

# **Report and Recommendations on Information Technology at Glendale Community College**

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## Background

The use of digital technology in education increases every year. No longer confined to the back office applications of business operations and locked in a climate controlled data center, the use of digital technology is permeating our lives at work, at home and at school. Our students are bringing cell phones, iPods, and PDAs to class. More and more colleges are delivering courses via the web, whether full distance learning or hybrid. Increasing percentages of the population have home access to the Internet via fast, high bandwidth connections. Many have wireless technology, too. It seems that everyone is connected.

The double paradox of technology, however, is that (1) it makes our lives simultaneously easier and more complex, and (2) it causes desire for even more technology while increasing our frustration with our inability to keep up its maintenance and support. Nowhere are the problems of this technology double paradox more evident than in community colleges, where more is asked with fewer resources than in any other type of educational institution. Expectations for technology and its support continue to exceed the ability of the limited resources available to any community college.

For the foreseeable future this is the state of technology for most community colleges throughout the country. The challenge for those responsible for technology is how to be astute about the needs of the college; intelligent about its priorities, and shrewd with the available resources in order to deliver quality service and support that satisfies the constituent users. In other words, be Superman!

Despite these challenges, technology in any educational institution needs to be recognized as a strategic resource, critical to the success of the institution, its faculty, its students, and its staff. Because of its strategic nature and its critical importance for the operation of the college, information technology must be led at the highest levels of the organization. The vision, the goals, the budget, and the operation of IT need to be overseen at the highest possible level. Many colleges now have designated a Chief Information Officer (CIO) or a Chief Technology Officer (CTO) who sits on the president's (CEO's) executive management team to ensure that technology gets the strategic leadership that is required in these times. Having a single leader at the top also ensures that operational efficiencies will occur.

Glendale Community College in Glendale, Arizona, an institution with an annual enrollment of over 40,000 students faces many of the same issues that its sibling colleges across the country face. Once seen as a leader in creative and effective technology use, many in the college believe that Glendale is now well behind the curve. The technology support staff are running hard to keep up with the demands of its users but it seems that they can't do enough. The technology managers, believing that they have insufficient staff, including a number of vacant positions that are frozen, are frustrated that they can't provide better service or create new and effective solutions. Few individuals in the college are satisfied, yet many want even more. The college is caught in the paradox of technology and needs a way out.

Serious problems apparently began to occur during the Fall of the 2004-05 academic year when unusually long times were required to log-in to an in-house developed product know as the Instructional Palette. (Developed in 1995 the Palette was designed to provide controlled access to a suite of approximately 20 software applications. By the 04-05 academic year the number of applications supported had grown to over 220.) The challenges caused by the difficulty with the Palette resulted in a general lack of confidence in the ability of the college to support its technology. As a result, in the fall of 2005 the college embarked on a thorough study of its technology environment. At the request of the faculty senate the college President, Phil Randolph, appointed a team to do a thorough study of technology in the college. Following a prescribed template from an article written by Linda Fleit, the Technology Assessment Taskforce (or TAT as it came to be known) performed a very comprehensive analysis of technology at GCC. Through a combination of surveys and interviews the TAT produced a 105-page report that reported on the state of technology in the college.

(Creating a committee with this kind of charge can be risky for an institution, sometimes resulting in a “witch hunt” mentality that is unhealthy and counter-productive. That does not appear to have been the case in this situation.)

In its report the TAT called attention to eight common themes that ran through their findings:

1. Adequate staffing for technology support was universally identified as a problem
2. The technology governance structure needs a thorough review
3. The college planning processes were deemed to be inadequate
4. There is a need for comprehensive training of tech staff, as well as “every employee who operates a workstation”
5. A software management plan should be developed and implemented
6. Back up equipment needs supplementing
7. Communication is critical
8. The student perspective is critical and should be actively incorporated into planning

They also concluded that a regular assessment, perhaps every three years, should be done of the college’s technology environment.

The members of the TAT are to be commended for their dedication to their assigned task, the apparent openness and impartiality of their operation, and the thoroughness of their report.

After a couple of unsuccessful attempts to locate a new president, the college was successful in selecting Dr. Velvie Green to lead the college as its new president during the summer of 2006. She decided that another assessment by an outside consultant was necessary to guide her and the college in moving forward with technology. This report is a result of that consultant’s study.

## **Summary of Consultant Activities**

- Reviewed 105 page TAT report
- Completed two days of on-site visits, met with approximately 50 individuals on November 17, and approximately 70 people (including the open “Town Hall”) on December 1 (there was some overlap with individuals attending multiple sessions)
- Corresponded with over 20 different people via email, resulting in receipt of over 70+ email messages, all of which received a response
- Received 35 electronic or hardcopy documents for review, including the TAT report, plus one CD of training materials
- Had several phone conversations with Maricopa District CIO, the Acting VP of Operations, and the OIT director, to better learn about technology and operations at the college
- Contacted other vendors/consultants on college’s behalf to explore interest in other follow-up activities with the college
- Reviewed hundreds of pages of reports, email messages, and notes from meetings
- Worked in excess of 60 hours under the contract
- Consolidated all into this report

## Findings

The list of findings below grew out of two days spent on campus and the many communications (primarily via email) and other conversations held with college faculty, managers, and staff. They are presented below grouped into five general categories: (1) college culture and attitudes, (2) leadership, (3) organization, (4) planning, and (5) operations. These categories were developed through clustering of all the findings in an attempt to find some commonalities. And, as it turns out, these categories also correspond to important concepts that need to be working in unison for any technology effort to be successful.

The **culture** of a college needs to be supportive and in synchrony with the efforts of the technology support organization. Likewise, to be successful the technology organization must be operating in support of the college culture. If the college culture and the tech support group are not “in sync” then trouble will occur.

Second, there needs to be strong **leadership** in the college for technology to be seen as successful. The leadership needs to be exerted and visible in two areas: the executive leadership of the college (the president and other executive managers) and the leadership of the technology organization. Sometimes the expectation is that the technology managers have the sole responsibility for technology leadership. Although strong technology managers are critical, the college leadership team must be supportive of the goals, direction, and daily activities of the technology organizations for any technology effort to be successful. And it should be a reciprocal arrangement – the technology organization must be supportive of the college leadership and the college culture to be seen as successful.

The technology support **organization** needs to be structured in a way that matches the goals and the operation of the college, yet meet the needs of daily operations in an effective, efficient, and supportive manner. Of course, the organization should be staffed with individuals who have a strong customer service ethos, have the skill sets and technology understanding to provide excellent support, and are flexible to the dynamically changing environment of technology.

**Planning** is critical to leading, organizing, and operating effective technology support in a college. Scheduling day-to-day activities is but one instance of planning. There also needs to be effective project planning for implementation of major technology projects, as well as strategic planning to set the college-wide goals for technology on a longer-term basis (annual or longer). The strategic plan should be informed and substantive, based on the vision and culture of the college, the available resources, and the goals of the college.

The day-to-day **operations** of the technology organization should function in an effective and efficient manner that meets the needs of the college and its technology users. The daily operations should be guided by the planning efforts in the college and a strong customer service orientation and the planning efforts of the college and technology organization.

Using this five-level organization the findings are as follows:

### ***College culture and attitudes***

- There is a general belief that the college was once a leader in technology but is now lagging behind. And there seems to be very little belief that there is a “way out” of the current situation.
- There seems to be relatively widespread discontent among the user base with technology service and support in the college
- There is a general lack of confidence in the ability of the technology support groups under their current management to consistently deliver reliable service.
- One aspect of the IT culture at GCC seems to be that of preferring to build or develop their own hardware and software (e.g., PCs, Wiki, the Palette, the college web presence) even though there are vendor tools that can be acquired which would supply the needed functionality more quickly, likely be less expensive, and could lead to greater efficiencies
  - The most visible and controversial form of this is the effort to build PCs, however, there is also considerable effort to create in-house software when commercial applications would be more efficient and probably less expensive. For example, the college web presence primarily consists of individual web pages and there is a project in the Innovation Center to build a Wiki environment.
  - Perhaps it is caused by sense that there is not enough funds to acquire such applications, so the belief is that it is “cheaper” to develop their own
- There appears to be an assumption among users that no one person is in charge of technology, e.g. there is no place where “the buck stops”
  - Without a single point of responsibility for all of technology the IT work tends to flow to those who can do it and who are willing to do it, without plan or direction. As a result, users make requests and assume that it is in the queue to get done, although they may not know by whom or when it will be completed. This leads to user frustration with the IT organization.
- There is a general tension between users and the IT organization. This tension is reflected in the following dynamics:
  - The college IT groups want to provide quality service and support but feel constrained by lack of resources (specifically more staff and insufficient training) and are frustrated that they are unable to meet user needs
  - Users don’t believe that IT organization can do the job, even though they paradoxically recognize the competency of the staff and demand more
- There is a belief by some that IT is hurting enrollment, although this was somewhat refuted by the District CIO who reported that there seems to be no correlation between IT effectiveness and enrollment at other colleges
- The general perception is that the IT governance process (as manifested by the CTC) is ineffective and powerless – that it only makes recommendations, not decisions

- There were some opinions expressed that it didn't matter what the CTC recommended for priorities because someone would do an "end run" to get what they wanted done
- Currently the CTC is a voluntary committee, with only those participating who choose to attend or have an issue that needs attention
- Generally only faculty are on the committee; the business operations of the college seem to believe that their issues wouldn't get full attention so they tend not to attend
- Some users acknowledged that they may be asking for too much support, but most appear to be unaware of the total cumulative demand being made of the IT organizations, and that it is outstripping the ability of the IT organization to respond effectively

### **Leadership**

- There is a general sense in the college that IT decisions are being made by someone else (other than the technology managers) and/or that current processes are being circumvented
- Many users perceive that there is feuding among the IT managers, or that at the very least they don't "see eye-to-eye" on a number of issues
- There is a perception by users that there is a duplication of effort by various technology organizations; however, there are some signs that this perception may be changing in the last few months
- The lack of satisfactory responsiveness by the tech support organizations has led non-tech staff to try going through "backdoors" to get what they want instead of using the designated channels
  - Which just leads to further delays for others
  - Although not sanctioned to do so, some tech staff apparently accommodate these methods
- The business functions of the college (e.g. non-academic services) believe that technology priorities are geared only for faculty, and that their business and operational needs are not being met as a result
- It's not always clear to users who is responsible for what technology

### **Organization**

- While the organizational model of three tech groups may have worked in the past, the belief that in order to meet learning needs there should to be faculty managers has resulted in divisiveness, resentment, and duplication of effort with little overall leadership and guidance
- The Innovation Center is no longer as innovative as it once was. Although it has good ideas and is well intentioned, the innovations apparently cannot be operationalized without the staff of the Innovation Center doing it themselves, detracting from their role of innovators.

### **Planning**

- There is no strategic technology plan. There is a web page containing what is labeled as a technology plan, written in April, 2004. But it is more a list of what

services and functions were being provided at that time. A strategic plan should include goals and objectives that correspond with the mission of the college, with recommended strategies for reaching those goals and objectives. None of this was found in the 2004 plan.

- There is no written disaster plan, although the consultant was told “one is being created.” This is a standard response by any technology organization, whether one is being developed or not, because a good disaster recovery plan should be in a constant state of revision as new technology is introduced. Statements were made that were intended to be reassuring, such as “everyone knows what to do.”

## **Operations**

- The current Student Information system (critical for the ongoing operation of the college because it is the application for storing and retrieving student data) is currently running on a 20+ year old hardware system
  - This is a very high risk operation. If the VAX were to fail there may be no more access to the SI system, thus preventing registration, grade storage, and access to student records
  - Fortunately, the district has a plan to replace the VAX systems at all colleges in about six weeks, so the risk window is short
- The Student Information system (SIS), running software known as IA (for Information Associates) will soon be migrated off of its old hardware (VAX) system to new servers that will emulate the VAX system
  - it is projected that the new systems will be faster and more reliable than the current systems;
  - The new hardware will be only temporary until a full migration to the new SIS, running Oracle PeopleSoft can be fully implemented across the district; this is projected for fall term, 2007
- There is a belief among IT staff and management (supported by IT staff analysis) that building their own desktop PCs saves the college money. But there is also a failure to recognize that:
  - Users believe that it doesn't save money and they believe building PCs takes away essential services that are needed
  - The analysis was slightly flawed in that it didn't include calculations for the overtime staff worked and the costs of staff benefits; it is possible that with these calculations included there would still be a dollar savings in building vs. purchasing computers, although it may lessen the savings to a level that would cause a re-evaluation of the program.
  - Although there may be a dollar savings in building the college's own PCs, there is an opportunity cost incurred by building your own PCs – it takes staff resources away from providing other technical support – and that is hurting the reputation of the IT organization
- The college web site seriously needs improvement. It has an inconsistent user interface and poor organization; it is the public facing image for the college and is not helpful to users or to the college's image
- There is a general perception that IT staff are competent and well-meaning, but that there are insufficient staff to do all that is asked of them

- Although the technology staff stated that there are standards for hardware, there appear to be few standards for software (least many users don't appear to know about any software standards), which apparently has led to a proliferation of software support issues
- There were numerous concerns expressed about the ongoing training of the technology staff (these concerns came from the staff themselves, but it was also a key recommendation in the TAT report)
  - Although there were indications that there was some funding for such training, it seemed inadequate for the need
  - There were comments made also about staff being too busy to go to training

## Recommendations

### ***Cultural***

- Establish a college-wide understanding that communication is a two-way street
  - IT needs to communicate more; as well as listen
  - Users need to tell IT what their needs are, but be open to IT suggestions (not just say we need this specific application)
- The current culture of blame and distrust must be changed; won't be easy; will need something dramatic to send a clear message **that things will be changing!**
  - How that message is delivered and what the specific message will be is up to the college, but it must be dramatic and emphatic
- The IT culture of "build-your-own" hardware and software needs to be reviewed in detail and an evaluation should be conducted to determine if it is the right path for the college
  - The most visible form of this is the effort to build PCs, however, this recommendation also applies to software. For example, the college web presence primarily consists of individually created web pages, when a content management system would be very effective at standardizing and improving "look and feel," as well as distributing responsibility for content to those who are closest to it.
  - Acquiring PCs through vendor channels could free tech staff to provide more end-user support
  - Acquiring commercial software applications would free up IT staff from development and ongoing maintenance of those applications so that services can be directed elsewhere and help the college run more efficiently.
- Senior managers should provide visible and effective support to a new technology advisory committee (see recommendation below under Leadership) by empowering it as the single point for recommending technology policies for the college

### ***Leadership***

- Determine appropriate budget levels for technology
  - Governance group may make recommendations about budget, but ultimate responsibility lies with the senior management team
- Create and empower a technology governance committee to be an effective method for receiving input and recommending policy
  - The committee should consist of a membership representative of all technology users in the college (faculty, managers, IT staff, business process groups, etc.)
  - Membership should be elected or appointed with the expectation that they are representing more than their constituency, they are representing the college's interests
  - Although teaching and learning may be a primary focus, the business operations must be represented on the committee

- Primary responsibilities would be to establish policies and recommendations regarding funding, service levels, hardware and software standards, and the development of a strategic plan for technology
- It needs to be understood that such a governance group is only a recommending body. It is up to the managers to decide whether, within the constraints of the institutional resources, what can be implemented and on what scale, taking into consideration the availability of such resources as staff, budget, time, scope, technology, etc. This will put the responsibility for decision-making and implementation on the managers not on the governance group.
- Over time the tech managers and tech staff should work with the newly created governance group and key users to develop Service Level Agreements (SLAs) which will elucidate the services that the tech support organization will provide (including the conditions under which service will be provided)
  - This should be an agreement, not a statement by the IT group of what it can do – so a “give and take, back and forth” mentality is essential to the effective establishment of the SLAs
- By a method created by the governance committee, establish and maintain clear standards for hardware and software that will be supported by the college technology organization; communicate this information widely and frequently to the user community; and update periodically (usually no often than annually) as needed
  - Reducing the number of software applications supported with help streamline the support issues and help the tech organization become more efficient
- Using principles of governance and participation, develop a strategic technology plan for the college

## **Organization**

- Begin an analysis of the current technology organization, including the skill sets of their current staff, develop new job descriptions, and propose a new organizational structure for the technology organization
- Create a single IT organization reporting to single manager (CTO/CIO) who reports directly to the president (at the VP-level, if possible) so that service and support are seen as seamless
  - Because technology is a strategic resource it needs attention and oversight at the highest level
  - Recruit widely for the CIO/CTO position but also allow and encourage internal applications
  - A reorganization of IT staff will also clarify who is in charge, where the buck stops, and eliminate confusion about roles and responsibilities
  - Review all IT positions, job descriptions; modify as appropriate and create new organization with new org chart and new reporting responsibilities
  - Identify/hire IT managers to lead IT departments who have previous professional IT management experience and who understand enterprise-

wide needs and operations; focus would be on a service-oriented philosophy with an understanding and appreciation of academic needs, the college mission and the role of information technology in supporting teaching, learning and student success

- Develop a culture of full and open communication between and among the new IT organization and its user community

## **Planning**

- Through a widespread involvement of key members of the college population, including the newly formed technology advisory committee, the college should move to develop and publish a strategic plan for technology
  - The plan should match the mission and role of the college to specific action steps that should be done by the newly created technology organization
  - The plan should lay out the strategies for improving and re-creating the college technology services with specific goals and objectives clearly stated
  - The plan should provide a method for evaluating and assessing progress toward its goals and objectives
- The college IT organizations should work to develop a disaster recovery plan as soon as is reasonably possible
  - The plan should be in a form that can be shared with key college and district staff, yet is easily modified and updated as necessary
  - Once developed there should be simulated exercises to ensure that all affected IT staff know what to do under varying conditions

## **Operations**

- Standardize on key enterprise-wide applications (Course Management System for online classes, Content Management System for web sites);
  - do away with duplicative systems, especially those that are little used, by migrating users to new systems
- Redesign college web pages using a content management system
  - involve/empower the college marketing/PR department to be responsible for design;
  - select and implement a content management system (CMS) that would provide a consistent design and interface, delegated content responsibility, ease of use, content control, and efficiencies in updating content (which in turn will result in more current information)
  - train departments within the college to maintain their own content through the CMS
- Provide sufficient training for technology staff and users to maintain their skill levels with the changes in current technology
  - Tech staff cannot provide good support if they are not skilled in the technology they are asked to maintain
  - Users cannot keep up with current technology if they don't know how to use it

- Technology managers and supervisors should be supported in attending periodic management training sessions (such as those offered by EDUCAUSE or other entities)

## Conclusion

There is a general dissatisfaction with the state of technology at GCC. It is clear that most everyone recognizes that the challenges are very great. The list of all the problems/challenges is long (see the list of findings on pages 5 - 9 of this report). And many in the college have a list of reasons for what caused the situation to develop – if all the reasons that were stated to me were put in a list, that list could be as long as, or longer than, the list of problems.

However, finding reasons for the current state of affairs with technology is non-productive. Attempting to lay the responsibility on any one individual or even any group of people is irresponsible. The situation “is what it is.” It’s my belief that over time people in the college did what they needed to do to get things done. Sometimes their solution was effective. Sometimes it was not. Other times it worked for a while but other events drew it off course. It is clear that thought was given to a problem at the time it appeared, but there was apparently little thought given to the bigger picture – how a particular technology solution fit the needs of the college, how that solution would be supported, and how it would be evaluated for continued effectiveness. But now it is time for the college to stop looking at the past for reasons and look to the future for solutions.

However, to move on one needs to learn from what happened in the past. One analogy that may work is that of flowing water. When water runs into something blocking its way it flows around or over the obstacle. The same is true, in the aggregate, with human behavior, particularly as that behavior applies to technology. The desire for the perceived benefits of technology is often so great that it will flow around or over established procedures or perceived obstacles, without well thought out plans. This is particularly true in low resourced environments – like community colleges.

It is apparent that at some point (actually at numerous points) in the history of the college those who wanted a particular technology found a way to get it. As a result new procedures, new methods, and in some cases, new organizations, were developed. For a while this process worked. When the numbers of desktop computers grew large, a high tech center was built to accommodate the needs for housing them. The college was proud of what it created. A system was needed, however, to manage the software in the High Tech Center, so the Instructional Palette was developed. Again the college was rightfully proud of what it created. However the growth of software needs was so great that it outgrew the capabilities of the Palette. So another solution was sought and implemented. Now, however, the technology environment is much more complex than it was twenty years ago, ten years ago, and even five years ago.<sup>1</sup> The process of encountering problems and solving them with technology cannot continue without specific direction and an overall plan. To complete the metaphor, the college cannot afford to have the water flowing without overall direction anymore.

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<sup>1</sup> The College Technology Plan, written in April 2004, acknowledges this increasing complexity of technology in the college. (See <http://www.gc.maricopa.edu/ctc/index.cfm?id=676>)

A strategic technology plan should be developed to guide the college through the next several years of technology change. The plan must reflect and match the goals and mission of the college and lay out the path for improving and re-creating the technology services in the college. The strategic plan should call for the creation of a single technology organization, which will have responsibility for all technology in the college, with a single person in charge. It should also include a method for evaluating the progress of implementing the plan and while concurrently recognizing that as technology changes the goals and objectives of the plan may need to change.

Fortunately, the college seems to be at a good point for a transformation of its technology effort. There is a new president, who will have an opportunity to make changes from an unbiased point of view – changes that should be received as in the best interests of the college as a whole. As noted in the findings, there is also a strong sense of dissatisfaction with the current state of technology in the college. Although this dissatisfaction hasn't translated itself yet into a universal desire for a change, there is so much frustration that any change that is perceived as an improvement will likely be welcomed. The college needs to recognize that dissatisfaction as an opportunity for change and improvement.

Of course, for the change to be effective the “buy-in” must be widespread. Everyone must be prepared to change. It would not be fair to assume that the only groups needing to change are the technology support organizations (although the change there could be substantial). Initially, user expectations need to change, as those expectations obviously exceed the ability of the current tech groups to meet them. The proposed changes in this document cannot be completed simultaneously, or even quickly. They will take time, maybe as much as two years or more before widespread positive results are seen, so it will take a strong institutional will<sup>2</sup> and widespread dedication to reaching the goal.

Once a new organization is in place, there must be a continued commitment to follow the process and procedures established for tech support. The college cannot revert to the old habits that caused the current situation. Everyone must make a commitment to follow the new plans and guidelines. There will be no more “end-arounds” (or perceptions of such).

The issue of sufficient tech support staff must be addressed. The clear perception of many in the college is that there are not enough staff positions to support technology in the college. The sad truth is that every institution believes it is short-staffed for technology and that no institution will ever have enough tech staff simply because user expectations and new technology will continue to grow and evolve. Although it is unfair

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<sup>2</sup> The term “institutional will” was used several times with different groups during the site visits. The term is assumed to mean that everyone in the college is committed to creating positive change and that commitment extends to people being willing to sacrifice their individual needs for the greater good. In behavioral terms this means that individuals will:

- Work together to establish policy, procedures, and priorities related to technology
- Follow the processes and procedures established for requesting, receiving and delivering technical support
- Respect the processes established (No longer do “end-arounds” to get their project moved up ahead of another)

to IT staff everywhere, the reality is that institutions need to manage within the constraints of their budgets and priorities, recognizing that the staff shortage impacts their ability to do things they would like to do. As a result, it becomes even more important that the college (1) prioritize its goals through an effective and widely-supported technology strategic plan, and (2) do a thorough analysis of technology job positions and classifications and move toward a reorganization to improve efficiencies and accountability. (It is important to note that this analysis is not an evaluation of current staff, which is more properly done through the performance evaluation process.) The risk of such a process, of course, is that it may lead to higher costs to the institution for technology staff salary and benefits. However, the risk resulting from inaction is much greater.