

Comprehensive Program Review Report



Program Review - Technology Services

Program Summary

2020-2021

Prepared by: Glen Profeta

What are the strengths of your area?: The mission of the Technology Services department is to provide quality service and user satisfaction.

The core values of the Technology Services department are:

1. Integrity – Be responsible stewards of systems, processes, and data.
2. Continuous Improvement - By understanding our user's expectations and continuously improving products, services, and processes.
3. Innovation - Stay abreast of developments in technology and identify areas that could benefit from them.
4. Team - We recognize that no one can or does know it all. We are successful only when we work collaboratively utilizing the individual strengths of the team members.

In the last year, the Technology Services department has completed the following:

1. 4,932 work-orders submitted and 5,057 work-orders completed (102.5%)
2. Replaced or added 920 desktop computers, laptops, or Chromebooks in 2019-20
3. Hired an Infrastructure and Security Manager
4. Hired a Programmer Analyst
5. Completed the cabling infrastructure project, improving connectivity, bandwidth, and access to aging buildings
6. Degree Works was upgraded and moved to Amazon AWS Cloud.

What improvements are needed?: Infrastructure:

1. At the end of its useful life, the COS phone system has aging hardware, unsupported software, and a lack of modern features. During the 2020-21 academic year, the infrastructure department will implement a new unified communication platform. The new system will take advantage of the latest Voice over IP (VoIP) technology that provides greater flexibility and customization as it operates on our recently upgraded network. This upgrade aligns with district objective 4.2, improve the efficiency, effectiveness, and communication of technological resources to advance the district mission.
2. Cloud migration. We are moving our on-campus servers to an internet hosted services provider, Amazon Web Services (AWS). We currently spend a significant amount of time and money, managing on-site data centers in multiple locations. Moving to AWS provides a way to acquire and use infrastructure on-demand and pay only for what we consume. This initiative supports District Objective 4.2: Improve organizational effectiveness by strengthening operations of and communication between District departments, divisions, and constituents.
 - The first migration is moving Banner (COS ERP and Student Information System) to AWS. This project is underway and planned for completion in spring 2021.

Staffing:

Staff skills are vital and a priority for our department. The changes expected in technology requires unique skills. One of the most significant challenges for COS is to have the skill sets available to meet the technical objectives that will keep us competitive. We can meet the need by filling the gaps that our current positions don't address and provide our existing staff training. The areas of expected change are as follows:

1. Cloud Application Engineer - provide leadership related to the architecture, development, integration, deployment, and delivery of cloud-specific applications. It is recommended to add one FTE Cloud Application Engineer (\$150,000), be assigned to Technology Services.
2. Cloud Infrastructure Engineer - The position will be responsible for executing the architecture of cloud network services, including the design and development of a strategy for the implementation and ongoing optimization of a cloud environment. It is recommended to add one FTE Cloud Infrastructure Engineer (\$150,000), to Technology Services.
3. Security Specialist - The District's security practices have not kept pace with technology. In the ever-changing landscape of technology, any institution that houses Personally Identifiable Information (PII) is a target. Most organizations, including California Community Colleges, have recognized the need for full-time staff uniquely trained and qualified to address network and data security. It is recommended to add one FTE Security Analyst (\$150,000), with the proper credentials to ensure and maintain security, to Technology Services.
4. Senior Programmer Analyst - Over time, and past hiring practices have created a misalignment of salary for the Technology Services department's Senior Programmer Analyst position. Two positions are considered equivalent in responsibility;
1) System Administrator, 2) Senior Programmer Analyst. The Senior Programmer Analyst is currently three (3) grades below the System Administrator and Web Master. A salary survey (one at State Center) shows that a typical senior programmer earns between \$91,000 and \$124,000 annually. To correct this situation and maintain competitiveness in the industry that will attract qualified candidates, the current grade of 50 is recommended to be increased by \$5,640 annually to grade 53.
5. Programmer Analyst (staffing increase) – The college has added numerous software applications that require support from Technology Services (Applications department). The list of projects continues to grow, and the staffing has not kept up with the growth. This shortage has left us with no room for emergencies, no time to reduce "technical debt" (technical risks from changes or outdated tools/approaches), or unexpected extended absences. The risks to the college from the staff shortage are growing. A Programmer Analyst is grade 46, with a range of \$68,844 - \$92,232 annually.
- 6: Microcomputer Specialist – Segment this role into two distinct functions.
 - a) IT Support Specialist – Focused primarily on front-end, real-time support issues that are reported by phone, email, helpdesk, and in person. This role may involve installing software, updating systems, provide remote support, troubleshooting issues, and escalating support needs where appropriate.
 - b) IT Systems Specialist – Focused primarily on backend tasks and projects like desktop imaging, equipment receiving, inventory, documentation, lab/laptop provisioning, desktop patch management, desktop endpoint security, etc. This role may provide additional support for the Network Analyst and Systems Administrator.

All staffing requests above support, District objective 4.2, improve the efficiency, effectiveness, and communication of technological resources to advance the district mission aligns with this request.

Training:

Existing staff will need to become proficient with Cloud-based computing and, specifically, Amazon Web Services (AWS).

Describe any external opportunities or challenges.: 1. Constant changes in Federal regulations requiring updates to ERP system.
2. Constant security threats, attacks, and malicious emails.

Overall SAO Achievement: For the 2019-20 year, the Technology Services Department has completed three Service Area Outcomes:

1. Upgraded DegreeWorks to the Latest version.
2. Moved DegreeWorks to Amazon Web Services.
2. Completed cabling upgrade.

Changes Based on SAO Achievement: None

Outcome cycle evaluation: Overall the department is moving forward as planned with proposed outcomes. The work being completed sometimes reveals other work that must be done and sometimes this work is completed by other departments. This

is a positive effect in moving the district toward effectiveness and efficiency.

Action: Phone System and Network Infrastructure

Support for the maintenance and management of district network and telephone infrastructure.

Leave Blank:

Implementation Timeline: 2020 - 2021

Leave Blank:

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Identify related course/program outcomes: Operational requirement

Person(s) Responsible (Name and Position): Glen Profeta - Dean, Technology Services

Rationale (With supporting data): Technology Services supports a wide-area network infrastructure across four geographical sites. These critical systems that the Visalia campus and both centers depend on must be maintained for the District to conduct business. The most significant change will come with our phone system and how it functions - today modern telephony use the same network that computers use and are IP based. This infrastructure has minimum requirements for bandwidth, capacity, and security. This request aligns with District Objective 4.2 to improve organizational effectiveness by strengthening operations of and communication between District departments, divisions, and constituents.

Priority: High

Safety Issue: No

External Mandate: No

Safety/Mandate Explanation:

Update on Action

Updates

Update Year: 2020 - 2021

10/15/2020

Status: Continue Action Next Year

The network infrastructure "cabling project" is complete, and the new phone system phase is in progress at 10%, the completion date is anticipated for July 30, 2021.

Impact on District Objectives/Unit Outcomes (Not Required):

Resources Description

Classified- New/Replacement - 1 FTE Network Analyst (Active)

Why is this resource required for this action?: Technology Services supports systems and infrastructure across four sites. The COS network infrastructure consists of 120 network switches, 200 servers, 4 SANs, 420 wireless access points, and 800 telephones. In total, these systems have a value of \$6.6 million today. The staff that design and maintain these systems are comprised of the Manager of Infrastructure and Security, a System Administrator (currently vacant), and a Network Analyst. Gartner, a technology consulting firm, estimates that a Network Analyst should be responsible for approximately \$900K worth of equipment. Rounded up to \$1M, and spread between the three staff, the District has over provisioned its enterprise systems by 200%. To help mitigate support issues brought on by systems sprawl, it is recommended that the District allocate one FTE Network Analyst to help manage these enterprise systems.

Notes (optional):

Cost of Request (Nothing will be funded over the amount listed.): 80000

Related Documents:

[COS District Phone system overview.docx](#)

[Technology Services Improvements List 9-21-17.xlsx](#)

[VoIP infrastructure Map.pdf](#)

Non-instructional equipment - Install UPS system in Hanford Server room (Active)

Why is this resource required for this action?: The Hanford server room is an extension of the districts data center. the infrastructure must be such to support disaster recovery.

Notes (optional):

Cost of Request (Nothing will be funded over the amount listed.): 80000

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Link Actions to District Objectives

District Objectives: 2018-2021
District Objective 4.2 - Improve organizational effectiveness by strengthening operations of and communication between District departments, divisions, and constituents

District Objectives: 2015-2018
District Objectives - 1.1 - Increase overall enrollment by 1.75% annually
District Objectives - 4.1 - Improve operational systems based upon data driven decision-making as described in the COS 2.0 manuals.
District Objectives - 4.2 - Improve the efficiency, effectiveness and communication of human, physical, technological, and financial resources to advance the District Mission.

Action: Hanford Data Center UPS

Install batteries for Universal Power Supply (UPS) for Hanford Data center.

Leave Blank:

Implementation Timeline: 2020 - 2021

Leave Blank:

Leave Blank:

Identify related course/program outcomes:

Person(s) Responsible (Name and Position): Steve Pratt, Network Engineer

Rationale (With supporting data): A UPS will provide fail-over capability and a "graceful" shutdown for extended power outages.

Priority: High

Safety Issue: No

External Mandate: No

Safety/Mandate Explanation:

Resources Description

Adjustment to Base Budget - Periodic service maintenance (Active)
Why is this resource required for this action?: On-going maintenance is needed to replace batteries periodically - \$8000.
Notes (optional):
Cost of Request (Nothing will be funded over the amount listed.): 8000

Link Actions to District Objectives

District Objectives: 2018-2021
District Objective 4.2 - Improve organizational effectiveness by strengthening operations of and communication between District departments, divisions, and constituents

Action: 2019-20 Degree Works upgrades

Degree Works upgrades necessary to improve the applications with new features and improved user-interfaces for the counselors.

Leave Blank:

Implementation Timeline: 2019 - 2020

Leave Blank:

Leave Blank:

Identify related course/program outcomes: District Objective 4.2 - Improve organizational effectiveness by strengthening operations of and communication between District departments, divisions, and constituents

Person(s) Responsible (Name and Position): TJ Baugus, Applications Manager

Rationale (With supporting data): Our Degree Works applications is currently on the older version 4.6.1. The current version is

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5.2, which includes software improvements, staff users (counseling) improved interfaces for ease of use, and more. The newer version will help us implement the counselor training of Degree Works Education Plans, which will in turn assist with meeting Federal Financial Aid compliance. (We are out of compliance on regulations, and this has the district at risk for a significant audit finding.)

Priority: Medium

Safety Issue: No

External Mandate: Yes

Safety/Mandate Explanation: Needed to help satisfy Federal Financial Aid compliance.

Update on Action

Updates

Update Year: 2020 - 2021

10/15/2020

Status: Action Completed

DegreeWorks is now at the latest version and moved to AWS.

Impact on District Objectives/Unit Outcomes (Not Required):

Link Actions to District Objectives

District Objectives: 2018-2021

District Objective 4.2 - Improve organizational effectiveness by strengthening operations of and communication between District departments, divisions, and constituents

Action: Positive Attendance Lab Hours tracking software

Purchase a Positive Attendance Lab Hours tracking software (AccuTrak or Accudemia) for regulatory and reporting requirements

Leave Blank:

Implementation Timeline: 2020 - 2021

Leave Blank:

Leave Blank:

Identify related course/program outcomes:

Person(s) Responsible (Name and Position): TJ Baugus, Applications Manager

Rationale (With supporting data): We have a custom application for collecting Positive Attendance Lab Hours. It is rather old, and it was designed prior to many of the newer regulations. As is, it barely satisfies the regulatory needs for tracking the hours and "referred by" information. Additionally, the reports are unreliable and, in many cases, will not run at all due to poor designs. There are purchasable softwares that will satisfy the needs and require much less COS support resources, such as AccuTrak.

Henry Garcia (Sr Instr Specialist/Lead Coor, Language Arts) is familiar with AccuTrak/Accudemia and will be submitting it as part of his department's Program Review.

Priority: Medium

Safety Issue: No

External Mandate: Yes

Safety/Mandate Explanation: CCC Supplemental Learning Assistance and Tutoring Regulations and Guidelines Title 5, 58050 Conditions for Claiming Attendance (apportionment)

Link Actions to District Objectives

District Objectives: 2018-2021

District Objective 4.2 - Improve organizational effectiveness by strengthening operations of and communication between District departments, divisions, and constituents

Action: Cloud Application Engineer

Program Review - Technology Services

Recruit for Cloud Application Engineer to maintain and develop cloud specific applications.

Leave Blank:

Implementation Timeline: 2020 - 2021

Leave Blank:

Leave Blank:

Identify related course/program outcomes:

Person(s) Responsible (Name and Position): TJ Baugus

Rationale (With supporting data): Moving our infrastructure and applications to the cloud requires additional, advanced skills.

Priority: High

Safety Issue: No

External Mandate: Yes

Safety/Mandate Explanation:

Resources Description

Personnel - Classified/Confidential - Recruit for Cloud Application Engineer to maintain and develop cloud-specific applications. provide leadership related to the architecture, development, integration, deployment, and delivery of cloud-specific applications. (Active)

Why is this resource required for this action?:

Notes (optional):

Cost of Request (Nothing will be funded over the amount listed.): 150000

Link Actions to District Objectives

District Objectives: 2018-2021

District Objective 4.2 - Improve organizational effectiveness by strengthening operations of and communication between District departments, divisions, and constituents

Action: Cloud Infrastructure Engineer

Responsible for executing the architecture of cloud network services.

Leave Blank:

Implementation Timeline: 2020 - 2021

Leave Blank:

Leave Blank:

Identify related course/program outcomes:

Person(s) Responsible (Name and Position): Infrastructure and Security Manager

Rationale (With supporting data): Moving our infrastructure and applications to the cloud requires additional, advanced skills.

Priority: High

Safety Issue: No

External Mandate: No

Safety/Mandate Explanation:

Resources Description

Personnel - Classified/Confidential - Recruit for Cloud Infrastructure Engineer to design and develop strategy for implementation and ongoing optimization of a cloud environment. Develop Cloud network architectures (i.e., AWS VPCs, subnets, VPN. (Active)

Why is this resource required for this action?:

Notes (optional):

Cost of Request (Nothing will be funded over the amount listed.): 150000

Link Actions to District Objectives

Program Review - Technology Services

District Objectives: 2018-2021

District Objective 4.2 - Improve organizational effectiveness by strengthening operations of and communication between District departments, divisions, and constituents

Action: Network Security Specialist

Recruit for Network Security Specialist to address on-going network and data security.

Leave Blank:

Implementation Timeline: 2020 - 2021

Leave Blank:

Leave Blank:

Identify related course/program outcomes:

Person(s) Responsible (Name and Position): Infrastructure and Security Manager

Rationale (With supporting data): Increased network and email attacks, coupled with the personal information that technology services is responsible to safeguard requires additional, advanced skills.

Priority: High

Safety Issue: No

External Mandate: No

Safety/Mandate Explanation:

Resources Description

Personnel - Classified/Confidential - In the ever-changing landscape of technology, any institution that houses Personally Identifiable Information (PII) is a target. Most organizations, including California Community Colleges, have recognized the need for full-time staff that is uniquely trained and qualified to address network and data security. (Active)

Why is this resource required for this action?: To safeguard student and staff data, and provide protection against on-going network and personal account and Identity attacks.

Notes (optional):

Cost of Request (Nothing will be funded over the amount listed.): 150000

Link Actions to District Objectives

District Objectives: 2018-2021

District Objective 4.2 - Improve organizational effectiveness by strengthening operations of and communication between District departments, divisions, and constituents

Action: Network Analyst

Recruit for Network Analyst to support network and telephony networking.

Leave Blank:

Implementation Timeline: 2020 - 2021

Leave Blank:

Leave Blank:

Identify related course/program outcomes:

Person(s) Responsible (Name and Position): Infrastructure and Security Manager

Rationale (With supporting data):

Priority: Medium

Safety Issue: No

External Mandate: No

Safety/Mandate Explanation:

Resources Description

Personnel - Classified/Confidential - Network Analyst is needed to mitigate support issues, network triage and attention.

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(Active)

Why is this resource required for this action?: To support the COS network. New buildings and a shift in technology requires greater demands for computer networking that provides a reliable system for students and staff.

Notes (optional):

Cost of Request (Nothing will be funded over the amount listed.): 120000

Link Actions to District Objectives

District Objectives: 2018-2021

District Objective 4.2 - Improve organizational effectiveness by strengthening operations of and communication between District departments, divisions, and constituents

Action: 2020-21 Programmer Analyst

Recruit an additional Senior Programmer Analyst for the Applications team.

Leave Blank:

Implementation Timeline: 2020 - 2021

Leave Blank:

Leave Blank:

Identify related course/program outcomes:

Person(s) Responsible (Name and Position): TJ Baugus, Applications Manager; Glen Profeta, Dean of TS

Rationale (With supporting data): Our list of projects and responsibilities are increasing, and we have a list of waiting projects. More often, we are using external resources to assist with projects. Additionally, the workload of existing staff is significant and allows not room for cross-training or for improving the applications and systems technically (reduce "technical debt"). Plus, it cannot be ignored that the unexpected loss of a long-term senior programmer analyst opened a gap in knowledge that will take years to restore and recover. The risks to the college at the current staffing level are significant because of work overload, knowledge silos, inability to respond to emergencies due to the overload, and excessive exposure is another long-term absence occurs.

Priority: Medium

Safety Issue: No

External Mandate: No

Safety/Mandate Explanation:

Link Actions to District Objectives

District Objectives: 2018-2021

District Objective 4.2 - Improve organizational effectiveness by strengthening operations of and communication between District departments, divisions, and constituents

Action: 2020-21 continued replacement of custom EIS

2020-21 continued replacement of custom EIS: SEP and 311 reports

Leave Blank:

Implementation Timeline: 2020 - 2021

Leave Blank:

Leave Blank:

Identify related course/program outcomes:

Person(s) Responsible (Name and Position): TJ Baugus, Applications Manager; Glen Profeta, Dean of TS

Rationale (With supporting data): We will continue moving significant items from the custom EIS system to non-custom applications. One significant EIS report is the regulatory 311 report. We are working with an external consultant (SIG) to move this in the first half of 2021. Additionally, during 2020-2021, we will start the work to implement Degree Works student education plans, which will replace the custom EIS SEP. Both projects are part of the long-term process to decommission the EIS tool since it poses a significant risk to the college.

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Priority: Medium

Safety Issue: No

External Mandate: No

Safety/Mandate Explanation:

Link Actions to District Objectives

District Objectives: 2018-2021

District Objective 4.2 - Improve organizational effectiveness by strengthening operations of and communication between District departments, divisions, and constituents

Action: 2019-20 CCCApply Non-Credit application implementation

Implement the CCCApply Non-Credit application for download into our COS systems (Banner).

Leave Blank:

Implementation Timeline: 2019 - 2020

Leave Blank:

Leave Blank:

Identify related course/program outcomes:

Person(s) Responsible (Name and Position): TJ Baugus, Applications Manager

Rationale (With supporting data): The CCCApply application system now allows for separate credit and non-credit student applications. Implementing the added non-credit application will allow these students to feed into our systems with differences in the data, which will allow them to be reported as non-credit where appropriate.

Priority: Medium

Safety Issue: No

External Mandate: Yes

Safety/Mandate Explanation: CCCCC (Chancellor's Office) change and requirement for CCCApply processing (applicants).

Update on Action

Updates

Update Year: 2020 - 2021

10/15/2020

Status: Action Completed

Non-credit application implemented.

Impact on District Objectives/Unit Outcomes (Not Required):

Link Actions to District Objectives

District Objectives: 2018-2021

District Objective 4.2 - Improve organizational effectiveness by strengthening operations of and communication between District departments, divisions, and constituents

Action: 2019-20 Implementations of applications: Maxient, Exlibris Alma, Cornerstone

Implementations of 3rd party, hosted applications: Maxient (students), Exlibris Alma (library), Cornerstone (employees)

Leave Blank:

Implementation Timeline: 2019 - 2020

Leave Blank:

Leave Blank:

Identify related course/program outcomes:

Person(s) Responsible (Name and Position): TJ Baugus, Applications Manager

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Rationale (With supporting data): Finalize what is needed to implement applications used throughout COS. Maxient is a student behavioral assessment application tool. Ex Libris Alma is a library management solution used to manage students' information and use of library resources. Cornerstone is used to facilitate professional development of college employees.

Priority: Medium

Safety Issue: No

External Mandate: Yes

Safety/Mandate Explanation: Ex Libris is required and supported by the state chancellor's office.

Update on Action

Updates

Update Year: 2020 - 2021

10/15/2020

Status: Action Completed

These three applications were implemented.

Impact on District Objectives/Unit Outcomes (Not Required):

Link Actions to District Objectives

District Objectives: 2018-2021

District Objective 4.2 - Improve organizational effectiveness by strengthening operations of and communication between District departments, divisions, and constituents