HACC Strategic Technology Plan

FY2015 – FY2017

A Message from HACC's Chief Information Officer

Innovation is at the heart of every successful organization. Companies want to be the next Apple, Google, or VMWare because of their innovative ideas. Below are ten technology innovations impacting teaching and learning in higher education debuted over the past 25 years:

1. 1991 – Kodak introduced the first digital camera
2. 1991 – IBM introduced "PicTel" the first computer based video conferencing system
3. 1991 – SMART introduced the interactive whiteboard
4. 1994 – Plancom debuted "hotspot" a device used to connect the public to the internet wirelessly
5. 1994 – National Center for Supercomputing Applications introduced "Mosaic XS" the first graphical application for browsing the internet
6. 2001 – VMWare introduced ESX server virtualization packages
7. 2003 – I.E.E.E. created the "802.11g WiFi" standard ensuring interoperability of wireless devices
8. 2006 – Google apps for education debuted
9. 2007 – Apple iPhone and the App store debuted
10. 2010 – Apple iPad debuted

Innovation requires change and change within an organization is very challenging as it is often met with resistance; however, to be effective, change is necessary and successful change must be accompanied with collaboration and timely communications.   In the book *Future Edge*, Joel Barker said, "It is natural and logical for people to resist change, however no one will thank you for taking care of the present if you have neglected the future".

The **O**ffice of **I**nformation **S**ervices and **T**echnologies (**OIST**) was named in September 2013 with the focus of bringing the college's technologies into one unified direction under one operating unit. Also in September 2013, OIST created mission and vision statements which ensured all teams within OIST are unified in its services and philosophy.   Keeping in mind the ten innovations impacting teaching and learning in higher education, OIST has identified the following as divisional goals:

1. Identify and implement emerging technologies within the classroom to promote teaching and learning.
2. Identify and request professional training needed for technical staff to promote improved technical services and support.
3. Provide training to employees on commonly used applications and classroom technologies.
4. Enable agility and realize additional computing capacity to address growing needs of the College.

Looking forward, innovation will remain engrained within all of our technology solutions. We must continue to make sound technology choices that will improve student success, enhance instruction, realize fiscal efficiencies and streamline internal processes. OIST will continue to provide the best support possible to our college community.

Robert H. Messner Jr., CIO

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Executive Summary

Technology is utilized throughout the college influencing all aspects of its operations; this technology dependency dictates that HACC's Office of information services and technology (OIST) ensure these systems and services are available and reliable. In 2012, HACC contracted with three vendors to perform independent reviews focusing on technology staffing, systems, and services. The first review was conducted by Ellucian (formerly SunGard higher education) which resulted in key recommendations that guide OIST to better leverage the college's investment in the Banner student record system. These recommendations are contained within part 2 of this plan. The second review was conducted by Dynamic campus, a company that provides leadership and results driven customized services within higher education. This review produced a report which listed key recommendations such as developing a departmental mission and vision, establishing a technology plan, identifying a need for more professional development of staff, expanding portal functionality, and building regular maintenance periods for server and service updates. The third review was conducted by Montgomery County Community College through Celeste Schwartz and Joe Mancini. This review listed key recommendations such as implementing storage area network and server virtualization technologies, overhauling the communication infrastructure, and the need to develop a recovery plan for mission critical applications.

These three reviews along with a strengths, weaknesses, opportunity, and threat analysis (SWOT) conducted in 2013 have led to the development of the following departmental goals:

- Identify and implement emerging technologies within the classroom to promote teaching and learning.
- Identify and request professional training needed for technical staff to promote improved technical services and support.
- Provide training to employees on commonly used applications and classroom technologies.
- Enable agility and realize additional computing capacity to address growing needs of the College.

In order to achieve the departmental goals the following objectives have been identified as action items:

- Identify, design and build a campus wireless network for the purpose of supporting wireless devices both within the classroom for instructional needs and throughout the campus for all of the college community.
- Develop institutional capacity in the area of technology training and deliver training for commonly used applications.
- Support faculty, staff, and students wireless devices with a Bring Your Own Device (BYOD) policy and a support plan.
- Cultivate, establish, and build a strong relationships with Center for Innovative Teaching Excellence (CITE) and Teaching Technology Services (TTS) to promote collegiality, improved communications and technology planning.

- Expand support to include Macintosh and other non-windows based devices.
- Expand email services to include all students, via Hawkmail.
- Identify, plan and deploy a portal system with single sign-on capabilities
- Establish a classroom technologies department within the information technology division to promote the use of classroom technology and improve teaching and learning.
- Ensure planning, development, design, and implementation of classroom technologies are coordinated uniformly across campuses to ensure consistency.
- Ensure technology staff attend IT training courses and IT conferences to train other IT staff and implement "best practices" in use at other higher education institutions.
- Train and certify two IT staff in project management and employ a train the trainer model to further project management understanding throughout the IT organization.
- Ensure technical training and end user training is identified and becomes a component of the request for proposal (RFP) processes.
- Identify, determine delivery method and implement training for commonly used applications throughout the college.
- Develop, promote and offer information security awareness training for faculty and staff.
- Review and recommend improvements to streamline the onboarding process with respect to technology access and training.
- Identify single points of failure within the campuses networks, staffing, services and design solutions to resolve those identified as critical.
- Identify, redesign and build local area networks within the campuses that are capable of supporting 1GB of throughput to the desktop and 10GB between buildings.
- Investigate, plan, design and migrate enterprise college resources into hosted (cloud), virtualized, or on-premise environments as appropriate.
- Investigate, plan, design and possibly build a new data center for the college or investigate the possibility of co-location leased data center space.
- Revitalize the current data center to provide power, cooling, and power redundancy to ensure services can operate in the event of a power failure or cooling system failure.
- Develop, plan, and create a plan for disaster recovery and business continuity for data center operations.
- Identify, align, establish, and communicate regular maintenance schedules for all technology systems and ensure they are aligned with the academic operations.
- Develop and implement a plan to ensure all college files are stored on the college's servers and accessible from remote locations.
- Develop, plan, and expand the support center operations and critical technical services to include weekend support.

The remainder of this report will provide additional insights into the department, the analysis of the reviews conducted, the process used to create the departmental goals, and the goals and objectives. The purpose of this technology plan, the departmental goals and objective is to ensure HACC's technology services remain stable, consistent, and reliable.

Part 1: The Office of Information Services and Technologies (OIST)

Overview:

Community College's struggle to remain current with the latest trends in technology while maintaining a secure, robust and cost-effective technology installation. HACC is no different. Therefore, according to the College's 2012-2015 Strategic Plan, there is a need to expand innovative use of technology to improve teaching and learning, promote organizational excellence through professional development and training, and enhance the College's technology infrastructure. New technologies such as virtualization and cloud computing must be leveraged to remain innovative, robust and cost-effective while addressing the IT needs of the institution.

We are committed to providing cost-effective and innovative solutions to the College's technology needs.

Department Mission:

HACC's Office of Information Services and Technologies (OIST) is a customer-focused team which provides support to students and employees using innovative technology solutions; ensuring a stable computing environment to conduct college business efficiently, securely and economically.

Department Vision:

To be nationally recognized for providing information services and technologies serving the College community.

Part 2: Analysis of the Technology Systems and Staffing

Banner Health Check Review:

On February 24, 2012 Ellucian (formerly SunGard Higher Education) conducted a review of the Banner implementation and current status. Ellucian provides education institutions with the innovative solutions they need to help people everywhere discover their futures through learning. The modules evaluated were Student, Finance, and Human Resources. During the review 21 discovery workshop sessions were held with 45 functional representatives from the various departments participating in those sessions.

Key Recommendations:
- Re-evaluate the admit types to take advantage of the baseline admissions checklist functionality.
- Setup faculty workload rules in order to use the faculty contract analysis form.
- Conduct a business process analysis of the fixed assets module.
- Extend the utilization of the electronic personnel action form (EPAF).

Goal	Recommendation
Improve technologies used in teaching and learning	Activate self-service personal information option for faculty, staff, and students to update addresses and phones.
	Configure common matching rules
	Upgrade Experian Quality Assurance Software (QAS) to include QAS address pro and web
	Review security settings across systems and recognize the need for role/class security
	Expand utilization of the Banner document management suite
	Review workflow to automate notifications, approvals, and business processes
	Review Integrated Postsecondary Education Data System (IPEDS) reports
	Automate graduation processing
	Investigate "incomplete" grade processing
	Leverage wait listing functionality to automate current processing
	Define reserved seats on Student Schedule Form (SSASECT) to automate reserved seats
	Re-evaluate the admit types to take advantage of the baseline admissions checklist functionality
	Setup faculty workload rules in order to use the faculty contract analysis form
	Conduct a business process analysis of the fixed assets module
	Extend the utilization of the electronic personnel action form (EPAF)

Dynamic Campus Review:

On March 14, 2012, Dynamic Campus was asked to conduct a review of the IT infrastructure and processes. Dynamic Campus is the leading strategic partner in higher education, providing leadership and results-driven customized services to help you transform your rapidly evolving campus, so you can focus on your mission—student success!

Key recommendations:

Goal	Recommendation
Improve technologies used in teaching and learning	Conduct business analysis to fully utilize Banner
	Identify shadow systems and replace with Banner
	Expand utilization of portal functionality
Develop technical skills and provide training	Provide professional development for users and IT staff
Improving technology operations and capacities	Communicate regular maintenance periods and perform maintenance during those periods

Montgomery County Community College Review:

On December 21, 2012, Celeste Schwartz and Joseph Mancini of Montgomery County Community College conducted an independent review of HACC's IT infrastructure, hardware, software, security, and staffing.

Key recommendations:

Goal	Recommendation
Improve technologies used in teaching and learning	Create synergies between Academic Affairs office and IT that ensure consistent implementation of technologies across the organization
	Create synergies between Academic Affairs office and IT that ensure adequate advocacy and training of technologies that support teaching and learning, and sufficient support for all technologies
Develop technical skills and provide training	Train and certify two IT staff in project management and then use the train-the-trainer model to further project management understanding throughout the IT organization
	Include technical training as a component on all technology hardware/software RFPs
	Develop institutional capacity in the area of technology training. Qualified technology trainers (one or two) are needed to support College employees when software upgrades are implemented and new technologies are rolled out. In addition, new employees should be provided with opportunities for training on the technologies used at the college
Improving technology operations and capacities	Overhaul communications infrastructure to provide resiliency

	Consider migration of some mission-critical applications to the cloud
	Implement best practices in use of storage area networks (SANS)
	Implement best practices in use of virtualization of servers and applications
	Implement best practices in data center operations to provide reduced data center capacities, simplify management, and provide improvements in system archive and disaster recovery

Interim Chief Information Officer Review:

As HACC's interim chief information officer, Richard Yankosky Ed.D., (Jan. 2013 – July 2013) began reviewing and implementing some of the external reviews and recommendations (mentioned above). In addition, Dr. Yankosky, while serving in his interim position, continued to identify additional recommendations for improvements needed in HACC's IT department and they are also listed in key recommendations, below.

Key recommendations:

Goal	Recommendation
Improve technologies used in teaching and learning	IT should provide email addresses to students in online non-credit courses
	The planning, development, design, and implementation of classroom technologies should be centrally coordinated to ensure consistency
	A process must be created to receive, evaluate, and prioritize end-user requests for Banner needs
	A role-based access matrix should be created to ensure appropriate access provided within the Banner System and other such systems
Develop technical skills and provide training	IT should provide faculty with training for the devices that their students are bringing to class and students need to be supported by the institution when bringing their own devices (BYOD)
	Information security awareness training should be offered to the greater College community
	Central IT should take responsibility for developing technology training in the areas of College-wide applications such as the Microsoft products, the phone system and Banner
	Provide opportunities for and encourage IT staff to participate in leadership training and development
Improving technology operations and capacities	All significant technology projects should have a detailed project plan that incorporates end-user input
	A comprehensive review of all communication infrastructure design should occur in order to identify single points of failure and to recommend alternative solutions
	Wireless coverage expansion must be planned in ways that support BYOD strategy, specifically with respect to coverage and

	placement of access points
	A new data center must be located somewhere outside of the flood zone where access can be granted should a disaster occur
	Environmental monitoring should be leveraged to assist IT with being proactive
	Domain administrative access should be restricted to IT system administrators only
	System maintenance windows must be integrated into the annual College calendar. Weekly off-peak maintenance windows will enable application of Windows server patches without causing interruptions
	HACC's IT team should leverage SCCM to create and maintain a consistent desktop image and application set
	All desktops should require a login using an account provisioned through active directory

Chief Information Officer Review:

After reviewing all external reviews, I met with the functional vice presidents, campus vice presidents, campus deans of instruction, faculty senate president, classified employee president, and the administrative professional's president from June through Sept. 2013. These discussions were used to identify what was going well from a technology perspective and to identify changes needed.   A summary was created based on an analysis of the strengths, weaknesses, opportunities, and threats (SWOT) identified throughout these discussions and taking into account the previous external reviews conducted.

Strengths, Weaknesses, Opportunities, Threats (S.W.O.T.) Summary:

Strengths:

- IT is focused on providing customer service and is responsive to users' needs.
- IT has expanded classroom technology through deployments of smart technology devices.
- IT has greatly improved communications with other departments.
- IT is comprised of hard working and dedicated professionals who work together to resolve issues and implement new solutions.

Weaknesses:

- IT must focus on the lack of end-user training for commonly used applications.
- IT must improve/replace/expand existing network infrastructure including Wi-Fi on all campuses.
- IT must focus on being proactive and not reactive to issues.
- IT must provide centralized accessible file storage for electronic document shares.
- IT must improve Blocker 116 (Data Center) operations and identify all single points of failure.

Opportunities:

- The College's desire to expand Help Desk operations to ensure coverage continues into the start of all evening and weekend courses along with campus operations/events.
- The College's growing desire to expand smart enabled technology in more classrooms.
- Students must be supported including their personal devices and college required software's.
- The onboarding process must be streamlined with respect to technology access and training.
- The College's has a growing need for improved centralized communications and single sign-one processes.

Threats:

- IT faces a lack of funding necessary for IT personnel training and professional development (under skilled staff).
- IT faces a lack of sufficient skilled IT support staff to properly support all existing and new technologies being adopted (lack of appropriate staffing levels).
- IT has many single points of failure for enterprise systems such as Banner, Email, and file/printer sharing (need for disaster recovery planning and business continuity planning).
- IT has an overwhelming IT project list with no formalized vetting process to control its growth (Project, resource and time management).

Summary of Recommendations:

In compiling all recommendations from external reviews and internal discussions common topics were chosen to develop and align technology planning with the college-wide strategic plan. As technology goals are established they will have objectives designed to ensure their achievement. Once the technology plan is adopted, assessments must take place annually to ensure the technology objectives are moving the Technology departments toward achieving their goals.

Part 3: OIST Technology Goal Process

Identification of Strategic Technology Goals:

In consideration of the college-wide strategic plan and the reviews (Banner, Dynamic Campus and Montgomery County Community College) that occurred over the past 18 months, the common recommendations were:

- improving technologies used in teaching and learning
- developing technical skills within the IT staff
- providing training to users
- improving technology operations and capacities

Four Technology Goals:

From this review, the following four technology goals were established:

1. OIST will identify and implement emerging technologies within the classroom to promote teaching and learning.
2. OIST will identify and request professional training needed for technical staff to promote improved technical services and support.
3. OIST will provide training to employees on commonly used applications and classroom technologies.
4. OIST will enable agility and realize additional computing capacity to address growing needs of the College.

Part 4: OIST Technology Goals and Objectives

OIST Goal #1

OIST will identify and implement emerging technologies within the classroom to promote teaching and learning.

Objectives:

- Identify, design and build a campus wireless network for the purpose of supporting wireless devices both within the classroom for instructional needs and throughout the campus for all of the college community.
- Develop institutional capacity in the area of technology training and deliver training for commonly used applications.
- Support faculty, staff, and students wireless devices with a Bring Your Own Device (BYOD) policy and a support plan.
- Cultivate, establish, and build a strong relationships with Center for Innovative Teaching Excellence (CITE) and Teaching Technology Services (TTS) to promote collegiality, improved communications and technology planning.
- Expand support to include Macintosh and other non-windows based devices.
- Expand email services to include all students.
- Identify, plan and deploy a portal system with single sign-on capabilities
- Establish a classroom technologies department within the information technology division to promote the use of classroom technology and improve teaching and learning.
- Ensure planning, development, design, and implementation of classroom technologies are coordinated uniformly across campuses to ensure consistency.

OIST Goal #2

OIST will identify and request professional training needed for technical staff to promote improved technical services and support.

OIST Goal #3

OIST will provide training to employees on commonly used applications and classroom technologies.

Objectives:

- OIST staff will attend IT training courses and IT conferences to train IT staff and implement "best practices" in use at other higher education institutions.
- Train and certify two IT staff in project management and employ a train the trainer model to further project management understanding throughout the IT organization.
- Ensure technical training and end user training is identified and becomes a component of the request for proposal (RFP) processes.
- Identify, determine delivery method and implement training for commonly used applications throughout the college.
- Develop, promote and offer information security awareness training for faculty and staff.
- Review and recommend improvements to streamline the onboarding process with respect to technology access and training.

OIST Goal #4

OIST will enable agility and realize additional computing capacity to address growing needs of the college.

Objectives:

- Identify single points of failure within the campuses networks, staffing, services and design solutions to resolve those identified as critical.
- Identify, redesign and build local area networks within the campuses that are capable of supporting 1GB of throughput to the desktop and 10GB between buildings.
- Investigate, plan, design and migrate enterprise college resources into hosted (cloud), virtualized, or on-premise environments.
- Investigate, plan, design and build a new data center for the college.
- Identify, align, establish, and communicate regular maintenance schedules for all technology systems and ensure they are aligned with the academic operations.
- Develop and implement a plan to ensure all college files are stored on the college's servers and accessible from remote locations.
- Develop, plan, and expand the support center operations and critical technical services to include weekend support.