

MIRACOSTA COLLEGE
TECHNOLOGY PLAN



2011-2014

Approved by Budget and Planning Committee, 02/24/2012

Approved by Administrative Council, 02/27/2012

Introduction

Founded in 1934, MiraCosta College is based in Oceanside, California with two additional sites: the San Elijo Campus, located in Cardiff and the Community Learning Center on Mission Avenue in Oceanside. The College's service area stretches along the coast from Oceanside south to Del Mar/Carmel Valley.

Introduction

Information technology in the 21st century has become the unseen, yet strategic underpinning for any organization. The use of technology in education is supporting and changing how our faculty teaches, our students learn, and our staff and administrators work. Information technology does not simply function as a service or utility, but rather advances teaching, learning, and community service.

MiraCosta Community College District Mission Statement

"The MiraCosta Community College District mission is to provide educational opportunities and student-support services to a diverse population of learners with a focus on their success. MiraCosta offers associate degrees, university-transfer courses, career-and-technical education, certificate programs, basic-skills education, and lifelong-learning opportunities that strengthen the economic, cultural, social, and educational well-being of the communities it serves."

Institutional Goals 2011-2020

Institutional Goal I:

MiraCosta Community College District will become a vanguard educational institution committed to innovation and researched best practices, broad access to higher education, and environmental sustainability.

Institutional Goal II:

MiraCosta Community College District will become the institution where each student has a high probability of achieving academic success.

Institutional Goal III:

MiraCosta Community College District will institutionalize effective planning processes through the systematic use of data to make decisions.

Institutional Goal IV:

MiraCosta Community College District will demonstrate high standards of stewardship and fiscal prudence.

Institutional Goal V:

MiraCosta Community College District will be a conscientious community partner.

Academic Information Services (AIS) Mission Statement

The mission of AIS is to provide the technology infrastructure, support services, and resources that support the College's Strategic Plan.

AIS Core Values:

- Stewardship of Resources
- Information Security
- Innovation
- Flexibility
- Service
- Team Work
- Integrity
- Professionalism

Overarching Information Technology Goals

Goal I:

Align information technology investment to support, facilitate and implement the institutional strategic goals and objectives as delineated in the College's Comprehensive Master Plan.

Goal II:

Foster teaching and learning with technology.

Goal III:

Plan, acquire, maintain, and upgrade or replace technology infrastructure and equipment to meet institutional needs.

In recognition of the rapid social, cultural, economic, and technological changes affecting higher education, MiraCosta College has developed a goal-setting process based on the MiraCosta Comprehensive Master Plan (CMP) which is comprised by the Educational Plan (EP) and the Facilities Plan (FP), and supported by the Technology Plan (TP) and the Online Education Plan (OEP). These plan documents were developed to change quickly and respond to changing educational needs of the college. The plan documents are evaluated, reviewed and modified periodically to stay relevant to the College's Strategic Plan.

Information Technology Advisory Committee

Prior to the change in the college governance structure in 2010, the campus-wide Strategic Planning for Information Technology Committee (SPIT) served as an advisory committee on technology matters to the Budget and Planning Committee. Under the new collegial consultation and governance process, a new technology committee has not been identified to replace SPIT. AIS has continued its role of managing the district budget for technology and equipment replacement cycles as part of its regular operational duties and responsibilities. Program Review became the process by which departments and programs would request additional resources and technology support.

This plan recommends that the District, through its governance structure, examine whether or not an Information Technology Advisory Committee (ITAC) should be established. If so, its charter, membership and reporting structure need to be established. Such a technology committee would advise the District on policy, usage and standards as well as revise and update the Technology Plan with initiatives that were approved by the Program Review Process for subsequent years.

Technology Planning Process

Overview

Historically, technology plans tend to focus on a “list” of items to implement and achieve. The purpose and scope of this plan is more broad – it allows more flexibility and the ability to adapt to the changes and breakthroughs in technology where providing opportunities for innovation is paramount. This Technology Plan adheres to a format that is more dynamic and process oriented rather than concentrating on a “to-do” or “shopping” list of goals and objectives for technology. AIS has a solid handle on routine planning issues such as hardware and software refresh and system upgrades.

Planning for technology should be considered from two perspectives – the “core” and the “edge”. At the “core” are basic services and technology infrastructure which is well understood and managed by AIS (e.g. equipment replacement cycles, software maintenance and upgrades, backup and recovery, network maintenance and support, etc). The core needs to provide adequate service capacity, reliable performance, and flexibility to adapt to evolving technology and uses. Appendix A contains the Technology Action Plan with goals and objectives for the fiscal year in support of the Institutional Goals and Objectives in addition to addressing the maintenance and support of the existing infrastructure core technology. At the “edge” are the electronic devices and user-centric applications that enable people to input and extract the contents from the electronic realm into intelligible form. At the edge, technology evolves very quickly and is highly personalized. At the core it evolves much more slowly and is more standardized.

Given the rapid pace of technological change, the plan eschews detailing specific technologies except for the Technology Action Plan that describes implementation time frames and costs for core equipment and software upgrades. More important, this plan provides a framework allowing the users of technology to determine what type of specific technology and implementation are appropriate and necessary at the edge for the success of a given program or department within the academic community.

When a department or program identifies a need for new, updated, a different type of technology, or some related issue, a Technology Request form needs to be filled out and forwarded to AIS for review and feedback. In consultation with multiple departments and stakeholders, a new simplified and streamlined online form is available through the AIS portal. If the request can be satisfied without additional resources and complies with the District standards and policies then the request or proposal can be implemented

immediately. If AIS identifies that additional resources are needed, the requestor will be advised to include the request as part of its department Program Review process for proper funding and approval.

Technology Environment at MiraCosta

The current technology environment includes infrastructure, hardware, software, and of course, the people that use and support these technologies. The college infrastructure is operating well but it is at capacity and has infrastructure issues due to its age and retrofitting technology into older buildings that were not designed to accommodate the modern technology requirements. Fiber-optic cable connects buildings and campuses, while standard network protocols provide data driven access to multiple forms of communication from multiple access points. Every building has high-speed data connections, printers, and computers for every employee that needs one. Hardware and software are on a replacement cycle ensuring the latest versions are available in a timely manner. Data interconnectivity through the College's Enterprise Resource Planning (PeopleSoft ERP) applications provide every department with current and shared information. Curriculum is online, and SURF allows electronic registration and other features from any Internet connection.

Facilities Infrastructure Planning

Technology is pervasive throughout the three college sites but due to the fact that MiraCosta has aging buildings and infrastructure, much of the technology was retrofitted long after the buildings were constructed; therefore there is a lack of or pronounced deficiencies in facilities infrastructure such as dedicated communications closets, air conditioning, and lighting, power, ventilation, fiber and copper pathways. Solutions and corrections in these areas will require substantial funding. Therefore such deficiencies should be identified, brought to light and addressed by the Facilities Plan and the Comprehensive Master Plan so resources can be properly planned and allocated.

Identified areas that are lacking or are deficient:

Oceanside Campus

Lack of:

- Dedicated communication closets
- Redundant fiber ring interconnecting all buildings
- Data Center expansion (additional rack space) which is close to physical capacity
- Secondary Data Center to host redundant servers backing up critical applications
- Secondary and redundant Internet Service Provider connection.

Deficient:

- Aging fiber backbone
- Existing fiber & copper pathways at capacity

San Elijo campus

Lack of:

- Building communication closets
- Additional server space in the data center or a new data center
- Data Center Uninterruptable Power Supply (UPS) & improved air conditioning units
- Backup generator
- Fire suppression
- Redundant fiber ring interconnecting all buildings

Community Learning Center

Lack of:

- Lack of proper communication closets
- UPS and air conditioning for the server room

Current Technology Standards

Each year AIS updates technology standards for a wide range of administrative and instructional systems and devices including:

- Desktop hardware
- Desktop operating systems
- Office suite applications
- Server hardware
- Server operating systems
- Security systems and devices
- Technology Enhanced Classrooms

For those items of the greatest interest to general MiraCosta College stakeholders, AIS publishes these standards on the departmental internal SharePoint portal web site. Current technology standards and equipment upgrade schedule can be found at: <https://portal.miracosta.edu/Departments/AIS/default.aspx>

Equipment Replacement Cycle

AIS coordinates the evaluation of technology growth, upgrade, replacement, and sustainability using a total cost of ownership framework. In this way, the college systematically plans, acquires, maintains, upgrades, and replaces technology infrastructure to meet the needs of students and employees. Planning and budgeting for hardware includes the cost of acquisitions, support, and replacement on a standard cycle, using requests for technology acquisitions, and reviewing respective replacement cycles. The District employs an "Add to the Plant" process in which users submit requests for new technology acquisitions. The Budget and Planning Committee (BPC) evaluates the requests for funding, staff impact, maintenance, sustainability, security, and policy as dictated through the Institutional Program Review (IPR) Process.

Equipment Replacement Budget

The district equipment replacement budget is administered and managed by AIS. The common industry recommendation, as per the Gartner Group, is to replace desktop computers every 3 years. MiraCosta has elected to extend the life of such equipment by an extra year therefore implementing a 4 year replacement cycle. Multimedia equipment replacement cycle varies on usage and application requirement hence its life cycle can go as high as 7 to 8 years. Server and network equipment replacement cycle varies from 3 to 5 years depending on type and equipment function. Refer to appendix B for the current equipment inventory numbers as of Fall 2011.

Description	Cost
Faculty/Staff Desktop/Printer Upgrades	\$200,523
Telephone Equipment/Service/Maintenance & Upgrades	\$17,628
Network Hardware/Software Licenses/Servers Maintenance & Upgrades	\$417,533
Desktop software licenses (Computer Labs & Employees)	\$172,856
Academic Lab/Classroom Computer Replacement	\$337,878
District Wide Systems/ERP Upgrades	\$0
Desktop Maintenance	\$9,794
District Wide Shared Network Storage	\$48,968
Network Infrastructure (Wired & Wireless)	\$71,004
Laptop Replacement	\$48,968
TEC/Media/AV Replacement	\$116,625
Total Budget for FY2011-2012	\$1,441,777

The current equipment replacement budget does not reflect or account for the replacement of equipment that was purchased and deployed as part of new construction, remodeling or site improvements. This equipment was purchased outside of the Total Cost of Ownership process and was not added to the district's technology inventory list and plant. Consequently funds have not been budgeted to upgrade and replace this equipment as they age and become nonfunctional. At this time it is the individual department's responsibility to fund and replace that equipment.

Through the IPR process, AIS has requested additional funds to properly augment the equipment replacement budget to include such unfunded areas. Refer to appendix C for detailed information.

Online Education

Online education is increasingly integral to the fulfillment of MiraCosta's institutional goals. For MiraCosta in 2011, online education means (a) a dramatic increase in educational opportunities via distance education over the last several years, with over 6,000 MCC students taking online courses in Fall 2011, and (b) the pervasive use of online activities and resources even in fully in-person classes, with 79% of all MCC courses using a course management system (CMS) as of Fall 2011. CMSs such as Blackboard and Moodle are indispensable to faculty and students, and must be treated as enterprise-class systems in terms of usability, availability, reliability, security, and

accessibility. At the same time, faculty and students will continue to look to the college to respond to innovations in technology-enhanced education such as e-books and other publisher resources, open educational resources, digital video, rich synchronous communication tools, online collaboration tools, response systems, and social networking.

The *Online Education Plan for MiraCosta College* is the product of a collaborative process between many faculty, staff, and administrators. It addresses plans not only for continued growth of online course offerings, but also development of fully online degrees and certificates, and the student services required to support student success in the online environment. The plan advocates for the integration of online education into college planning, decision-making, and budgeting processes. The plan is available at:

https://portal.miracosta.edu/Departments/AIS/tech_plans/SitePages/Home.aspx

Enterprise Systems

MiraCosta has adopted the Oracle PeopleSoft ERP platform for Human Resources Administration, Student Records Administration, and Finance and Budget Administration. Additionally, the major systems that the college uses includes TracDat to track and assess student learning outcomes, as well as administrative unit objectives, EDDI as an enrollment management system, PERCY/Blackboard for online Program Review, Resource25/Schedule25 for facilities and event management, ImageSource's ILINX as the District wide imaging system, HelpStar for helpdesk and request tracking, SARS for student appointments, Blackboard and Moodle as the course management systems, and SharePoint for document management. Throughout the district, the Technology Services and Administrative Computing Groups support the development, maintenance, and enhancement of student and administrative programs and services. AIS's staff and management meet monthly with the ICECubes user group to discuss, prioritize and schedule system changes, upgrades and outages.

Disaster Backup and Recovery

AIS has deployed Legato, a commercially available software system, as the tool to backup all District production data residing at both Oceanside and San Elijo data centers. Differential backups are run nightly with weekly full backups. Tapes are stored for a minimum of 30 days. Encrypted Backup tapes rotate between the two data centers for safe storage. Data stored in the Oracle PeopleSoft system is nightly replicated from Oceanside to the San Elijo data center. Four other mission critical services are scheduled to be added to the data center replication system over the next year to enable quick recovery of the most critical systems of the district. In December 2010 a diesel motor generator replaced the older gas powered generator at Oceanside and construction is under way to install a similar generator at the San Elijo data center. Work is also currently underway to add a connection to the internet to the SEC data center to enable the SEC data center to serve as the district's back up data center in a disaster. The generator and internet connection projects are scheduled to be completed in the

first quarter of 2012 and will substantially improve the district's ability to quickly resume operations in the event of a disaster.

Data Security

AIS is entrusted to ensure that data are kept safe from corruption and that access to data is appropriately controlled and monitored, therefore ensuring privacy and protection of personal data. MiraCosta uses industry best practices, specifically the concept of defense in-depth, to provide multiple layers of protection to district systems and services.

The MiraCosta Community College District Enterprise Information Security Plan contains a collection of policy statements and a description of our approach at MiraCosta College (the District) for information security. For further details refer to https://portal.miracosta.edu/Departments/AIS/tech_plans/SitePages/Home.aspx. As delineated in the security plan, all users shall acknowledge that they have read, understand and will comply with the administrative procedure AP3720 (http://www.miracosta.edu/officeofthepresident/board/downloads/3720AP-ComputerandNetworkUse_000.pdf). The user agrees to abide by the standards set in the procedures for the duration of his/her employment and/or enrollment and that violations of the computer and network usage procedure may be subject to disciplinary action, including but not limited to, loss of information-resources privileges, disciplinary suspension, or termination from employment or expulsion, and/or civil or criminal legal action.

Library Systems

The MCC Library department uses a content management system called LibGuides by Springshare to manage its dynamic website. The website is accessible from traditional browsers as well as mobile devices. Another Springshare product, LibAnswers, provides a knowledgebase of library questions and answers. In addition, the library manages a 24/7 virtual research assistance service via the OCLC Questionpoint chat system which is accessible via the Web or SMS texting from mobile devices.

The Library department uses the SirsiDynix library management system to provide an online catalog of the college's collection of print, media and electronic research materials, to provide circulation management services, and to manage technical processing of print, media and electronic resources. The library also manages subscriptions to a large number of online research databases, which can be accessed 24-hours-a-day/7-days-a-week (24/7) by MCC students, staff and faculty from off-campus or on-campus via an OCLC EZproxy server for remote user authentication. (<http://library.miracosta.edu>)

Technology Training

Technology training is available to faculty and staff for most hardware and software maintained by the district. Training is provided in a variety of modes including

workshops, one-on-one training, drop-in labs, multimedia tutorials and self-help materials on the web. Training is available throughout the academic year with a concentration of offerings during flex week prior to the first day of each semester. Technical training opportunities are offered by various colleagues through POT, Academic Information Services, and third-party partnerships such as the @One Institute.

MiraCosta employs a full-time Faculty Technology Specialist within AIS dedicated to faculty training and instructional technologies. Other technology training duties are distributed throughout the AIS department based on staff areas of expertise. The Technology Innovation Center (TIC) includes PC and Macintosh computers, flatbed scanners, digital video editing facilities, the offices of the Faculty Technology Specialist and the Faculty Director for Online Education. Additionally the TIC includes a technology-enhanced classroom (TEC) with a data projector and other media equipment. At the San Elijo hub, the Teacher Learning Center (TLC) offers PC and Macintosh computers, a flatbed scanner, and training staff available by appointment.

The Program for Online Teaching (POT), founded in 2005, is an in-house program staffed by over a dozen volunteer faculty with experience teaching online. POT sessions are the heart of professional development offerings focused on pedagogy for online classes. POT offers mini-conferences during staff development weeks as well as the first Friday of the month, each featuring a large selection of workshops for faculty through MiraCosta College's Professional Development Program. Extensive resources and forums for online instructors are offered through POT (<http://mccpot.org/wp/>).

Technology Planning Process

In the past, responsibility has fallen primarily on the college planning groups to identify technology goals and objectives (GAO), identify the appropriate technology to implement these goals, and determine how the college community would interact with the implementation. These GAO were then articulated in the Technology Plan, which were addressed in a concrete manner, using a "laundry list" approach. The plan specified the goal, a timeframe, the body responsible for implementation, and how that goal supported other goals specified in the Educational Plan and Facilities Plan. The college community could then identify specific goals to support proposed technology initiatives. It is important to note that the focus of these previous plans was primarily to update, or bring current the existing technology infrastructure. This, in large part, is accomplished by addressing Technology Goal Number III.

This process has worked well, considering most of the technology needs of the past ten years generally impacted the college community in a global manner. PeopleSoft, wireless access, WebCMS, SURF, Blackboard, Email, technology enhanced classrooms, VOIP, and PCs for every employee that needs one, among others, are good examples. However, as the College plans for growth in both online and the next generation of students, it is apparent that technology, with its rapid change, is a rather difficult area to forecast. While it is relatively straightforward to plan an implementation of an existing technology, it is much more difficult to plan for a technology that is either

not yet mature, or is in a challenging area where technology has not progressed or is lacking. As technology planning moves from the "catch up" phase to an innovation phase, the nature of the planning also changes reflecting this approach.

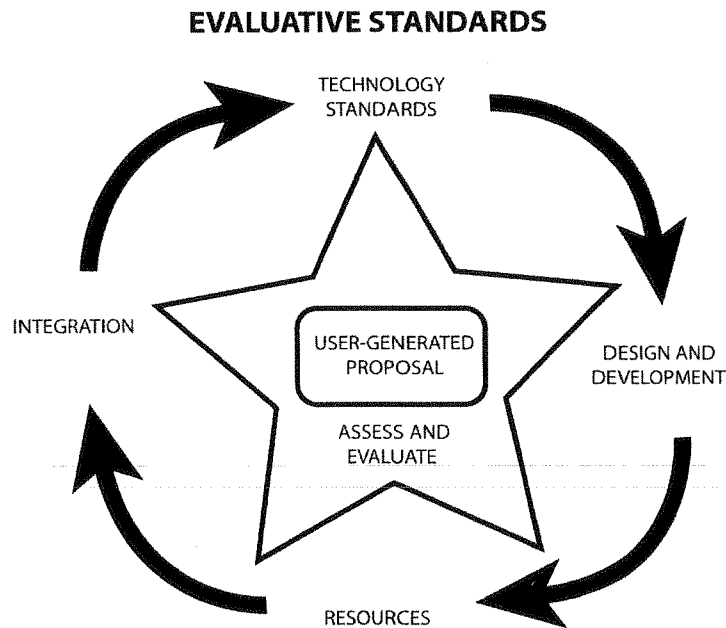
Technology planning for the future relies on outlining a strategy that is flexible, adapts to evolving conditions, and is scalable. Rather than having the college determine the GAO, a model that provides a framework that allows for a user-centric initiative-driven process derived from the CMP and the Strategic Plan is preferred.

One of the primary goals of this plan is to provide a framework by which a technology development plan can be articulated. Except for hardware and software infrastructure maintenance and upgrades managed by AIS, this Plan itself does not specifically identify goals and opportunities. Therefore, these proposals are generated by the users of technology, i.e. the members of the college community. Previous technology plans identified technology users as: Students, Faculty, Staff and Community. These groups are still valid distinctions, since each group does have unique needs.

Technology Guiding Principles

MiraCosta College supports innovation and creativity in its use of technology. While experimenting with new technologies, it is our purpose and goal that the minimum standards will be met. Through the consultation process, AIS will assist with researching and procuring new technologies but not the funding. Program Review is the process for securing funding.

These technology guidelines are generic and flexible, and furthermore they may not apply to all proposals. Applicability will depend on the nature of the request, depth, expanse, project size, scope and complexity. The intent of these guidelines is to help the proposer and adopter of new technology or technical initiatives to better articulate the request, bring to light possible areas that need to be addressed and to try to foresee intended and unintended consequences. These principles should properly guide the initial analysis, justification, long term planning, assessment and evaluation of any technology proposal.



In reviewing the illustration, this process is cyclic, in other words, the process can be entered, reviewed, or implemented at any stage of assessment. There are four **Evaluative Standards** areas that identify the college's ability to implement and support any technology:

- **Technology Standards:** *current industry standards, accessibility, security, and return on investment.*
- **Design and Development:** *innovation, growth, change, new materials and methods*
- **Resources:** *materials, applications, hardware, infrastructure, advice, and help.*
- **Integration:** *technological integration of applications such as Blackboard and PeopleSoft; integration of courses into college; and integration of teaching methods.*

Technology Standards

Objectives

There are many purposes and benefits to defining and maintaining technology standards including:

- Assuring interoperability between systems and devices used throughout the district;
- Ensuring that the most accessible (Section 508 compliant) technology systems and devices available are purchased to meet the "business" needs of a department or program.
- Providing appropriate and adequate support and training for technology systems;
- Acquiring technology systems and devices in the most cost effective manner;

- Guaranteeing manufacturer/vendor support for technology systems and devices for the reasonable lifespan of a product.
- Certifying that technology systems and devices meet all applicable security requirements.

The purpose of implementing and maintaining technology standards is to ensure compliance with the following:

- **Security** – The fundamental functions of security are authentication, authorization, administration, and audit. Authentication identifies or describes people or systems. Authorization sets limits, boundaries, and expectations of behavior. Administration is the process of managing (adding, removing, modifying) identities or privileges of a secure system or group of people. Audit evaluates the effectiveness of existing authentication, authorization, or administration processes.

First and foremost, security is the priority of the College. All other technology standards depend on security being met first. In order to comply with state and federal legislation and regulation as well as to protect the confidential and sensitive information of all of the college's stakeholders, AIS staff developed the Enterprise Information Security Plan. The initial plan was approved in 2005 and is reviewed and updated annually.

- **Accessibility** – Accessibility is a general term used to describe the degree to which a product, service, system or environment is usable. It can also be viewed as the "ability to access" the functionality, and possible benefit, of some system or entity. It is strongly related to the approach of universal design or inclusive design, which is about making things, at the onset, accessible to as many people as possible regardless of ability.

Examples include:

- Closed-captioning of instructional media (e.g. videos), which benefits people who are deaf and hard of hearing as well as those learning a new language or working in a noisy environment.
- Accessibility of online materials in learning management systems such as Blackboard or Moodle.
- Ensuring that software programs allow users to fully navigate using keyboard input (not requiring the use of a mouse).

Section 508 of the Rehabilitation Act of 1973, as amended, is a law requiring that electronic and information technology developed, procured, used, or maintained by all agencies and departments of the Federal Government be accessible both to Federal employees with disabilities and to members of the public with disabilities. For more detailed information on Section 508, please visit www.section508.gov and www.access-board.gov.

- **Compatibility** – To ensure that proposed technology will work with the existing hardware and software infrastructure, and at the same time meet current standards. One example would be older software applications that will not run with the current operating system.

- **Return on Investment** – To the greatest extent possible existing technology resources should be considered as solutions for new initiatives or projects before new technologies are explored. Often the technology currently in place at the College is underutilized. Developing new and innovative ways to use these existing systems increases the College's return on its initial investment and is a more responsible use of resources. Savings realized through this approach may also make resources available for those projects that do require unique technologies not already owned by the college.
- **Scalability** – Scalability is a desirable property of a system, network or process, which indicates its ability to either handle growing amounts of work, accommodate heavier or lighter loads, or to be readily enlarged or upgraded.
- **Sustainability** – In considering technological solutions the College must evaluate the ability to support and sustain a solution over time. How widely used is a solution and how stable is the company that provides it? Does a sufficient "ecosystem" of technical support personnel exist to debug or perform root cause analysis in pursuit of solving a problem with a product? Does the College have the appropriate number of technical support personnel required to operate and maintain the technology, or does the college have sufficient resources to add additional personnel if needed?

Examples of supportability include:

- maintenance contracts for software upgrades.
- off-the-shelf products which require unanticipated resources (e.g. digital signage).

Design and Development

This Technology Plan does not provide specific departmental goals and objectives; therefore it is highly likely, and highly encouraged, that innovative technology users, i.e. the members of the college community, will provide the initiative to find devices, software, processes, or other technologies that they would like to implement. The Design and Development phase of the Evaluative Standards exists to provide these opportunities to envision technology innovation as more than just proposed tasks and technological solutions, but as a process with multiple entry points and opportunities for experimentation.

Innovation can be defined as

- the act or process of inventing or introducing something new
- something newly invented or a new way of doing things

The objective of Design and Development is to provide a creative environment for a flexible process of evaluation, change and assessment that encourages innovation through greater support of experimentation and the swift implementation of successful technologies.

Articulated Outcomes & Assessments

One of the primary goals of this Technology Plan is to provide a framework by which a technology development plan can be articulated. Therefore it is highly recommended that when a new technology proposal is initiated, that a systematic process be used in order to clearly communicate the request, and its outcome and assessment. A possible road map could be as follows:

- Write the proposal (why is this technology needed)
- Provide supporting data that describes the technology environment
- Provide a list of outcomes, and assessments
- Provide a timeline for testing and evaluation and proposed implementation
- Suggest a budget for the purchase of trial technologies
- Present the proposal through the Department's Program Review Process and timeline

Consultation

Once a proposal has been accepted and is in test mode, consultation with faculty, staff and students in determining needs and desires is paramount, but a majority of the needs for standard services would be only one element in the process. AIS is available to assist in many ways.

Experimentation

Support for experimentation should include how ongoing funding, if needed, is being proposed. Are funds coming from the department, the dean, the vice president, a grant, etc.? If a funding source is not identified, then the request will have to go through Program Review. Additionally, the Teaching/Technology Innovation Center (TIC) located at the Oceanside Hub is available as a test bed to install software, try new processes, or any other feasible options.

Documentation

Documentation is critical for implementation. The parties involved in the trial of new technologies should provide the necessary documentation to show how the test was conducted and assessed, level of compliance with Section 508, outcomes achieved, and planned implementation. If necessary, each individual or group experimenting with new technologies should present a brief progress report at specified points along the testing timeline to the appropriate committee. The final report should contain recommendations for adoption, or analysis as to why adoption would be inappropriate.

Recommendation

In certain cases, an "advisory board" composed of small groups of faculty and/or staff who are intensive and extensive users of technology can be formed to help determine whether the proposed technology supports the main goals of the college. In considering

ongoing development or implementation, it is important to evaluate the potential usefulness of new technologies rather than its use during the trial period.

Resources

In order for technological initiatives to be successful and sustainable, the appropriate level of human, capital, and fiscal resources must be allocated and maintained. Not all new technology projects require new resources. Depending on the project, existing resources may be expanded or repurposed to meet new needs.

Purpose & Philosophy

For more than a decade the College utilized a “total cost of ownership” (TCO) approach to planning and funding technological initiatives. This approach accounted for the fact that the cost of acquiring any new technology is not simply the cost of the hardware or software. Technology is almost always useless if the appropriate human resources are not identified to operate, manage, and benefit from a technology acquisition. If a technology project is successful and effectively integrated into the infrastructure and business processes of the College it will inevitably need to be replaced in some manner in the near future. Finally, there is almost always an ongoing cost for maintenance, repair, upgrade, and training for any technological initiative. All of these costs need to be considered when planning for the development and deployment of new technologies.

Support

In keeping with the TCO approach to technology planning, consideration must also be given to any potential secondary or tertiary effects of a technological initiative. What additional support will be required to assure the effectiveness of the solution chosen for a given project? Will it require special maintenance from the Facilities Department? Will the project have unique insurance or risk management requirements? How will this project affect the College's information security plan? These and many other considerations have incremental costs that need to be at least acknowledged if not directly included in the planning of a project.

Integration

It is imperative to continue to provide and further develop a campus environment that promotes technology and business process integration.

Purpose & Philosophy

The concept of integration needs to become a forethought of technology planning. Previously, individual project specifications and objectives were the primary consideration in the development of a solution – technological or otherwise. Integration was considered toward the end of a project as it was often complex and expensive.

In this day and age, integration has been greatly simplified and the cost significantly reduced. Furthermore, failure to develop an integrated solution to any need, challenge, or problem often results in higher costs. Subsequently, the integration points - physical, technological, business process related – must be considered at the beginning of the design phase of a solution and should be as significant as any other component specification.

The purpose is to continue to move beyond just typical technological integration. It is critical to identify solutions which will allow MiraCosta College to function at a higher level with reduced cost.

Objective(s)

The foremost objective of integration is to identify the areas of MiraCosta College with commonality in their business processes. Solutions will be implemented which provide broad functional application.

Consultation

Consultation with faculty and staff across departments allows for a clear understanding of technological needs, allowing for the best solutions to be identified, and thus defined. Furthermore, input from students will enable MiraCosta College to continue to integrate technological solutions geared toward the path of student success. Often there will be a diverse set of preferences and priorities among stakeholder groups. To continue to successfully integrate solutions that best serve these diverse needs, it will be important to regularly assess the individual needs of each constituency.

Technology

Gone is the day when solutions could be effective in a “stand-alone” mode with no connectivity requirements. Subsequently, the solutions we choose to deploy must be designed with the network in mind. Many applications (e.g. Goggle apps, del.icio.us, Flickr, YouTube, Facebook) reside outside of the District’s datacenter but they require network support. The uses of such applications are encouraged, and they are integral to classroom pedagogy. AIS will support network requirements; however, application support may have to reside with the end user because central IT may not have the expertise and capacity to support such a large and diverse number of applications.

Regardless of cost, size, function, or mobility, technology hardware must be able to live on the network and integrate with other systems. For example, video/data projectors currently in use at the College are connected to the network for a variety of reasons. If they require service they can notify the help desk system so that a technician can be dispatched to repair the unit before instruction is disrupted by a failure.

More than any point in the past the browser is fulfilling the role of operating system more than application. The browser is now the fundamental component of most technological solutions. It provides nearly ubiquitous remote access to the widest

variety of applications ever produced. However, remote access and comprehensive integration may be objectives at odds with each other due to security, performance, or other concerns. In developing solutions the balance between integration and access should be assessed in early design discussions.

The College must also be the champion of accessibility to all users. Not only is it the law, but it is an ethical and moral imperative that all users have appropriate access to the resources provided by the College's technology. The success of stakeholders who use assistive and adaptive technology must be considered a top priority in the development and integration of technological solutions.

Functionality

As the needs of our stakeholders change, so must the functionality of our information systems and our business units. Our stakeholders are exposed to an ever-expanding variety of information systems in their daily life. Their expectation of the College is that our systems and services will keep pace with the other business and information systems they regularly experience. This will require not only continuous maintenance and upgrade of our systems and services, but a regular review of our integration opportunities.

Security

Like it or not, all enterprises face an enormous and growing responsibility to safeguard the information of those they serve. As much as our opportunities for integration may provide us with cost-effective, customer-focused services to support our stakeholders, they may also increase the risk involved in protecting the sensitive and confidential information contained in our systems. Security cannot just be implemented once, but must be continuously maintained, upgraded, and reviewed especially in regard to integration.

Conclusion

The MiraCosta College Technology Plan's intent is to provide a framework with two main focuses:

1. Maintain the integrity and capacity of the core infrastructure.
2. Provide the means and flexibility to introduce and use technology by fostering innovation and creativity at the edges.

For the next three years, this document will assist in the planning and shaping of the information technology efforts to an end that is both beneficial and functional for the District.

For many years MiraCosta has prided itself on its effective utilization of technology in support of teaching and learning. Through annual evaluation and monitoring of this plan,

the College will be able to assess and ensure that the Technology Plan continues its support and alignment with the Comprehensive Master Plan.

In support of this Plan, the District should continue to make funding for the purchase and replacement of technology a priority. The District acknowledges that computer technology has a limited life cycle and must be upgraded regularly to continue to function in a cost effective manner.

It is also important to remember that this Plan should be viewed as a living document, for which annual reviews are imperative to successfully meet the goals of this Plan and the technological health of the District.

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Appendix A

Information Technology Action Plan 2011-2012

Alignment of Information Technology Objectives in Support of Institutional Goals and Objectives

Institutional Goal	Institutional Objective	Technology Objective
Institutional Goal I	MiraCosta Community College District will become a vanguard educational institution committed to innovation and researched best practices, broad access to higher education, and environmental sustainability.	
	Institutional Objective I.2	Develop and implement environmentally sustainable policies, practices, and systems.
Institutional Goal II	MiraCosta Community College District will become the institution where each student has a high probability of achieving academic success.	Technology Objective I.1
		Connect environmental and monitoring systems to the MCC Network.
Institutional Goal III	Institutional Objective II.1	Increase successful course completion and student retention in comparison to fall 2010 rates
	Technology Objective I.2	Strengthen collaboration with Student Services and Instructional Services.
Institutional Goal IV	MiraCosta Community College District will institutionalize effective planning processes through the systematic use of data to make decisions.	
	Institutional Objective III.2	Design, launch, and assess a data warehouse to ensure a single consistent source of information for reports and inquires
Institutional Goal IV	MiraCosta Community College District will demonstrate high standards of stewardship and fiscal prudence.	Technology Objective I.3
		Identify existing data files and elements with potential data warehouse significance.
Institutional Objective IV.1	Institute budgeting practices that will culminate in a balanced budget by FY 2012-2013	
		Technology Objective I.4
		Reduce hardware and software maintenance costs.

Information Technology Goal I. Align information technology investment to support, facilitate and implement the institutional strategic goals and objectives as delineated in the College's Comprehensive Master Plan.

Information Technology Objectives	Action Plan	Responsible Party	Target Date	Estimated Budget	Progress
I.1 Connect environmental and monitoring systems to the MCC Network.	I.1.1 Inventory all environmental systems that need connectivity. I.1.2 Identify high energy consumers for replacement, consolidation or elimination.	Technology Services Coordinator, Facilities Director	April 2012	\$0	
I.2 Strengthen collaboration with Student Services and Instructional Services.	I.2.1 Operationalize the Online Education Plan I.2.2 Develop phased implementation plan	Online Education Faculty Director	Summer 2012	TBD	
I.3 Identify existing data files and elements with potential data warehouse significance.	I.3.1 Inventory all Enterprise systems I.3.2 Build a MCC Data Dictionary	Technology Services Coordinator	Summer 2012	\$0	
I.4 Reduce hardware and software maintenance costs.	I.4.1 Review hardware and system software utilization. I.4.2 Negotiate with users to discontinue underutilized systems I.4.3 Seek alternative more cost effective solutions	Dean of AIS, Technical Services & Instructional Technology Coordinators	May 2012	\$0	

Information Technology Goal II. Foster teaching and learning with technology.

Information Technology Objectives	Action Plan	Responsible Party	Target Date	Estimated Budget	Progress
II.1 Streamline and enhance access to online technology resources	II.1.1 Evaluate the feasibility of Student Portal. II.1.2 Evaluate student helpdesk tracking software.	Online Education Faculty Director, Technology Services Coordinator	June 2012	\$0	
II.2 Develop a rich set of just-in-time short videos and tutorials	II.2.1 Evaluate the feasibility of a video streaming repository II.2.2 Design an intuitive and simple to use website to access self-training materials.	Faculty Director Online Education, Instructional Technology Coordinator Technology Services Coordinator	May 2012	\$0	
II.3 Develop and launch online library accounts to enable library users to place holds on library materials or renew them online.	II.3.1 Assess feasibility of using SURF ID & password for login II.3.2 Install MyAccount module to SIRSI (Library Management System) II.3.3 Create instructional materials and provide training for users II.4.1 Review best practices at public and academic libraries II.4.2 Evaluate capabilities of current LMS to support ebook circulation II.4.3 Assess ebook vendors and current ebook formats (epub, kindle, pdf)	Library Dept. Chair, Library Operations Coordinator	March 2012	\$0	
II.4 Develop a plan for loaning downloadable ebooks to library users		Library Dept. Chair, Library Operations Coordinator, Technical Services Librarian	June 2012	\$0	

Information Technology Goal III. Plan, acquire, maintain, and upgrade or replace technology infrastructure and equipment to meet institutional needs.

Information Technology Objectives	Action Plan	Responsible Party	Target Date	Estimated Budget	Progress
III.1 Upgrade Desktop Equipment	III.1.1 Replace student computers in labs. III.1.2 Replace faculty/staff computers. III.1.3 Replace laptop computers.	Instructional Services Coordinator		\$422,347	
III.2 Network Infrastructure Upgrade & Support	III.2.1 Replace Network Storage. III.2.2 Replace Network hubs & switches. III.2.3 Upgrade/applied software Maintenance to Server Operating Systems.	Technology Services Coordinator		\$537,505	
III.3 Application Software Upgrade & Support	III.3.1 Upgrade software maintenance to PeopleSoft ERP. III.3.2 Upgrade to PeopleSoft Financials 9.1 III.3.3 Upgrade & maintain all Enterprise Computer Applications software to supported releases. III.3.4 Upgrade Desktop Software	Technology Services Coordinator Instructional Services Coordinator		Yearly on Going Maintenance Costs	
III.4 Media Services Upgrade & Support	III.4.1 Update instruction technology classroom standards III.4.2 Replace aging AV Equipment.	Faculty Director Online Education, Instructional Technology Coordinator		\$116,625	
III.5 Innovation Initiatives	III.5.1 Deploy & Evaluate a Single-Sign-On pilot. III.5.2 Deploy & Evaluate Virtual Computer Lab Pilot. III.5.3 Deploy & Evaluate Employee Virtual Desk Computing pilot	Technology Services Coordinator		\$0	
III.6 Technology Planning	III.6.1 Review & Update Technology Plans to address Institution needs.	Dean of AIS	July 2012	\$0	

Appendix B

Equipment Inventory as of Fall 2011:

	Quantity	Replacement Cycle
Faculty & Staff Computers	836	4 years
Classroom & Lab Computers	1,829	4 years
Networked Printers	129	5 years
Stand-alone Printers	150	
Servers		4 years
Physical	34	
Virtual (VMWare)	196	
Network Storage	55 TB	5 years
Network Infrastructure		5-6 years
Routers	8	
Network switches	101	
Firewalls	8	
Wireless Access Points	110	
Telephones	1,050	
Emergency Broadcast Outdoor Speakers	88	
Security Infrastructure (Firewalls, SPAM Blockers)	8	3-5 years
Classroom Media Equipment (Projectors)	156	4-5 years
Fiber & Telephone/Data Wiring Plant		Maintenance as needed. 25 years
Data Centers UPS infrastructure, redundant HVAC & Diesel Motor Generators	(2) OCN & SAC	10 years

Appendix C

Equipment not currently in the replacement cycle:

Area	Equipment	Installed	Replacement	Cost
Biotechnology - B4000	20 Laptops	FY2006-07	FY2010-11	\$26,000
	2 Technology Enhanced rooms			\$5,000
	Network Equipment			\$5,000
Horticulture - B7000	70 Desktop	FY2007-08	FY2011-12	\$68,250
	5 Technology Enhanced rooms			\$17,375
	Network Equipment			\$10,000
Theatre (box office) - B2000	2 Desktops	FY2007-08	FY2011-12	\$1,950
	1 Technology Enhanced Facility			\$3,475
	1 Long Throw Projector (booth):			\$7,000
Career Transfer Counseling - B3700	6 Desktops	FY2007-08	FY2011-12	\$5,850
	Network Equipment			\$5,000
SEC Student Center Expansion - B900	3 Technology Enhanced Facility	FY2008-09	FY2012-13	\$10,425
	Network Equipment			\$5,000
Creative Arts Replacement - B2200	12 iMacs	FY2008-09	FY2012-13	\$13,800
	16 Mac Pro			\$56,000
	Network Equipment			\$15,000
Creative Arts Expansion Art - B2300	24 Mac Pro+	FY2009-10	FY2013-14	\$144,000
	2 Technology			\$6,950

	Enhanced Facility			
	Network Equipment			\$6,950
Creative Arts Expansion Music Bldg - B2400	What was installed?	FY2009-10	FY2013-14	
	Network Equipment			\$5,000
SEC Laptop Lab	35 Laptops	FY2006-07	FY2010-11	\$45,500
CLC Laptop Lab	30 Laptops	FY2006-07	FY2010-11	\$39,000
Academic Senate Laptops (1202)	15 Laptops	FY2008-09	FY2012-13	\$19,500
SEC Chemistry Laptops	15 Laptops	FY2009-10	FY2013-14	\$19,500