1</sup> EDUCAUSE Top 10 IT Issues, 2018: The Remaking of Higher Education  
<https://er.educause.edu/articles/2018/1/top-10-it-issues-2018-the-remaking-of-higher-education>

Goals, Objectives and Timelines

Goals	Objectives	1 Yr.	2 Yr.	3 Yr.	Ongoing
Goal 1: Technologies in Support of Academic Programs	Redesign and upgrade of CTT to replicate Active Learning Classroom	X			
	Expand Instructional Technology Support and Training for Online and Hybrid Course Design				X
	Redesign Center for Teaching with Technology Curriculum to encourage increased participation				X
	Promote academic use of Design, Build and Learn Lab				X
	Increase Accessibility of Course Materials				X
	Blackboard Usage Analysis				X
	Digital Literacy Initiative				X
	IRT Collaborative Space and Activities to Support Digital Literacy				X
	Proposal for Transition to Online Student Course Evaluations				X
Goal 2: Administrative Process Support	Business Process Support				X
Goal 3: Data Governance and Business Intelligence/Analytics	Explore technology that automates collaborative planning, reporting, analytics and financial forecasting. (SAS Report Studio) (pending funding for licensing)				X
	Fully develop the Data Cookbook to serve the needs of the data users			X	
	Review how data requests are handled				X
Goal 4: Leveraging Existing Software and Supporting Users	Software that can be leveraged for new purposes				X
	Increase WPU Community Awareness of IT Services and Support				X
Goal 5: Continuous Improvement/Upgrades	Software and System Upgrades				X
	Wireless Coverage				X
	Classroom and Learning Space Upgrades				X
	New Residence Hall		X		
Goal 6: Security	Identity Management		X		
	Datacenter Security		X		
	Electronic Locks				X

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