

Operations Administration Working Group Preliminary Report

Working Group	IT Processes, Procedures and Infrastructure
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Subject Area(s) of the Working Group

This working group is charged with developing a long term vision for information technology processes, procedures and infrastructure that aligns with the guiding principles of the new university. This includes making recommendations on organizational structure, best-practices for improving processes and utilizing next generation technologies that will enhance teaching and learning and expand IT services to students across the region.

Executive Summary and Introduction

Vision for IT in UTRGV: *The IT organization will deliver an integrated technology environment that enables customized and engaged learning, expands access to information and services and supports an innovative research infrastructure to achieve UTRGV's goals of becoming a premier student and service centered institution.*

This working group believes that this vision for technology at UTRGV will align the new information technology organization with the guiding principles set forth by UT System. To leverage the enormous opportunity that technology provides, the group recommends the eight goals and strategies that are summarized below, and expanded on further in the Discussion section of this report. These will help reinvent the traditional methods of instruction, increase access to information and improve delivery of IT services.

The need for a robust technology infrastructure is mentioned in the recommendations of over 16 different working groups. In order for UTRGV to achieve its vision it is important that such a technology infrastructure be available to enable collaboration, enhance productivity and erase the distance between the campuses throughout the Rio Grande Valley and beyond.

In order to enable this vision the working group presents the below recommendations for IT at UTRGV:

1. Next Generation Technology Infrastructure

- Use next generation technology to provide a comprehensive infrastructure that provides every student and educator with secure resources they need when and where they are needed.
- Similar to how students and instructors may interact as if they were physically co-located, UTRGV physicians will be expected to examine patients that are in different locations of the medical school, in different hospitals and clinics, the *colonias* and beyond. Patient data, exam results and images will also be expected to be shared without significant delays thus making patients and their health the focus, not the technology.

2. Expanding Access (Mobilization)

- To respond to regional populations that lack access to digital resources, the new university will utilize the power and flexibility of technology to reach all learners in the *colonias* and other rural and underserved areas.

3. Data Driven Decision Making (Big Data)

- Facilitate analytics based strategic and operational decision making.

4. Value Through Service Excellence

- Have a single unified organization for Information Technology that will provide seamless and consistent IT services centrally for academic, administrative and research purposes.
- Achieve operational excellence by employing best practices and continuous improvement thereby resulting in standardized and mature processes that are repeatable, effective, efficient, timely and easy to follow.
- Maintain adequate IT staff resources to facilitate the secure implementation and maintenance of hardware and software that supports faculty innovation in teaching and research.
- Implement a tier of student employees in the IT workforce.

Critical Startup Elements

There are multiple critical startup elements required to deliver IT services in the new university. In particular, there will be challenges in terms of both human and equipment resources during the overlap period in which UTPA and UTB are consolidated and UTRGV is created. This is largely due to the simultaneous existence of the three institutions but only having sets of people and hardware/infrastructure that are scaled and designed to service UTPA and UTB. Therefore, the need to acquire additional resources so that UTPA and UTB services are not affected will likely be needed.

In addition, below are some IT-specific requirements presented to the Startup Activities Group for inclusion in their report:

1. Unify campus personnel and students into single electronic directory (Active Directory, LDAP, etc.)
2. University Website
3. Issue new email accounts for UTRGV
4. Implement PeopleSoft HCM/FM, SIS
5. Obtain new codes for grants: IPEDS, CFDA, etc.
6. Integrate Embark Graudate Application Software
7. Inventory of Third-party Applications
8. Integrate Blackboard LMS
9. Integrate Edinburg/Harlingen/Brownsville Networks
10. Expand Telepresence in Classrooms

IT Dependencies By Other Working Groups

In addition to the recommendations that the IT work group compiled, there were references to technology in the recommendations of other Academic and Administrative work groups. Some of them are listed below:

1. Community centers that could offer healthcare services, training, university outreach and recruitment, and a study environment with access to the Internet and other learning technologies. Colonias and other impoverished rural areas would benefit from these neighborhood facilities.
2. Distance Learning, Mobile Learning, Telepresence, and Telemedicine.
3. Big Data analytics to drive planning and decision making.

4. Online Data Services for sharing and collaboration
5. State-of-the-Art Classrooms that use the latest technology to enhance instruction, assessment and learning in the classroom. One such vision for cutting edge technologies like this can be found in Corning's *A Day Made of Glass*.
6. UTRGV web portal for centralized access to all resources for students, staff and faculty

Discussion

According to the Project South Texas Guiding Principles, "The new university of Texas in the Rio Grande Valley will provide an outstanding education to the students of South Texas, Texas, the United States and the world. This education will be of the highest quality; it will be affordable, accessible and innovative. The new university will transform Texas and the nation by becoming a leader in student success, teaching, research and health care."

The following are the opportunities, which are described in more detail than in the [Executive Summary and Introduction](#) section of this report, that this working group recommends to support the above vision for IT in UTRGV and the strategies to support them. The key opportunities are highlighted:

No.	UTRGV Guiding Principles supported (see Appendix A)	UTRGV IT goal opportunities	Strategies
1.	C, D	The new university will have a single unified organization for Information Technology that will provide seamless and consistent IT services centrally for academic, administrative, research and medical technologies. This will provide for a superior experience for students, faculty, and staff on all campuses in the region and will reduce costs by leveraging economies and efficiencies of scale.	• Employ shared governance process for technology funding and decision making. • Align all IT purchases with the business, academic and research needs of UTRGV.
2.	A, N	The new university will use next generation technology to provide a comprehensive infrastructure for teaching, customized learning, health, and research that provides every student and educator with secure resources they need when and where they are needed. This infrastructure for learning will be always available, regardless of a student's location or the time of day. It will support access to information, people and participation anywhere in the world where they have access to devices and an adequate Internet connection.	• Utilize the fiber infrastructure between Edinburg, Harlingen and Brownsville to provide fast and reliable internet connectivity that can transfer data at high speeds, which is required to support teaching, learning and research. Please see Appendix D UT RGV Fiber Optic Network Backbone • Utilize technology to support customized learning, game-based learning, virtual worlds and simulations to enhance and make learning engaging across all disciplines. Role-playing, collaborative problem-solving

			games, social games and games related to course content can be used to enhance the learning experience. • Explore new trends such as gesture-based computing that make it possible for students to control computers through body movements, facial expressions, and voice recognition. This could be used by students to engage in virtual activities with motions and movements similar to what they would use in the real world. 3D printing, wearable technology, bendable interactive displays and holograms can also provide new and enhanced learning experiences, in addition to telepresence technologies. • Leverage Virtual Desktop Infrastructure (VDI) to provide learners and educators access to software and resources from any location without the need to come and use a physical computer at a campus location. • Partner with industry leaders to develop a strong technology program that offers training to educators and exposes students to new technologies. • Support technology courses by enabling them to deliver rich curriculum and enable them to adopt technology-based content and resources in their teachings. • Develop strategies so that every student and educator has at least one portable device capable of connecting to the Internet that can support enhanced learning experiences and collaboration, both in and out of a classroom. • Provide technology for the adoption of apps for mobile devices that are specifically tailored to educational and
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			research needs across the curriculum. • Leverage transparent information security solutions that complement the university mission and achieve regulatory compliance.
3.	B, N	To respond to regional populations that lack access to digital resources, the new university will utilize the power and flexibility of technology to reach all learners in the <i>colonias</i> and other rural and underserved areas. Technology will be leveraged to extend UTRGV's reach in order to equalize access to learning resources, information and healthcare. This will provide access to the most effective teaching and learning resources, especially where they are not otherwise available, and to provide more options for all learners at all levels.	• The new university will leverage community centers developed in the rural areas to deliver technology and support to students living in the <i>colonias</i>. • These community centers could offer healthcare services, university outreach and recruitment, and a study environment with access to the Internet and other learning technologies. Colonias and other impoverished rural areas would benefit from these neighborhood facilities. • Access to the Internet, including Eduroam wireless connectivity, will be made available to communities that can't afford it or where services are simply not available. • Partner with community healthcare and student outreach groups to develop colonia based centers to offer services and support to broaden access to information. • Provide flexible options for classes by utilizing distance education tools towards online and blended courses to students in the colonias. • Support technology needed to deliver open educational resources, classroom lectures and MOOCs to provide learning material to the students at any time and any place. • Utilize public-private partnerships to establish effective proof-of-concept technology projects that

			enhance teaching and learning.
4.	A, G	The IT infrastructure will provide a foundation for the technological needs of a 21 st century medical school. Similar to how students and instructors may interact as if they were physically co-located, UTRGV physicians will be expected to examine patients that are in different locations of the medical school, in different hospitals and clinics, the <i>colonias</i> and beyond. Patient data, exam results and images will also be expected to be shared without significant delays thus making patients and their health the focus, not the technology.	• All technology initiatives will incorporate the capacity, privacy, accessibility, availability and timeliness needs of the medical school.
5.	A, D	The IT organization will facilitate analytics based strategic and operational decision making.	• Deploy big data analytics across the organization and use it to assess and adopt improvement strategies. This will allow educators to synthesize data in real-time and make adjustments to their teaching style or the students learning needs. • Design and deploy an institutional data warehouse as the single source of the truth for decision making. • Adopt dashboards and reporting tools to deliver Key Performance Indicators (KPI's) and balanced score cards for management decision making.
6.	C	The IT organization will achieve operational excellence by employing best practices and sustainable models for continuous improvement thereby resulting in standardized and mature processes that are repeatable, effective, efficient, timely and easy to follow.	• Document all business processes and utilize frameworks to make them efficient. Have a process governance group to evaluate new and existing processes. • Provide a comprehensive unified single point-of-contact for all campus services and support. • Employ Project Management, Change Management and other processes to provide quality service delivery. • Promote industry standard processes and architectures for IT services and support. • Collaborate with other

			campuses and medical centers in the UT system to obtain best practices and for benchmarking
7.	C	Maintain adequate IT staff resources to facilitate the secure implementation and maintenance of hardware and software that supports faculty innovation in teaching and research.	• Enhance teaching and research through technology. • Respond to new faculty needs that will innovate pedagogy.
8.	F, H, I, L	The IT organization will implement a tier of student employees in its workforce.	• Strengthen programmatic development in Information Technology. • Promote emerging technologies. • Involve students in IT research. • Promote innovation and use of innovative methods.

Conclusions and Recommendations

The recommendations made above were developed with a vision of “how IT is supposed to function” and many ideas were generated by the working group asking itself “what are the challenges with IT today?” After lengthy discussions over the current issues, the working group then crafted the vision for IT in the new university.

The IT working group is also engaged in research activities to identify technologies needed to fully take advantage of the fifty strands of fiber infrastructure that exists between Edinburg, Harlingen and Brownsville to provide fast and reliable internet connectivity that can transfer data at high speeds, which is required to support teaching, learning and research. This is a strategic advantage over all other institutions of higher education in the world. This much fiber is more than some telecommunications companies have as assets. It is not unthinkable to have a 3D hologram of the UTRGV president appear simultaneously at all the locations. These fibers have the theoretical maximum capacity to move 18 million high definition movies per hour between Edinburg and Brownsville. This number illustrates the enormous capability to move information that UTRGV will have. Within a couple of years, the electronics used with this fiber will improve and the capacity will increase beyond what is shown here. These improvements will continue for the 20 year life of these fibers.

References

1. [A Day Made of Glass... Made possible by Corning. \(2011\)](#)
2. [A Day Made of Glass 2: Same Day. Expanded Corning Vision \(2012\)](#)
3. [UT System wants colonia residents to help shape new RGV university](#)

Appendices

Appendix A

New University Guiding Principles

(from <http://www.utsystem.edu/news/topics/project-south-texas/guiding-principles>)

- A. Fully integrate next generation technology and customized learning to increase affordability and maximize student success.
- B. Promote access to postsecondary education to a diverse student body to become one of the largest and most successful Hispanic - serving institutions in the U.S.A.
- C. Employ the highest quality faculty members and staff who pursue global excellence in teaching, research, healthcare and service.
- D. Streamline academic and administrative programs and re-design processes to increase productivity and promote a student-and service-centered mode of operation.
- E. Promote arts and humanities programs to produce state, national and world leaders who are bi-cultural, bi-lingual, and bi-literate.
- F. Develop programmatic strength in the areas of science, technology, engineering, mathematics, and health.
- G. Develop a Medical School of the first class, with outstanding undergraduate and graduate medical education, public health, health professional degrees and clinical research, to improve the health of the community.
- H. Become a global leader in higher education, health education, bio-medical research, emerging technology and preparing students to be lifelong learners.
- I. Pursue applied and translational research to address critical local, state, national, and global needs.
- J. Build on the excellent economic activity and strength of the State of Texas and benefit from the State's leadership in the world.
- K. Provide a leadership role in fostering economic and community partnerships to help solve local, state, national, and global problems.
- L. Promote innovation and knowledge discovery with business and industry that will lead to job growth and improvements in the quality of the region's workforce.
- M. Build a hub for inventions and intellectual property that will lead to economic and community prosperity and an improved quality of life for the region, the State, the nation and our world.
- N. Serve as a "Gateway to the Americas" by cultivating partnerships with global leaders in education, health, research and other strategic, high-growth industries.
- O. Leverage the size, strength, and excellence of the University of Texas System and its fifteen outstanding institutions to shorten the time it takes to achieve these goals.

Appendix B

Please see the [Planning Document for IT](#).

Appendix C Operational best practices for IT in UTRGV

- The new university will have a single unified organization for Information Technology that will provide seamless and consistent IT services centrally for academic, administrative, research and medical technologies.
- The IT organization will provide a unified, single point of contact for IT services and support for students, faculty and staff across the region in both the academic and medical units.
- IT Services will be deployed using broad multi-modal access to information, instruction, and services across mobile and desktop devices.
- The IT organization will employ industry best practices and frameworks such as ITIL, Lean to provide outstanding IT service delivery and support.

- The IT organization will develop and employ guidelines and procedures that are optimized for the standardized purchase and use of software and hardware across all locations.

Appendix D

UT RGV Fiber Optic Network Backbone

National Telecommunications & Information Administration (NTIA) awarded (NTIA Award #NT10BIX5570068) of a \$15,697,856 Grant to Valley Telephone Cooperative Inc. (VTCI) in order to build a Comprehensive Community Infrastructure (CCI) consisting of 150-mile of fiber optic network under the Broadband Technology Opportunity Program (BTOP). This includes a geographically diverse fiber optic ring between UT Brownsville and UT Pan Am, the two components of the new UT RGV.

Specifically, the new fiber optic infrastructure will provide a redundant and robust pipe capable of carrying large amounts of bandwidth between UT RGV campuses and Internet/Internet2, besides providing high capacity links to interconnect campuses. The high capacity network will facilitate the ongoing research in areas like physics, biotechnology and gravitational waves. The new level of capacity will allow UT RGV researchers to apply for grants that they could not apply for earlier due to lack of connectivity. In general, from the broader community perspective, the new fiber optic infrastructure will enhance education, research, and economic development in South Texas.

From the angle of reducing the cost of Information Technology (IT) and enhancing business continuity, the new fiber infrastructure will allow UT RGV to

- (a) erase the distance among the locations of UTRGV,
- (b) help reduce the need for physical buildings if the fiber can help students, faculty and staff stay connected from home or remote locations,
- (c) locate a comprehensive backup facility inland,
- (d) take advantage of cloud computing, provide inter-institutional IT services such as VoIP, and
- (e) extend educational services to underserved areas, such as colonias.

Historically, the Lower Rio Grande Valley (RGV) has lacked connectivity options for access to different networks for both telephony and data, such as accessing higher bandwidth networks and geographically diverse telecommunication pathways.

The new fiber optic infrastructure will provide a conducive environment that will encourage investment and stimulate economic growth and in turn

- enhance education,
- improve healthcare,
- strengthen border security,
- promote national and international collaboration, and
- augment research and development.

