Peralta: Technology Evaluation Review

Ferrilli

January 26, 2016

Dear Peralta Community College District community:

Thank you for choosing Ferrilli as a trusted partner in delivering the service of Technology Evaluation. The nine-member Ferrilli team spent a week visiting each campus and District Office engaging with faculty, staff, and students. We heard first-hand about the trials of an urban community college but more about the privilege and sense of duty that comes with being a part of the Peralta community.

Each and every interview was relevant and important: 170 interviews in total! Our team members absorbed the insightful information shared and the experiences are referenced throughout the Ferrilli report. Perhaps the most impressive interactions were those with students. Each had their own story and unselfishly shared their time and vision of the Peralta future.

Ferrilli is a technology services company, but we are the first to mention that technology alone is not enough. We strive to ensure your technology and business processes carried forward through technology are aligned to support strategic goals. We help higher education institutions transform technology into opportunity and we start by asking the right questions so we thoroughly understand the user's experience before making recommendations. This is the journey we've started with Peralta.

We feel honored to have spent time with you, the Peralta community, and look forward to an ongoing partnership. We believe, like you, in the success of Peralta!

Sincerely,

The Ferrilli team

Table of Contents:

About Ferrilli

Ferrilli, founded in 2002, is a Higher Education technology services company. We fill a variety of roles such as leadership, managed services, strategic consultation, technology support, and customized solutions. We are committed, we care, and we will do whatever it takes; that's why we are a different kind of technology services company.

We believe:

- Technology alone is not enough.
- Relationships are at the heart of what we do.
- Security is never secondary.
- Support never ends.
- It's one thing to stand by your work, another to guarantee it.
- Solutions are never one-size-fits-all.
- We're not hired by the project, we're engaged for a lifetime.
- Higher education will never stop evolving. Neither will we.

We are a technology services company that shares your goals of institutional and student success. Our team of higher education and technology experts take the time to understand your unique needs and provide objective guidance. Our objective guidance comes from not having a stake in a branded system or platform. Therefore, we are able to make recommendations to reduce costs while improving operational efficiencies. In other words, our goal is to help you maximize your adopted systems and platforms and transform your technology into accomplishments.

However, technology alone is not enough. In fact, relationships are at the heart of what we do. We use insight, creativity, and big picture thinking to extend technology to achieve institutional goals. Our holistic approach helps to ensure students and strategy are aligned and supporting the executive team in being mission-driven, always.

Simply put, your goals are our goals and your success is how we measure ours.

Objective and Scope

Objective: At the request of the Peralta Community College District (PCCD) Chancellor, Ferrilli conducted a comprehensive evaluation of information technology (IT) services. The full spectrum of IT services and footprint was examined at the District Office and all four campuses (Merritt College, Laney College, College of Alameda, Berkeley City College) of the Peralta Community College District. The following objectives were specified and are addressed in the findings (starting on page 8) with diagnostic interviews addressed in the Methodology section (page 6).

- Alignment of technology: Consideration of Peralta's vision, mission, and current strategies while investigating if the current systems are properly aligned to support the goals of the institution.
- Technology governance: Review will confirm if proper controls are in place and fully functional, granting complete visibility to the executive team.
- Technology staff and organizational structure: Full evaluation of the organizational structure to drive optimal design, ensuring the right blend of talent is in place to implement set strategies.
- Analyze campus technology: Review the current platforms and systems, including utilization, availability, and ease of use. Perform a standard security and Federal and California compliance review.
- Review academic technology: Take a deep dive into current utilization of academic technology and ease of use for all users to provide insight on possible upgraded tools for teaching and learning.
- Diagnostic interviews: This portion of the evaluation will include 45-minute interviews at each of the four campuses and District Office with students, faculty, and staff. We estimate approximately 80 interviews in total. Seeking the perspective of all users is critical as the user's perception contributes to the overall culture and morale of the Peralta system. The list of interviewees will be finalized with leadership to ensure proper representation.
- Technology funding and benchmarking: Analysis of spending budget on impactful programs which contribute to the achievement of goals at each Peralta campus.
- Technology future vision and roadmap: We will present a technology future vision and outline the next action steps that will aid in the achievement of the overall goals of the institution.

Methodology

Diagnostic interviews: This portion of the evaluation will include 45-minute interviews at each of the four campuses and District Office with students, faculty, and staff. We estimate approximately 80 interviews in total. Seeking the perspective of all users is critical as the user's perception contributes to the overall culture and morale of the Peralta system. The list of interviewees will be finalized with leadership to ensure proper representation.

The Ferrilli team's approach to assessing the current state of PCCD's information technology deployment is both qualitative and holistic in nature. Merely looking at numbers tells only a small portion of the story from a perspective which belongs to no individual member of the PCCD community. In order to get a true picture of the IT user's experience, it was necessary to examine relevant documentation, including previous IT assessments, and to interview the current faculty, administrators, staff, and students.

The professionally experienced Ferrilli team both examined the technical aspects of IT deployment and noted pain points related to configurations of deployed ERP modules, potential deployment of future ERP modules, leadership, governance, and communication.

Grounded theory supplied the analytic platform used by the Ferrilli team. This methodology enabled the team to seek out and conceptualize the latent shared patterns and structures of PCCD IT perception through the process of constant comparison. It is an inductive approach that generated substantive themes from the data. These themes manifest themselves as the findings and the recommendations. The process is recursive, which allows for the data gathering approach and analysis to evolve. Two distinct advantages of this approach are that stakeholders' voices are heard, and recommendations are grounded in the specifics of the circumstances including stakeholder perceptions of root causes and potential mitigations.

With an eye to improving efficiency and effectiveness throughout the PCCD, Ferrilli conducted an assessment of PCCD's current deployment of the PeopleSoft ERP; various academic technology, safety, and security systems; management and leadership; and the overall student information technology experience from three perspectives:

- Technical – architecture, infrastructure, interfaces, hardware, software.
- Functional – business processes, configurations, customizations.
- Cultural – expectations, resources, change management.

The Ferrilli functional team was composed of nine experienced consultants and account managers, collectively assigned to review the current state of information technology at the District Office and on each of the four campuses, noting current business processes, configurations, customizations, justifications, areas of IT success, and pain points.

Over 170 interviews were conducted by teams of two, allowing one Ferrilli team member to lead the session while the other team member concentrated on scribing and interjected when

necessary for clarification. This tandem method is effective at capturing first-hand experience and at the same time allows for the recording of multiple viewpoints (subject, interview driver, and scribe).

The Ferrilli team also spent time at each location observing campus layouts, building access and maintenance, classrooms, public spaces, security measures, and interactions. Observations are noted and contribute to the document and interview data providing a more comprehensive sense of PCCD culture and climate.

Ferrilli analyzed the data collected within the context of emergent pain points and areas for improvement distributed throughout the stated objectives of the study and within three distinct time periods:

- Issues requiring immediate attention.
- Issues needing mid-range attention.
- Issues obliging long-range attention.

The following section presents the findings organized by the stated objectives. Quotes are supplied when the stakeholder provided a particularly poignant observation.

Alignment of Technology

Consideration of Peralta's vision, mission, and current strategies while investigating if the current systems are properly aligned to support the goals of the institution.

The focus of District Information Technology does not appear to be in alignment with the individual colleges nor are they viewed as a united front; rather they are seen by the community as separate entities. We reviewed the mission, vision, and goals of the District and considered the self-reported educational goals for students: to transfer to a four-year institution, obtain an associate degree, career improvement, mastery of a technical skill, and more. After an extensive document review, it seems there is a considerable amount of financial and human capital spent on an outdated IT infrastructure and unnecessary, back office efficiency projects. The current IT Strategy Projects document (September 2015) lacks categories for technology projects to improve the student experience with the exception of categorical state-funded Student Support Services Program (SSSP). It appears technology infrastructure is currently driving technology initiatives, versus student success. With a goal of realigning IT with the college mission and strategic goals, we recommend all IT initiatives be driven from the lens of student success with infrastructure investment to follow.

The *Alignment of Technology* investigation started with first investigating the role which District Information Technology plays in the community at large. Based on information gleaned from interviews, the District lacks a clear, shared image not only inside the department itself but also within the community which it serves. The dearth of a shared image is the consequence of a less-than-optimal governance process which lacks clearly established roles and responsibilities. It seems known problems remain unresolved for an inordinate amount of time as time is spent on debating who should own a problem versus solving it. Additionally, technology services being offered at the District level are often replicated at the college level, and with an absence of service level agreements, it is nearly impossible for District IT to measure and improve upon current and future initiatives. With human and financial resources squandered, the misalignment of technology puts PCCD at a competitive disadvantage.

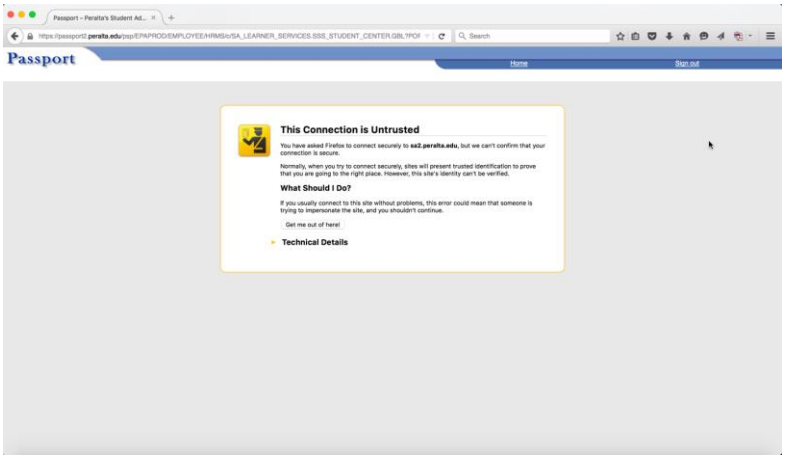
In an effort to serve the community, each campus "does their own thing" with little to no collaboration as a whole. Stakeholders feel a lack of shared process, alignment, and a commonly-agreed-upon vision to carry forward. Along with an absence of clearly stated IT standards, there is a lack of centralized IT purchasing standards making it difficult for the individual campuses to deliver efficient and effective technology service. The lack of centralized support provokes a stakeholder into becoming "good at workarounds." District IT is viewed as operating within a silo preventing it from looking or thinking outside the box. This perspective is dated and more aligned with the days of the mainframe.

The current IT structure is not ideal for supporting the District in attaining a position of growth. High-performing information technology departments are seen as collaborative, enabling an institution to be more effective, and serve as a foundation for student success. Evidence District

IT is not currently functioning at this level includes complaints from students concerning the enrollment process, current technology investments not being utilized by the colleges such as the W: drive, IT overriding student services experts' functional experience, and more.

It seems PCCD staff often do not feel supported in their effort to serve the students. A common example noted is one of software access being removed from staff without notice, impeding their ability to serve students and, in some cases, creating a lack of technology to complete their jobs. Specifically, the PeopleSoft Financial Aid system was implemented without the functionality to effectively process CA Dream Act Student Aid applications. In an effort to fulfill the need, staff created their own "workaround" solution for six to eight months to meet state requirements and service the student population until proper functionality was put into place.

Students expressed a strong desire for technology improvements. Current Passport options are considered poor as compared to the self-service options experienced at other institutions. Students shared their concern of no mobile access, ineffective navigation, and confusing messaging. Although there are clear next steps in the course catalog for what to do after a student completes the enrollment process, the To-Do section of Passport states there is nothing to be done. This causes unnecessary confusion. Additionally, certain browsers highlight a security flaw and warn~~s~~ students to leave the Passport website. Students who do make it through the enrollment process shared that on more than one occasion they thought they had successfully registered for courses only to learn later that they were not actually registered. Students blamed themselves for their failure to register and stated the workflow to register is cumbersome and confusing. With Peralta serving students of varied abilities, it is imperative to empower students and to offer a user-friendly registration process.



Technology Staff and Organizational Structure

Full evaluation of the organizational structure to drive optimal design, ensuring the right blend of talent is in place to implement set strategies.

Interview subjects were generally at a loss to describe District IT's philosophy or vision. There was also disappointment directed at project management performed by District IT as timelines have not been met, with little to no communication on the project progress or even acknowledgement of the receipt.

In order to consider an optimal Information Technology organizational design, it was imperative to first get an understanding of the current organizational structure. In its present state District IT is loosely functioning in a decentralized model. Typically, a decentralized organizational structure defers daily operations and day-to-day decisions to the field (middle) managers, while the leadership (CIO/Director) focuses on major decisions, driving the mission and vision of the institution forward through technology.

While a decentralized model can work, it requires collaboration lead from District IT leaders with clearly defined roles and responsibilities for all IT functions. These rules of engagement not only empower all parties involved, but also add much-needed efficiencies to the decision-making process and daily operations.

With the financial constraints colleges face today, it is impossible not to address these inefficiencies within the current structure. Allowing the leverage and power the District has as a unit in purchasing (example: smart classroom technology or licensing for software for a room scheduling tool) to go untapped is an unfortunate decision.

It seems there is a large undefined space between District IT and the end user, which results in confusion of ownership and accountability when it comes to problem resolution and process improvement. Numerous end users interviewed shared their experiences in seeking support from District IT, including being told to read a manual because, "that is not our issue." Often problem resolution and process improvement is volleyed back and forth between District IT and the end user until high-level administrators get involved or until the end users find a way to work around the issue on their own. It seems District IT leadership contributes to this undefined space between District IT and the end user thus resulting in delays in implementation, conflict between the end user and District IT, and employee disengagement.

This is not to say there is an outcry nor is it recommended to transform into a centralized structure. Best-fit organizational structures must be decided upon through a collaborative process which includes not only District leadership, but the campus leadership as well.

The next step in exploring optimal organizational structure is to address philosophy and function of the department at large as well as the associated roles and responsibilities. Recommendations are based upon information gathered during interviews and expertise in evaluating higher education business processes and technology functionality. The following recommendations are intended to become discussion points while establishing a shared vision of how technology can best serve the Peralta District community.

Based on experience and expertise in evaluating high-functioning IT departments, a philosophical change is recommended with regard to ownership and accountability. Currently it seems District IT informs the end user on what they can/will address and what technology issues remain the responsibility of the end user. Moving forward, it is recommended that District IT be held accountable for the end-to-end process. The community will benefit from IT leadership requiring staff to work in concert with the end users with District IT being held accountable for the end result. The current measure for District IT's success is stifling institutional and student success. To truly understand and improve the services and output of District IT, it is important to measure how the efforts impact institutional and student success. In an effort to move towards optimal organizational design, it is recommended that District IT provide the foundational technologies which serve the four colleges such as network, phone, student information system, etc., while at the same time addressing safety, risk reduction, and cost control. The foundation is to remain flexible while enabling the colleges to positively impact students, faculty, and staff. When a problem or issue is escalated to District IT they must take ownership of the problem and provide a comprehensive solution. It is paramount that prioritization of human and financial capital for District IT be a transparent shared governance process.

A commonly-embraced governance process allows for more effective management of financial and human capital. With foundational technologies managed at the District level, replication at the college level should not be necessary. Implemented foundational technologies or policies seemingly not in support of individual college initiatives or success should be addressed through the governance process. This allows the colleges to be the "test bed" for newly considered technologies and best practices considered for adoption by the District at large. In short, District IT should only implement proven cost-effective technologies with the colleges having more autonomy to implement technologies which positively impact their constituents. Using this methodology allows PCCD to experiment at the college level prior to making District-wide technology investments.

Based on these philosophies, the District would best be served by a matrix organizational structure. A matrix organizational structure is one set up as a grid. Each technology staff member has a twofold reporting structure: the college they serve and the functional area at the District. The functional area at the District is held responsible for participating in setting standards, policies, practices, and procedures implemented on all campuses. This structure ensures the technology staff closest to the student, faculty, and staff they serve are part of the governance process, participating in the design and day-to-day management of services delivered. This model creates consistency throughout the District.

Technology Staff

District Office IT Staff

There appears to be conflict between some of the operational staff and PCCD IT staff impeding productivity and adversely impacting service to students. Interviews suggest instances of system access being denied, helpdesk tickets delayed, and reassignments of priorities due to this conflict. Such conflicts have inherently increased manual workarounds and decreased departmental productivity. Ultimately conflict has adversely impacted the quality and quantity of services available to students.

Campus IT staff expressed an inability of District IT staff to respond in a timely manner due to a lack of qualified resources. With the high level of turnover (five people since 2012), the department lacks both resources (unable to backfill some) and depth of knowledge (as there has been limited opportunity for knowledge transfer in these situations) for response to specific technical issues and battling time constraints due to competing priorities for the limited staff. Further, if a functionally dedicated District IT staff member is absent, issue responsiveness or resolution is unable to advance due to the lack of cross-functional training and/or experience. District IT leadership is seldom seen on campus which hinders cooperation and collaboration.

Campus IT Staff

Two comments were commonly bestowed upon campus IT staff: (1) they do a good job; and (2) more bodies are needed. Campus IT staff informally assume responsibility for academic technology, which is a common and appropriate line of demarcation in decentralized structures in higher education; however, campus IT staff are hampered in their efforts to provide technology support due to the additional responsibilities for administrative systems, commonly the purview of District IT operations. While the academic/administrative line of demarcation is common, there is also commonly an element of collaboration and cooperation serving as the basis of successful operations.

Network and Infrastructure

Detailed technical analyses and recommendations for network and infrastructure appear in the appendix. The following is a summary of those findings.

Internet
Internet connectivity throughout PCCD sites is an area of dissatisfaction for the entire community. The District and campuses have a 1 gigabyte Internet connection with a DS3 (AKA T3) backup. The Site-to-Site VPNs are used for connectivity from the campuses back to the District. The Site-to-Site VPNs offer very low Quality of Service (QoS) for connectivity once traffic exits the firewall and traverses the Internet; consequently, the traffic must compete with Internet usage by staff, faculty, and students for available bandwidth. This provides QoS less than students, faculty, and staff are accustomed to outside of PCCD. Fortigate firewalls were recently implemented to replace end of life (EOL) Cisco firewalls although a number of Cisco firewalls are still in operation with multiple high severity vulnerabilities. The full functionality (e.g., content filtering and Intrusion Protection) of the Fortigate firewalls has not been implemented thus diminishing their usefulness.

Local Area Network (LAN)
The Local Area Network lacks a centralized plan and vision, which has resulted in a network with equipment from a multitude of vendors (e.g., Cisco, Arista, Extreme, etc.) and colleges that have good networks and colleges that do not. The multiple vendors have made the network unnecessarily difficult to support since each vendor has its own proprietary tool set requiring campus network engineers to be trained to manage multiple systems. It is our understanding that a number of the devices are beyond end of life and/or no longer under support contract from the vendor. The delay in the VoIP rollout at the College of Alameda and Merritt College is a direct result of an outdated/obsolete network infrastructure.

Wide Area Network (WAN)
There is inadequate bandwidth from District offices to campuses (T1's, see above). Bandwidth inadequacy adversely impacts Voice over Internet Protocol (VoIP AKA the "new phone system") communications as well as PeopleSoft access speeds. The T1 load balancing methodology needs to be reviewed on a per-packet vs per-destination basis to ensure it is optimal for VoIP. Existing network specifications suggest it is not up to the task. Many of the hardware devices used within the WAN are not covered by vendor maintenance contracts. The implications of having such devices are similar to self-insuring: If nothing happens to the equipment there is no impact; however, if there is an unpatched security hole it could result in a data breach, or if a system should fail, there is no service level agreement to restore the service with the vendor, exposing the District to loss of a service for an extended period of time.

Telephony
The move from PBX to VoIP is incomplete, particularly at the College of Alameda. The new VoIP system is still experiencing operational issues at the other campuses. While this is not atypical

for initial VoIP implementations, there is a distinct lack of support for VoIP infrastructure. Issues remain with 911 being routed to the proper Public Safety Answering Point (PSAP) and the system providing proper location information to first responders.

The following are the results of a test 911 call performed on 1/15/16 from the District Office which found the call to be directed to the Sheriff's office, but did not connect with Oakland Police Department.

- What phone number do they have on their display? Display shows the correct number (466-7207).
- What address do they have on their display? Phone number only.
- What building, floor, and room do they have on their display? None.
- Is this a Public Safety Answering Point (PSAP)? No.
- Is this the correct PSAP for 333 E. 8th St., Oakland, CA 94606? No display.

Lastly, but by no means any less important, there is no disaster recovery and business continuity plan. This places PCCD at high risk of data loss given its geographic location and the area's seismic history. A plan should be implemented immediately, as it is a standard industry practice to ensure elementary IT protocol.

Wireless

PCCD wireless is only for internet access and is used by faculty, staff, and students. However, no wireless security has been implemented thereby putting the system at risk. Common items missing at wireless login include login banners, terms of use statement (commonly accept/decline) and rules of acceptable use. Lack of proper use policies limits PCCD's recourse should problems arise from unauthorized use. As with LAN maintenance (see above), there is a mix of vendors used for hardware, software and maintenance (Cisco, Aruba, Aerohive, Ubiquiti). Cisco wireless is end of life (EOL) provider. Campus coverage issues were noted at some locations.

Network Security

A distinguishing characteristic of PCCD's network security is the lack of password controls, i.e., there are no rules in place for password attributes. These attributes commonly include length of password, requirements for upper case letters, numbers, and/or special characters. It is also common to require a password change upon initial login in order to move from the PCCD default to a user designated entity. Finally, there is no regulated end of life for passwords. Common security practices suggest a mandatory periodic change. This has frequently led to shared use of PeopleSoft usernames and passwords, a practice that creates unnecessary vulnerabilities to the system.

There are multiple Windows Active Directory domains and Workgroups. As a result, end users end up with multiple user accounts and passwords to access different resources on campus. This is less than optimal from an end user and an audit perspective. Peralta should implement a single Active Directory structure and provide users a single user name and password to access all resources.

Desktop systems across the enterprise run obsolete Operating Systems (OS) such as Windows 2000, Windows 2003, and Windows XP. When looking at the Internet facing systems there are multiple vulnerabilities. There is no evidence of security vulnerability testing. Additionally, there are a number of other security measures lacking across the enterprise including:

- Disaster recovery plans
- Business continuity plans
- Anti-virus software is not standardized throughout the enterprise and is often missing
- Formalized incident response procedures
- Formal Information Security Office with published security policies

Network and Systems Management

There are a significant number of missing positions and pieces within the framework of network and systems management which are considered necessary to a high-functioning IT department. Within that context, PCCD is lacking:

- IT standards for hardware or software, including IT oversight and/or review when purchasing IT equipment or contracts
- Network Operations Center (NOC)
- Security Operations Center (SOC)
- Service Level Agreements
- Formal change management process
- Formal configuration management process or formal systems management tools
- Centralized help desk whose processes are transparent to end users

Additionally, there are also a large number of obsolete servers and network devices in the PCCD server room.

Email

Among students, it is universally accepted that Peralta email is inadequate and students consistently use their private email addresses for PCCD communications. This is problematic in terms of creating an official record of communications and the practice makes it virtually impossible to send campus announcements via email. PeopleSoft 3C's stores system-generated communications within students' PeopleSoft record but this delivered functionality is not being used. Neither students nor faculty take advantage of the delivered PeopleSoft faculty center for communicating, and faculty often resort to hand-generated lists of email addresses, potentially impeding students seeking necessary support and communication. To simply change an email password requires PCCD IT intervention, an uncommon practice across higher education.

Typically, about half of Peralta students are enrolled in developmental courses (see http://web.peralta.edu/indev/). In order to be successful, academically disadvantaged students in particular require the ability to communicate quickly and engage easily with faculty. Peralta's current communication structure fails in this important academic objective. Less-than-optimal communications processes and procedures make assessing student service and learning more challenging than it needs to be. The use of Gov. Delivery and the manual processes associated

with its functionality, or at least as it functions across PCCD, is highly inefficient and far below the standard-which 21st Century students expect and deserve.

Storage

Best practices suggest institution-wide secure storage should be on a drive accessible only via a virtual private network (VPN). There was at some time in the past a working W: drive that met this demand. However, it is no longer operational and end users have resorted to using Dropbox for the storing and retrieval of PCCD business-related documents. While Dropbox may appear secure, in reality access to all files is open to the host. Using Dropbox for official business document storage is not a recommended practice.

Administrative Technology

Review the current platforms and systems, including utilization, availability and ease of use. Perform a standard security, Federal, and California compliance review.

Infrastructure
A review of infrastructure reveals a dated and inadequate means of distributing data among PCCD's multiple sites for current needs. Without upgrading the infrastructure, PCCD handicaps itself for future endeavors. Dealing with the current and future state of the infrastructure is of primary importance.

The current PeopleSoft environment is running on an unsupported version of vSphere (OS/VM ware). Lack of support implies that no new security patches for the product will be released by the vendor. As a result, it is likely to contain security vulnerabilities. Since PCCD has no vSphere support contract and the software is out of date, this also puts PCCD at risk for an extended PeopleSoft outage should vSphere fail. This makes any planned upgrade of PeopleSoft problematic. Best practice for a PeopleSoft environment is 24/7 4-hour response service level agreement with all vendors in an effort to minimize down time in the event of a hardware or software failure.

Two campuses have aging network infrastructures that could not support the planned telephony upgrade. The network infrastructure is an assortment of equipment making it difficult to leverage efficiencies and for IT personnel to support.

End User Support
While much was said about the industriousness of the incumbent District Office IT staff, there are PeopleSoft and higher education gaps in their experience, both of which are essential for efficiently and effectively running IT support services within PCCD. Higher education not only has a culture quite different from other businesses in both the public and private sectors, it also has an academic calendar around which the seasonality of events occurs. It was reported that PCCD IT often schedules service outages related to maintenance and upgrades without consideration of the academic calendar. Lack of single sign-on to all aspects of PCCD's IT system is a shortcoming noted by students, faculty, and staff.

While there is some Academic Technology management at the District level, an informal line of demarcation has been declared between ERP services (controlled by PCCD IT) and academic technology services (controlled by campuses). While this is a natural boundary and common in higher education, the relationship is tenuous and lacks an understanding of the interconnectedness between the two systems. Moreover, the knowledge and communication gaps between PCCD IT programmers and departmental business analysts contribute to this disconnect.

Knowledge Transfer and Training
There is a dearth of support and/or training ERP materials available to end users. Knowledge transfer from the external implementation team is common practice in the industry, with deliverables including business process maps, configuration dictionaries, and step-by-step instructions for each process. These deliverables are usually stored in a central repository with easy access for end users. When questioned about training materials such as these, respondents were consistently unaware of their existence.

Training for ERP systems, academic technologies (including classroom hardware), and desktop tools (calendars, email, MSOffice, etc.) is scarce and/or ad hoc at best rather than regular, formalized sessions for which departments can plan and schedule accordingly.

Training inadequacies are manifest among incumbent staff and when coupled with security access (see below) create a particularly difficult on-boarding process for new hires.

Security
There are significant delays reported in assigning roles and permissions to staff and student workers that often lead to the unofficial practice of using other's credentials. Clearly, this defeats the purpose of audit trails and allows unauthorized access. This type of delay is also common when staff separate from PCCD. Reassignment of functional security not being done in a timely manner "necessitates" staff to appropriate the separated party's credentials in order to complete regular departmental work. There is also warranted concern that separated parties continue to have access to the PCCD system.

The common routine of forcing a password change upon initial login and on a periodic ongoing basis is not the practice at PCCD.

Safety
At every campus, there were issues reported with panic buttons (normally positioned at bursar windows and/or other points of student/staff interaction) and not one was reported to be working on a consistent basis. This level of inoperability was also consistently the case with security cameras. The outdoor emergency phone stanchions, commonly referred to as the "blue phone" system, were observed to be approximately 90% sheathed in red, out of service, adornment. Campus Presidents do not have access nor have they been educated on a procedure to alert students via Blackboard Connect of a significant emergency or dangerous situation, and there is no feedback loop for a student to positively confirm that he or she is connected to the emergency alert system. 911 for some phones on the VoIP system does not route to a Public Safety Answering Point (PSAP) nor does it provide the location of the caller. Campus safety is a contemporary and troubling aspect of campus life (see almost every issue of *The Chronicle of Higher Education*), and this situation is disturbing. We recommend making safety a priority for students, faculty, and staff by addressing all the observed safety issues.

PeopleSoft (PS)
In addition to security issues noted above, staff consistently cite an inability to perform required tasks because they believe PS does not have the functionality they need. Our research shows this to be inaccurate as individual security configurations lack the roles/permissions needed or PS pages/tables have not been configured properly to achieve full functionality. Additionally, there are several functionalities which have not been deployed or used. 3C's (communications, comments, and checklists) is an example. Regular notices students should expect and which are currently done manually can all be programmed. Some other module-specific items follow. This is not meant to be a complete list, but rather it is intended to provide typical examples.

Academic Advising (AA) – It is unclear what, if any, AA functionality is being utilized. The relationship between AA and Student Records (SR) is also unclear although they are designed to be interactive.

Admissions (AD) – It was often reported that applicants are neither automatically notified when their application has been submitted nor are they informed whether or not their application is complete or what they can next expect. This is an unacceptable level of student service. It was also noted that both COMPASS and ACT scores are manually entered in PS although there is a delivered electronic load program available.

Student Records (SR) – Pre-requisite checking has not been configured correctly resulting in much manual intervention to ensure students are taking the correct classes. Likewise for repeat rules, which when not properly enforced within the system, can have a negative impact on Financial Aid (FA). Term activation for returning students is done manually rather than with the delivered processes.

Financial Aid (FA) – Meeting California FA reporting requirements has been problematic and can be, at least partially, connected to FA configurations and queries that generate the data. The same is true for Title IV.

Student Financials (SF) – The online payment functionality was inoperable from December 5-10, an unacceptable period of time for PCCD not to be receiving payments. It was reported that the time from payment to reconciliation of the student account (visible on PASSPORT) is three to five days but there was not an explanation. The process by which payments remove holds on student registration is not timely and may also be having a negative impact on enrollments.

Human Capital Management (HCM) – PCCD timesheets are manually entered into the HCM system inviting and often resulting in human error. The resident inter-connectivity between Campus Solutions (AA, AD, SR, FA and SF), HCM and Finance (FIN) does not appear to be working resulting in additional manual intervention for reconciliation.

There was much concern expressed about the ePAF (Personnel Action Form) processes and related Combo Codes which are cumbersome and overburdened with multi-signatory requirements.

Finance (FIN) – While the FIN module seems less fraught with inconsistencies and non-functionality, like ePAF noted above, the purchasing process appears overburdened with multi-signatory requirements.

Policies, Processes, and Timing
High level administrators report staff spend "so much time dealing with day-to-day operations," due in part to less-than-optimal PS implementations and/or configurations, leaving little time to improve strategies and productivity. Inefficient business processes such as class scheduling, rosters generation, on-boarding of new staff and students (referenced above), and lack of single sign-on to PCCD systems all contribute to workarounds and workload inefficiencies.

Every action of PCCD IT, from implementations to fixes to upgrades to routine maintenance, is viewed as taking too long and the timing of operations does not always take the academic calendar into account. Such actions contribute to a belief that PCCD IT leadership is not in sync with the business in which they are engaged.

PeopleSoft
There are many departmental operations not being conducted in PS either because the module is not deployed (although purchased), or support issues make manual and/or outsourcing more palatable. For example, health benefits tracking is completely outsourced and leave of absence reporting system not functional. Electronic signature is not in use and processes require multiple "wet signatures" (this is a policy issue as well as PS). Many other examples were cited in previous sections.

SARS
Scheduling counseling appointments at PCCD is handled by SARS. Its reporting functionality appears to be limited. Administrators' data on how many students are coming in and when, length of sessions, follow-up, etc. is difficult to assemble into trend analysis that would enable the management of counseling to be more effective and efficient. There also does not appear to be an interactive interface between PS and SARS, necessitating manual entry of records.

Institutional Research (IR) and Business Intelligence (BI)
While there is a wealth of data available between the PCCD ERP, CALMIS, IPEDS, etc., and most high-level administrators expressed confidence in the PCCD IR staff, there is still a prevailing attitude that information is difficult to retrieve from PS. Likewise, there is little evidence of planning practices based on BI.

Academic Technology

Take a deep dive into current utilization of academic technology and ease of use for all users to provide insight on possible upgraded tools for teaching and learning.

Support
There is limited District-wide engagement with academic technology strategy or direction in general; the colleges and programs are left to make their own way, depending on staff and faculty availability, capabilities, and available resources. Without direct college-level funding sources for technology, a great deal of effort (and time) is directed toward aggregating funds to handle relatively minor issues (A/V bulb replacements), up to and including Presidents' discretionary funding.

Primary support for academic technology comes from the campus. While all campuses gave high marks to their institutional IT staffs, they also universally noted they are understaffed, particularly when limited resources need to be diverted from academic needs to administrative needs (PS ERP, phones, computer deployments).

On-boarding of new faculty and staff is a serious issue District-wide. If it takes four to six weeks to provide access to systems for new faculty members, that means significant workarounds are being used by department chairs, administrators, and others to provide information new faculty members need while teaching their classes, and completing required day-to-day work.

Classrooms and Labs
With the exception of Berkeley City College, the campuses are short on smart classrooms and this is a competitive disadvantage. As for the other campuses, with the exception of the new Merritt College Science Building, there is general dissatisfaction with the state of computer labs, the desktop equipment and printing/copying facilities. Discipline-specific labs can be a particular challenge to maintain. Non-centralized technology procurement increases the support scope, something campus IT staff cannot afford given the limited support resources.

While the smart classrooms are widely desired and appreciated, there is notable discontentment with the organization of the spaces in relation to regular teaching methods; equipment and controls are not conducive to ease-of-use (control panels on far walls instead of near teacher station, for example).

Significant capital expenditures are made for the smart classrooms, but corresponding support costs for routine maintenance do not appear to have been allocated. The absence of a comprehensive, District-wide equipment replacement cycle results in uneven equipment replacement among the colleges. Depending on the institution's available funding, equipment replacement policies vary between replacement cycles of three to five years. Average replacement cycle is four years with no old equipment taken offline and not redeployed.

Additionally, staffing to support these deployments is also responsible for the day-to-day support of the college IT functions, resulting in deployments that can span months or more.

Culture and Climate

Campus coordination with District IT is practically non-existent with individual colleges making plans to upgrade academic technology and/or the student experience on their own without regard for current infrastructure or integration with existing technology, both academic and/or administrative. High-level campus administrators attribute this to District IT's non-responsiveness and lack of a collaborative governing structure. This climate manifests itself as stubborn independence, which while useful from an entrepreneurial perspective is nonetheless counterproductive in delivering consistent service across the District community.

It seems there is no perceived leadership or engagement from District IT at the colleges, and it is fair to say there is no District-wide Academic Technology leader or visionary. Most academic technology decisions have been delegated to the college department levels (through budget) or through capital spending initiatives (smart classrooms). Otherwise, it is loose coalitions of faculty or staff at the colleges in conjunction with local IT staff that work to make the best of the current structure. What could be purchased District-wide (computing equipment, widely used software licenses, etc.) is left to the colleges to handle.

While local IT staff are perceived as excellent in terms of both support and effort, District IT is either regarded as a roadblock or absent in most regards. Regardless of organizational structures and reporting lines, higher education best practice would include significant engagement by senior IT leadership in issues related to faculty and students from minimally strategic and planning perspectives to ensure the technology platform and protocols meet District-wide standards and are consistent from a security and support perspective. Relatively low-cost and widely-supported initiatives (Curricunet upgrade) require significant efforts by faculty and administrators to get across the finish line; it is evident that more fractious decisions can completely stall out until they reach crisis stage without an engaged IT leadership to facilitate or otherwise support these initiatives.

Colleges determine District IT is too disconnected from their day-to-day operations; and that they are too busy to support academics, which have to rely on what their local staff can provide.

Student Experience

The look, feel, and functionality of the student portal (Passport) is uninviting and discourages students from performing administrative functions (applying, enrolling, add/drop, checking FA, paying student accounts, etc.). The out-of-the box PS portal has this reputation and many institutions choose to partner with an external vendor for portal design. PS also has a reputation for not interacting well with Google Chrome, yet students are unaware of this and continue to report problems with Passport.

Similar to opinions regarding Passport, both students and staff view all the websites associated with PCCD and the campuses as needing modernization and improvements. There are not resident webmasters and no ways or means to standardize the look and feel of the websites. Students are also looking for PS mobile app in order to conduct PCCD business via mobile phones. Mobile options today are a must, and there are none for both current and potential students of the PCCD.

Students do not use their college e-mail accounts. At best, they forward these accounts to their personal email addresses, but a more typical scenario is willfully ignoring these accounts. However, there was wide support by students for a mobile app that would provide them with more information as well as a way to get information out to students other than posters. Students quickly learn at which college they can find resources they need, and travel among them to get those services (for instance, they know Photoshop is easily accessible at Laney). This is both unproductive for students who spend time travelling among colleges instead of doing the work they should be able to do anywhere, and presumably not helpful in retention efforts.

Systems directed toward Peralta students should be mobile-friendly. None of the primary systems used by students (outside of the unused email accounts) are mobile responsive, including Passport, class schedules, catalog, websites, etc.

Training

Several students and student service personnel noted the need for orientation to PCCD IT systems and a training materials repository. Many faculty, staff, and students reported the desire to have training and professional development--in person, on-line (Webex or similar platform), or recorded--available to better support their use of technology as a whole. This included use of smart classroom technology, on-line tools, reporting software, and administrative tools.

Moodle

Electronic Learning Management (ELM) is an essential part of 21st Century higher learning environments and PCCD has chosen Moodle as its ELM provider. Moodle appears to function reasonably well although interface between PS CS appears to be by manually downloading and uploading files rather than via an integrated interface, which would be more efficient and effective. There is currently on-campus consideration being given to converting from Moodle to Canvas (another ELM sponsored by the Chancellor's Office), but PCCD IT does not appear to be involved in the discussions which is again indicative of the non-communicative and non-collaborative IT culture at PCCD.

There are no dedicated full-time resources to support these tools at the colleges. Generally, this is either supported by faculty with release time or part-time staff at the colleges, resulting in inconsistent support levels across the District.

Technology Funding and Benchmark

Analysis of spending budget on impactful programs which contribute to the achievement of goals at each Peralta campus.

Budgeting for Infrastructure
Current budgeting for infrastructure appears to be on a maintenance and repair basis. In order to accommodate PCCD's educational vision, it is essential there be sufficient infrastructure in place to support expected increased demand. Each suggestion toward improving or advancing PCCD's educational opportunities is based on technology in the form of student access, smart classrooms, Electronic Learning Management (ELM) systems (Moodle, Canvas, Blackboard, etc.), and/or distance learning. An easily identifiable example is the recent incident at Aviation which necessitated an installation of an emergency T1 line, a fix that is more than ten years behind industry standards of today. As previously noted, the dissatisfaction with ERP system functionality is related to "system slowness" which is more often than not a result of insufficient bandwidth. This is again related to the outdated infrastructure primarily built on outdated T1 lines.

The following data benchmarked from Educause shows the amount of investment that would be typical for the institution (Educause 2014):

- 5% of IT spending is Data Center
- 7% of IT spending is on Communications Infrastructure (network)

Unfortunately, gathering this data for PCCD was almost impossible because of the absence of a clearly-defined IT budgeting process, which leaves the campuses to identify funding for most of their technology spending within their broader institutional budgets. PCCD can greatly benefit from a holistic IT budgeting process which is clearly defined and implemented. This budgeting process should be led by the District IT leadership in partnership with leadership on campus to ensure both efficiency and consistency throughout the District. Ideally this would be a key part of a Strategic Technology plan built for the District.

Budgeting for Total Cost of Ownership
One of the most significant issues associated with technology spending and benchmarking is the lack of evidence of awareness, understanding, and application of Total Cost of Ownership (TCO). Technology TCO takes into account the infrastructure upgrade (when required), purchase of hardware and/or software, deployment (including consulting), personnel backfill, opportunity costs, and upgrades/maintenance throughout the predicted hardware/software lifespan. TCO is common practice in Human Capital Management (HCM) as the price of a hire is not limited to salary alone at the point of engagement, but also includes the entire benefit package and is extrapolated through the expected tenure of the hire.

Calculating TOC can be quite complex and in recent years the difficulty has been assuaged by institutions moving towards a managed services model which makes year-to-year costs much more predictable and consequently more manageable.

Seventy-five percent of District IT General Funds (about $2.2M) are spent on salaries and benefits. Twenty-five percent is directed toward licenses and other costs. There have been significant funds available (approximately $1M) that were spent on one-time costs from bonds (Measures A, E, etc.). Furthermore, it is also alarming how much money has been spent on computing equipment, given the number of complaints about antiquated computing equipment at the colleges – there is a mismatch in spending and deployment. Faculty, staff, and students at every college described equipment that was out of date, and many identified that college IT staff are responsible not only for day-to-day support, but for deployment of new equipment. This means that either equipment is deployed as time allows, or essentially on an "as-needed basis." It is likely that most "new" equipment purchases are deployed to smart classrooms as those are built out, rather than to regular replacement of equipment in older classrooms or public areas.

Overall spending levels for the District Office exceed $10M for FY2016. This is a net increase of $6M over the five-year average spending levels. There are three particular areas of increase for 2016: Fund 02/One-Time State Allocation for $1.67M; Funds 61/63 include about $2M in consulting/contracting; and Fund 63 for $2.64M. Operational spending (Fund 01) increases almost 6% from 2015 spending, almost entirely made up of compensation cost increases. The expenditures from the Fund 6X accounts appear to vary significantly year-to-year, and it is unclear where the one-time Fund 02 money may be directed. To the extent possible, including standardizing equipment replacement cycles (desktop, network infrastructure, server capabilities, etc.), a multiyear budget plan would clarify planning, expense flow, and staffing requirements. Additionally, it is unclear as to what extent the 6X funds are available long-term and/or for cyclical replacement of equipment.

Compensation spending is at the high end of the benchmark, while overall spending (minus consulting and one-time spending) is at the low end of the benchmark. With an absence of a cyclical replacement plan for infrastructure, average spending can vary widely on an annual basis.

Campus spending for technology has also grown sharply in the last three years, but seems to follow building project spending. Spending on software (presumably academic) remains relatively steady over the last five years, but there are significant increases in equipment spending, with wide variations year-to-year. Again, a District-wide replacement cycle for this type of equipment would steady these expense flows and workload to implement the equipment.

Budgeting for Academics

Faculty and students throughout Laney College, College of Alameda, and Merritt College are looking for more smart classrooms. Only the Berkeley City College community is somewhat satisfied with the number of smart classrooms on campus. In addition to the creation of additional smart classrooms, faculty seek the opportunity to use the latest in industry-specific software in order to provide students with the tools they need to compete in today's job market. Not one faculty member or educational administrator suggested funds for this purpose were sufficient.

Expenses related to instructional software at the District level are minimal (and likely below the norm for the District's size), particularly given the deployment of Moodle, which only involves web hosting costs. While cost-effective (nearly $0), the Moodle deployment makes consideration of more sophisticated tools more challenging, as they appear as significant cost increases. Most costs are distributed directly to the college departments, which makes strategic budgetary or licensing decisions about these tools challenging to promote. Again, the inability to strategically leverage the District purchasing power as a whole creates a fiscal burden and stifles the District's ability to drive academic technology forward.

Educause Benchmarks for Associate Degree-granting institutions include a benchmark of $599/FTES for centralized IT expenditures, with 50% of these funds directed toward compensation, or $4,090/employee. This would represent a general spending rate between $6-9M/year.

Peralta's overall spending rates are at the minimum of this range on an average basis (including campus IT spending). However, this follows what would appear to have been several years of underspending, particularly with infrastructure. A great deal of recent spending has been related to smart classroom build-outs which then need to roll on-going maintenance dollars into replacement cycles. It is unclear if that has been done.

Future Vision

Present a technology future vision and outline the next action steps that will aid in the achievement of the overall goals of the institution.

Information Technology is constantly evolving and there are trends happening today which require institutions to re-evaluate the function and role of Information Technology today and over the next three to five years.

Cloud

The migration to the cloud has begun for many companies and higher education institutions. More than 90% of U.S. companies are using some form of cloud computing, according to CompTIA's most recent Trends in Cloud Computing study. The cloud is no longer a trend to analyze, but a reality to embrace. PCCD has already started the migration to the cloud: student email currently hosted by Microsoft and Moodle Learning Management System hosted by Tucows.com.

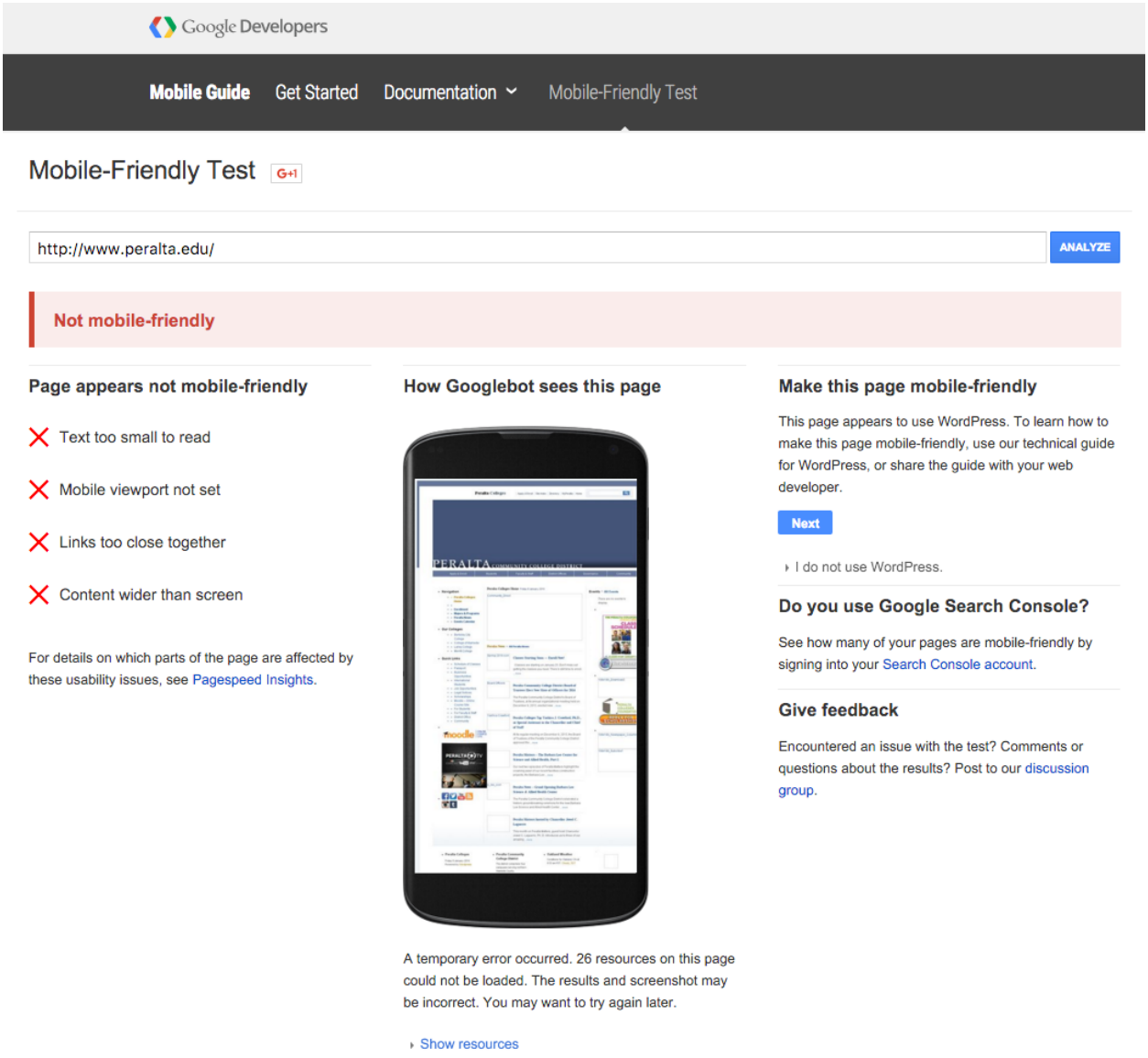
The reason this migration has begun is due to the many benefits of cloud technology. No longer is it necessary to build infrastructure to accommodate the peak demands of registration and "drop/add" activity as cloud provides flexibility to scale capacity up and down based on demand and eliminates the high cost of hardware. Cloud computing is a subscription-based model which offers users a "pay-as-you-go" system. Cloud technology often results in increased productivity as faculty, staff, and students can work with cloud solutions on almost any device from anywhere, at any time. Most importantly, it frees the CIO from overseeing maintenance of in-house IT systems and allows IT executives to think and act strategically.

As the cloud becomes fully realized, maintenance, software updates, and disaster recovery become a responsibility of the cloud provider, which therefore requires re-evaluation of the role of IT and the organizational structure. It is necessary to identify the ideal future state of the organization in an effort to ensure the current staff can be trained to meet the demands of tomorrow.

The California Community College Technology Center now provides state-funded cloud-based software for all California community colleges. This service includes a student portal, educational planning, retention, early alert, and degree audit. Colleges can even apply for grants to cover implementation costs. This is an immediate opportunity for PCCD to replace on-premise systems and redeploy financial and human resources used to maintain these systems. The Peralta colleges can also benefit by investigating low- or no-cost solutions for higher education from companies like Salesforce, Microsoft, Apple, and Google that will positively impact operational efficiencies and improve student success.

Mobile

Mobile is here. Forcing the end user to interact with PCCD via desktop computer is a thing of the past. Even Google is giving preferential treatment in the search rankings for mobile-friendly websites. Students, faculty, and staff are increasingly bringing consumer devices like smart phones, tablets, and watches with them to campus with the expectation that the college will provide them a rich user experience on the platform they choose. Peralta must adapt and build a flexible and open infrastructure that will allow students, faculty, and staff to adopt new technologies and services with minimal IT involvement.



Analytics

Higher education has collected more data than ever and analytics will allow institutions to use this data to advance student success. There are three phases to analytics: descriptive analytics, the analysis of what happened in the past; predictive analytics that uses historical models to predict the future; and prescriptive analytics which takes the prediction and prescribes a recommended action. Imagine the ability to predict a student's course grade prior to the start of class based on data from previous courses. If this student is at risk, we can get them the necessary support they need to succeed. As this technology becomes more mainstream, the skillsets to build and analyze the models must be developed and cooperation and execution must be in place in order for this technology to be more effective. In order to take advantage of these opportunities, it requires that IT and the departments work in harmony.

We envision a future where the Peralta colleges are prepared for the Internet of Things, and students, faculty, and staff will come to campus with a multitude of connected devices. The colleges' network will connect these devices without the user or IT intervention, similar to an electrical outlet. The large campus infrastructures will slowly disappear and turn back into classroom space. Students will have access to virtual reality technology allowing them to participate in immersive online learning experiences and just-in-time resources. The campuses will be seen as places of innovation giving students and the community access to better tools and spaces. The new IT professionals will have a higher education acumen and will become co-creators and integrate themselves with all academic and administrative departments. The role of technology professionals must shift and be less about controlling and more about enabling the use of technology more effectively.

To participate in this future, the culture of PCCD technology must change. We must change the conversation from tech talk (versions, upgrades, etc.) to how technology is enabling students, faculty, and staff. Clear feedback loops need to be put in place to measure the impact of technology and the technology staff. We should measure utilization of self-service offerings, back office processing time, and wait times for in-person services. At every touch point students, faculty, and staff should have a mechanism to provide feedback, suggest process improvements or compliment a job well done. Feedback and measures should be reviewed on a periodic basis by the governing body to ensure they are meeting the standard of the District. The focus of technology, and investments made in technology, must be aligned with what will produce the largest impact to safety, experience, and overall success for students, faculty, and staff.

The focus of PCCD IT must go beyond just implementing new technology and hoping the end user utilizes it. Moving forward, PCCD IT must own potential issues in partnership with the departments they serve, using the measures and feedback loops discussed. Leadership must encourage the IT staff to work in concert with the end users and both must clearly be held accountable for the end result. The collaboration between the departments and IT must be deeper and the accountability based on improved outcomes.

Appendix A: Recommended Actionable Items

Ferrilli's analysis suggests there are vital items which PCCD should address going forward. The chart below outlines actionable items for consideration along with associated impact and urgency rating.

Actionable Issue	District Impact	Impact Severity	Urgency Level
Address safety concerns for students, faculty, and staff	Could result in an unnecessary delay or inability to reach the appropriate authorities in an emergency situation	High	High
Create disaster recovery planning and institute processes by which to safeguard critical data	In the event of disaster there is no plan to recover academic and financial records of the institution, which could result in data loss and inability to operate	High	High
Implement security policies and procedures	Peralta is vulnerable to fraud and data theft and is out of compliance with Payment Card Industry (PCI) standards, which could result in District's credit card processing privileges being revoked	High	High
Improve administrative and network security procedures to reduce potential threats	Same as above	High	High
Establish regular participative IT governance by re-instituting community-wide meetings. There should be meetings for both collaboration with campus leadership as well as with campus IT staff/Technology committees	Human and financial capital will continue to be squandered as a result of everyone operating independently	High	Medium

Actionable Issue	District Impact	Impact Severity	Urgency Level
Expand and strengthen IT infrastructure in order to accommodate both current demand and future planning	This will continue to be a roadblock for students, faculty, and staff that would like to leverage technology to improve student success	High	Medium
Postpone the planned FIN 9.2 upgrade until there is a strategic ERP plan in place	This will drain human and financial capital from IT that is needed to address other critical areas which will have a bigger impact on student success	High	High
PeopleSoft Module expert review in each of the functional areas and security to confirm correct configuration	System efficiency will never improve and misconfiguration of the system will continue to frustrate students, faculty, and staff	High	High
Look to enhance efficiency of PeopleSoft ERP system by engaging in: business process review and re-engineering; reconfiguration when appropriate; and deploying all the purchased modules	Same as above	High	Medium
Assimilate a new information technology structure that includes managed services and cloud platforms to better meet the needs of students, faculty, and staff	Continue overspending on outdated infrastructure	High	Medium
Improve on-boarding and separation processes ensuring access and denial to the system occur in a timely manner	Password sharing will continue among the staff leaving PCCD vulnerable to data theft or fraud	Medium	Medium

Actionable Issue	District Impact	Impact Severity	Urgency Level
Implement an enhanced VPN storage system and conclude the informal relationship with Dropbox	Shadow shops/workaround systems put data at unnecessary risk for loss or theft. Since these systems are not properly vetted it could result in a compliance issue for PCCD	Medium	Medium
Implement a transparent IT governance process that allows all members of the community to have a voice	Continued wasted human and financial resources because everyone will continue to work independently	Medium	Medium
Draft a future vision for Peralta Information Technology that is comprehensive and inclusive of all aspects of the PCCD community	Same as above	Medium	Medium
Devise a technology strategy and plan which shares technology decision making in a collaborative manner between the District and the campuses	Same as above	Medium	Medium