Information Technology Plan 2015-2017

Introduction:

This document is the fifth comprehensive plan developed to guide the growth and delivery of information technology resources and services available to the William Paterson University community. Technology is constantly changing, and higher education is consistently responding with a growing demand for technology-based services. Thus, universities must plan for these changes as much as possible and build in regular increments of time for analysis of new directions. Moreover, universities must create strong partnerships between Information Technology and administrative and academic departments through the Information Technology Plan as they are critical stakeholders in the stewardship and implementation of the data and technologies in their areas. The Information Technology Plan 2015-2017 meets this imperative and provides a technology road map for the University for the next three years.

The development of this plan involved the Information Technology Advisory Board, the Faculty Senate Technology Council and the Technology Across the Curriculum committee. The Advisory Board is made up of the CIO and members of the six Information Technology departments, one faculty member from each of the five colleges, 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, an enormous number of university stakeholders were involved with the development of the Information Technology Plan throughout the past year.

The last Information Technology Plan set forth a series of four initiatives that continues to affect the current plan. Those four initiatives were: expansion of the world of virtualization within WPU; accommodation for the exponentially increased usage of mobile devices; expansion of wireless access across campus, and a reconceptualization of Information Technology Help Desk services. These four initiatives concerning technology resources and services have resulted in many significant achievements:

- A new Chief Information Officer was hired to unite information technology services
- Almost all servers are now virtualized, thus reducing costs and resources needed to run them – the limiting factor of those that are not are application restrictions
- Greater redundancy in server systems was provided through replicated data storage
- WPU's website and developed applications were programmed to accommodate mobile devices of varying sizes for easy viewing and use

- Blackboard Collaborate was purchased with a free app for access via mobile phones for totally mobile web conferencing
- Wireless networks are available in all buildings including upgrade to switched bandwidth in residence halls
- Network access security was improved based on password authentication
- Web Help Desk was implemented with tracking made available for all tickets and continual updates for end users
- A new Field Support Coordinator was hired to unify Help Desk, Field Services, and the Technology Consultant program as User Services
- The Field Support Coordinator integrated the lab Technology Consultants under User Services
- Help Desk was centralized with inclusion of all Information Technology Tier 1 services under one organizational unit
- An ITWiki was established to grow with technology documentation. It serves as an easy-to-use resource for those who engage with technology at WPU

In the meantime, the University developed a campus-wide Strategic Plan 2012-2022. The University's Strategic goals and objectives are infused with the following values:

- Academic Excellence
- Creating Knowledge
- Student Success
- Diversity
- Citizenship

The Information Technology 2015-2017 Plan operationalizes these values through its goals and objectives and moves the University forward to meet these essentials for the 21st Century with a solid technical foundation.

The University's goals and objectives that are expressed in the Strategic Plan are implicit throughout the goals and objectives of the new Information Technology Plan. As the University's Strategic Plan states:

> Information technology is changing modes of instruction and research, accelerating the flow of information and dramatically altering patterns of communication and outreach.

Technology is now recognized throughout the new University Core Curriculum (UCC) as technology intensive courses were added to graduation requirements. More technology-enabled courses, both under-graduate and graduate, "providing flexibility in content, format and delivery" and expansion in "accessibility and availability" are called for in the University's Strategic Plan 2012-2022. The University understands that "because technology is changing so rapidly, it is critical that the University accelerate its investments in technology." In order to "improve continuously all of the University's administrative and business processes", it will make "effective use of technology and shared services" as well as "expand the use of online services provided to students, faculty, and staff in conducting routine matters".

Information Technology Plan 2015-2017 Goals and Objectives:

The following seven goals and objectives are the basis for the Information Technology Plan 2015-2017:

Under University Strategic Plan Goals 4A and 5E:

1st Goal – **Technology will run on wired and wireless Internet Protocol (IP) networks**. Because of the push towards wireless networking, wired networking grew more robust and wireless has closely followed. However, maintaining separate wired networks is simply no longer economically viable nor technologically current. This means the elimination of Coaxial and inter-building copper cabling throughout the campus. Technology running only on wired and wireless IP networks will provide campus users with the means for emerging technological usage and can more easily be maintained and supported by Information Technology. The IP core network and Internet circuits will be upgraded to sustain the new services and redundancy will be part of the initiative. New campus technology objectives that will run over wired/wireless networks are as follows:

a) Physical Security was recently provided in the Atrium, Ben Shahn, Shea and Wightman Gym with online doors. Online doors enable Campus Police to easily maintain and support opening and closings of doors throughout these buildings as well as permitting authorized personnel 24/7 hour access. Additional buildings such as Power Arts, Cheng Library, Grade Hall, and

Hobart Hall are under consideration for Phase II. This project has a two-year timeframe.

b) The telephone switch will be upgraded replacing digital with Voice over Internet Protocol (VoIP) technology over the next two years eliminating the need for inter-building copper cable.
c) Internet TV is now available on the campus IP network. The coax cable infrastructure will be eliminated over the next two years.

Under University Strategic Plan Goal 1E and 5E:

2nd Goal – **To ensure application reliability and security, all applications will run on virtual servers with replicated/synced data storage or be cloud-based.**

It is critical that campus applications are reliable and secure. Because of the virtual server initiative, more applications are now virtual, providing economical use. However, we need to move to replicated and/or synchronized data consistently to provide a stable operating environment for these applications. The Valley Road Data Center will be upgraded and equipped with a backup generator that will provide an alternate source of power, to allow it to serve as a backup to the College Hall Data Center.

A new WPConnect Portal and authentication process will be implemented to take advantage of alternative applications stored and accessed through the cloud. Cloud applications can be utilized reliably and securely and in many instances are more cost effective than applications hosted in the University's Data Centers. All cloud vendors will be strongly encouraged to use InCommon Federated Authentication to enable single sign-on and easy linkage to the new WPConnect Portal. New objectives for this goal are:

a) Office 365, recently launched, enables students, faculty, and staff to create, edit, and share their Office files from any browser. Simultaneously collaborating on documents is possible, avoiding versioning issues. Office 365 is in the cloud so users can access these applications and files from virtually anywhere – PC, Mac, and mobile devices. All are updated automatically.

Continued fine-tuning of this product will follow. The timeframe for this project is 1 year.

b) Office 365's email will also offer alumni an email address. This enables alumni to easily continue to communicate with each other and Institutional Advancement through their email serving as another pathway for communication. The timeframe for this project is 1 year.
c) 25Live (see below) will be cloud hosted.
d) CampusLabs (see below) is cloud hosted.

Under University Strategic Plan Goal 2B and 5E:

3rd Goal – **Provide and maintain Enterprise technology. Support professional development and expand usage of reporting and "big data" analytics.**

The first part of this goal is to provide and maintain the type of technology that is considered Enterprise (i.e. applications -- or software -- that a business would use to assist the University in solving enterprise problems such as our Student Information System, Banner). The second part of the goal is to support and provide assistance to the University community in reporting and big data analytics which draw upon Enterprise Technology. SAS is the current reporting tool at William Paterson University. New objectives for this goal are:

a) Implementation of *25Live*® to schedule rooms and events across campus. The *25Live*® system makes event scheduling, resources management, and campus-wide calendaring easier, more accurate, and more efficient. The timeframe is 1 year.
b) WP Connect Portal Redesign – A web portal is a website which brings information access together from diverse sources in a uniform way. Each information source gets its dedicated area for displaying information and/or link access. The information and links are displayed based on pre-defined, and easily maintained, University roles. The University's portal was recently redesigned to engage the William Paterson University community and to eliminate vendor maintenance cost. The new portal was developed

in-house and will not require vendor license or maintenance fees. Ongoing maintenance and enhancements will take place over the next 2 years.

c) Identity Management – Identity management (IdM) describes the management of individual principals, their authorization privileges within or across system and enterprise boundaries with the goal of increasing security and productivity while decreasing cost, downtime and repetitive tasks. This project's timeframe is 3 years.

Under University Strategic Plan Goals 1B, 2B, and 5E:

4th Goal – **Assist with business objective-based operations, reporting and analytics.**

At the same time that Information Technology assists with Enterprise technology reporting (3rd Goal), Information Technology needs to assist with business objective-based information systems and reporting. New objectives for this goal are:

a) Data warehouse extracts - a data warehouse, or an enterprise data warehouse, is a database used for reporting and data analysis. Data warehouses store current and historical data and are used for creating analytical reports for management reporting. Information Technology will assist with creating the extracts (the act or process of retrieving data out of data sources for further data processing, analysis, and reporting). The timeframe for this project is 1-2 years.

b) Assessment Systems for the University such as CampusLabs for Academic Affairs and Administration, and Chalk and Wire for the College of Education - Educational assessment is the process of documenting, usually in measurable terms, knowledge, skills, attitudes, and beliefs. Assessment can focus on the individual learner, the learning community (class, program), the institution, or the educational system as a whole. IT will not administrate the University's Assessment Systems mentioned here, but has already assisted with the cloud service implementation of CampusLabs and will be available to assist with the technological side of any future needs of the afore-mentioned systems. The timeframe for this project is 1-3 years.

c) Research Data Management - Data management is the process of overseeing data that's being generated during a research project. Any research will require some level of data management, and funding agencies are increasingly requiring scientists and scholars to plan and execute good data management practices and reporting through Open Access. Both the Library and Instruction and Research Technology integrate this service into their mission. Information Technology can assist with the technological side of creating and maintaining the appropriate data management resources. Additionally, Information Technology will be involved with the development of the technological aspects of data management plans for faculty Open Access. The timeframe for this project is 2-3 years.

d) VALE Academic Libraries Information Discovery (VALID) – VALE's Open Library System project has evolved into VALID. VALID's mission is "to advance the teaching, learning and research activities of New Jersey's higher education community by implementing a shared open-source library management system which expands access to scholarly materials, both print and digital, and which promotes resource sharing among participants. The VALID project is committed to providing end-users with transformative access to information resources through the development of creative and innovative systems that are flexible, cost-effective and sustainable while meeting industry standards." William Paterson will be one of four Alpha implementations. While Information Technology is not directly involved with VALID's development, Information Technology is ready to assist and support as appropriate. The timeframe for this project is 3 years.

e) Flex Registration System for Continuing and Professional Education – This is a flexible registration system that will allow Continuing and Professional Education students to register for a course or courses on-line, pay by credit card, and include their registration information in the Student Information System. Currently the process is manual with local record

keeping so information about students and facility usage does not appear in enterprise systems. This will not only improve the operation of Continuing and Professional Education's business operation, but also enhance the student's experience by better integrating them into the University's systems. Information Technology will assist in the search for a potential solution and with implementation if a viable cost/effective system is identified. Since the initial product for flexible registration has not been identified or funded, IT will continue to investigate viable solutions for this type of registration system for Continuing and Professional Education. Once a system is found and funded, it is anticipated the implementation will take 2 years.

Under University Strategic Plan Goal 5E:

5th Goal: **Provide continuity and protection for the hardware and database infrastructure.** Two main areas fall under this: 1) Information Technology will provide improved security at the network vs. reliance on server level control. 2) Information Technology will provide replication of databases and server software – specifically the Oracle database (upon which Banner is run) which will use passive data guard for replication.

a) Valley Road Data Center – The Valley Road Data Center will be upgraded to be a fully resilient backup and redundancy center for the main data center, providing the University with sustainability and business continuity in case of a failure or interruption of the main data center. The timeframe for this project is 1 year.
b) Generator backup and Uninterruptable Power Supplies (UPS) for network main and intermediate distribution frames in all buildings. Ideally a single UPS supporting building Main and Intermediate Distribution Frames. This is imperative for security, telephone, and network systems to continue to run when electricity is disrupted. Providing strategic generator backup throughout campus will help us to maintain our continuity under stress. The timeframe for this project is 1 year.

Under University Strategic Plan Goals 1E, 2B and C, 4C and 5E:

6th Goal – **Facilitate technology between students, faculty, and staff.**

Technology needs for faculty, students and staff continue to change as new technologies continuously emerge. The increased ownership of mobile phones and tablets means that Information Technology needs to be able to provide support for BYOD (Bring Your Own Device) and easy connectivity at podiums where faculty teach and students present. Other technologies that remain important and needed are the website, printing – although much less as time progresses, new software tools for teaching and learning, and new environments for teaching and learning.

a) WPU Web Design – The new web design was launched in 2014. Mobility was considered an integral part of the rendering of the site. The redesigned adaptive website will provide an engaging and more easily maintained website for the campus and external community. Information Technology will continue to enhance the new web design accordingly. This project's timeframe is 1-2 years.

b) Web Print- Although printing capacity will grow less and less over the years, ease of printing remains an issue. Web Print allows students to upload documents directly from their personal computers and mobile devices and print at select release stations on the William Paterson University campus. The mobile upload website can be accessed from any browser and does not require installing software or print drivers on the device. Common cloud storage sites such as Dropbox, Google Drive and Evernote are already integrated in the upload site for easy document browsing. Web Print was launched in 2014, but requires continued troubleshooting in the implementation. Other vendors will be considered. The timeframe for this project is 1 year.

c) Degree Works – Degree Works is a web based degree audit and academic advisement tool designed to enhance the advisement process. The system is a road map which provides students and advisors with details about the courses and requirements a student has taken and those which are still required for graduation. It includes course planning tools such as self-

service access, user-friendly GPA calculators, and an interactive "what if?" analysis. An extensive, interactive help file is also available. Degree Works can make a big difference in student retention as students will be more motivated as they view their progress and will be able to graduate on time. This is a 3 year project.

d) Faculty Load Module (FLM) – The Banner faculty load process provides the capability to identify and define faculty and advisors to the Banner Student System. It also provides the capability to dynamically calculate workload and contract analysis based upon a set of user-defined rules. Module reports provide output of the calculated results from the analysis thus providing for better planning. The current process needs to include integrity checking to make sure there is an accurate alignment of the FOAP and activity as well as better categorization of the non-teaching activities. The timeframe for this is to be determined, between 1-3 years, and it is subject to business/technical alignment.

e) Broadcast Studios – Phase 1 of the HD Broadcast Studios was completed over the last two years, but providing a means of broadcasting the HD developed content was part of Phase 2 along with Head End and Master Control. Phase 2 was proposed for completion through a state Higher Education Equipment Leasing Fund. This project has a timeframe of 1 year contingent on that funding.

f) Active Learning Classroom – Active Learning Classrooms are classroom environments designed to promote interactive, flexible, student-centered learning experiences. Active learning promotes critical thinking skills and engages students for retention. This project will provide two classrooms on campus with a technologically enhanced environment and give both faculty and students an alternative platform for teaching and learning. This project is dependent on the New Academic Building construction and is 2-3 years.

g) Video on Websites – YouTube viewers have grown exponentially. Students, today, find streaming video to be highly engaging and

informative. Providing video on William Paterson University's websites to "tell a story" creates more interest and involvement from our students and alumni. A few departments have started using video, but continued production and enhancements will be ongoing. This project will take 1-3 years.

h) Students going mobile – Since our students have mobile phones (94%), tablets (13%), and laptops (84%), according to a recent survey, they have less need for computer labs unless they are using specialized software for curricular needs. Comfortable lounging areas with good electrical access and WiFi may replace public computer labs as time goes on. Computer Availability (a software program that accesses computer lab logons) provides a means for determining high usage areas and will provide a roadmap for our future needs. There will be a gradual thinning, based on the maximum utilization, of PCs in labs converting the existing space for students to bring their own laptops. This project has a 1-3 year timeframe.

i) Faculty going mobile – No longer is the hard wired desktop the standard for computer usage. Faculty and staff need to be able to choose a mobile computer for their needs and the Computer Replacement Plan has been readjusted to accommodate this need. Classroom podiums will have the connectivity for faculty to use their own mobile devices. This project has a 1-3 year timeframe.

j) Upgrade classrooms to digital High Definition for improved presentation of content. High Definition provides solid color saturation and high resolution, especially effective for STEM and Art courses. Moreover, it is ubiquitous in households today and students and faculty have come to expect the quality of this type of display. This project, already begun in 2014, is ongoing and has a 3 year timeframe.

k) Documentation and Training – Information Technology will develop on-line training modules as part of the Information Technology Wiki and continue to work with Human Resources on professional development applications, including employee on-boarding orientation, that may be

offered or needed by Academic and Administrative departments. The technology newsletter will be published twice per year and informative messages will be threaded through the portal, Information Technology Wiki, Social Media, and e-mail. The project, already begun in 2014, is ongoing and will continue to be developed for the next 3 years.

Under University Strategic Plan Goals 1C and E:

7th Goal - **Provide support and training for hybrid/online courses and programs:** Specifically, Information Technology/Instruction & Research Technology (IRT) will develop and offer a **Blended Learning Boot Camp.** This was offered for the first time on 1/6 - 1/10/2014 and will need to be followed up with other times throughout the upcoming years. The second objective will be to offer the **Quality Matters Program**. This is a program that trains faculty and helps measure and ensure quality in online programs and courses. IRT will attend training and develop a train-the-trainer format. Quality Matters has also developed a format and rubric for quality courses and peer reviews. It is a rigorous and nationally recognized program.

a) Blended Learning Boot Camp – Hybrid courses have often been called the best of both worlds (i.e. traditional and online). They offer flexibility, but at the same time, students have face-to-face access to faculty. The Blended Learning Boot Camp prepares faculty to teach in a blended learning format and was first offered in 2014, but requires further enhancements and faculty involvement. This project has a timeframe of 1 year.
b) Quality Matters Program – The Quality Matters Program requires intense training for the Instructional Technology Team of the Center for Teaching and Learning with Technology (CTLT). Once their training is complete, "Applying the Quality Matters Rubric" workshops will be offered to the faculty. In addition, Peer Reviewer Workshops will be offered to begin to develop a community of QM certified faculty who understand how to develop and review quality online courses. This project has a 2-3 year timeframe.

Conclusion:

This plan is aligned with the goals and objectives of the university's strategic plan to increase our effectiveness and relevance to the community and will adapt, if necessary, to changes in the strategic plan as well as technology changes. Technology changes frequently, so organizations need to adapt. What may seem relevant today may not be in two to three years. We are confident that this is a forward thinking roadmap for the next three years but Information Technology will continually address the relevancy of the plan with strategic and technology changes and seek revisions if necessary.

Timeline:

Goals:	Objectives:	1 Yr.	2 Yrs.	3 Yrs.
Goal 1: Wired and Wireless Networks	a) Physical Security		X	
	b) VoIP		X	
	c) IPTV		X	
Goal 2: Reliability & Security – Virtual Servers, replicated/synced data or cloud-based	a) Office 365 collaboration	X		
	b) Alumni email	X		
	c) 25Live cloud-based	X		
	d) CampusLabs cloud-based	X		
Goal 3: Enterprise Technology provided and maintained. Professional Development in reporting and "big data" analytics	a) 25Live implemented	X		
	b) WPConnect Portal Redesign continued		X	
	c) Identity Management			X
Goal 4: Assist with business objective-based operations reporting and analytics	a) Data warehouse extracts		X	
	b) Assessment Systems Assistance			X
	c) Research Data Management			X
	d) VALID			X
	e) Flex Registration (if funded)		X	
Goal 5: Continuity and protection for hardware and database infrastructure	a) VR Data Center	X		
	b) Generator backup & UPS	X		
Goal 6: Facilitate technology between students, faculty, and staff	a) New WPU Web Design continued		X	
	b) Web Print	X		
	c) Degree Works			X
	d) Faculty Load Module			X
	e) Broadcast Studios – Phase II	X		
	f) Active Learning Classrooms		X	
	g) Video on Websites continued			X
	h) Students going mobile			X
	i) Faculty going mobile			X
	j) Upgrade classrooms to digital HD			X
	k) Documentation and Training			X
Goal 7: Provide support and training for hybrid/online courses and programs	a) Blended Learning Boot Camp	X		
	b) Quality Matters Program			X