UNIVERSITY OF CALIFORNIA, DAVIS
AUDIT AND MANAGEMENT ADVISORY SERVICES

Information and Educational Technology
Equipment Inventory Controls Review
Audit and Management Advisory Services Project #17-53

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MANAGEMENT SUMMARY

Background

At the request of the Chief Compliance Officer/Locally Designated Official, Audit and Management Advisory Services (AMAS) investigated allegations related to the way that equipment has been managed within the Academic Technology Services (ATS) and Communications Resources (CR) divisions of the department of Information and Educational Technology (IET).

None of the allegations were substantiated, or could be substantiated, based on the available evidence. However, during the course of the investigation, we identified opportunities for improvement in internal controls and processes within IET and in campus processes for classroom improvement projects. The purpose of this report is to describe these opportunities.

Scope

To complete an efficient audit project that would best serve the needs of our client, we focused our review on CR equipment and supplies inventory tracking systems because IET has elected to incorporate ATS equipment into those systems.

Our assessment focused on the following concerns that we deemed most important based upon our interviews with management and staff:

- Communication during the procurement process.
- Physical security upon receipt.
- Completeness – up-to-date accounting records that show current balances and report changes.
- Tracking for operational utility – ability to identify what is in stock and where it is located.
- Appropriate separation of duties while maintaining efficiency.
- Processes to bill for equipment installed.

We also obtained information from management and staff about the campus processes to upgrade classroom technology.

Conclusions

We learned about the governance structure that has been created since 2014 to improve the condition of campus classrooms. We learned that through the dedicated efforts of faculty and staff in the fiscal years ending June 30, 2014-16, 33 classrooms were successfully upgraded or renovated. We observed that IET is effectively tracking items with cost value over $5,000 using the Kuali Financial Capital Asset Management System. We observed that CR has used the Pinnacle software system to successfully operate the various networks for which it is responsible.

We observed that there are opportunities to improve campus processes for classroom improvements; that IET must assess its capacity to complete planned classroom work; and that IET must improve its ability to complete equipment inventory reporting functions.

We have recommended that IET meet with campus leadership and other stakeholders regarding campus classroom upgrade processes; that IET assess its warehouse and equipment inventory management capacity and expand as needed; that IET address deficiencies in its stewardship of equipment; and that IET consider the adoption of a single, unified equipment management system.

Our detailed observations and recommendations are presented below along with corresponding management corrective actions.

OBSERVATIONS, RECOMMENDATIONS, AND MANAGEMENT CORRECTIVE ACTIONS

A. UC Davis has the opportunity to complete classroom improvements in a more effective manner.

As described in more detail in section B below, our investigation work entailed reviewing details about certain equipment that was purchased by IET for classroom technology upgrades. We thus had the opportunity to learn from IET about how classroom improvements are planned, scheduled, and completed at UC Davis.[1]

We learned that before 2014, amounts ranging from $250-750,000 per year were allocated to the Registrar's office for general assignment classroom (GAC) maintenance and for certain GAC upgrades. In 2014, there began to be more focus on the quality of instructional facilities and a growing consensus that technology upgrades and deferred classroom maintenance should be completed. The 2020 Initiative, which could increase the number of students on campus by up to 5,000 by 2020, influenced this view.

Since 2014, a governance structure has been crafted via the dedicated participation of many groups and individuals on campus. In fiscal year 2014, four GACs received technology upgrades. In 2015, two received technology upgrades and nine were fully renovated. In 2016, ten upgrades and eight full renovations were completed.

We also discovered the following:

- The campus has not articulated and disseminated a comprehensive program for regularly refreshing or upgrading classrooms to meet a baseline standard and to adequately support ongoing maintenance. To be effective, such a program would need to include a detailed budget, a timeline, and well defined classroom standards.
- There is no single responsible party with decision making authority who is accountable for achieving and maintaining classroom quality.

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[1] The scope of this project did not allow for interviews with all other stakeholders. We have thus taken great care to confine our comments to facts only, with the goal of identifying issues that require consideration from campus leadership and cannot be solved by IET alone.

Symptoms of the above two conditions include the facts that:

- o The roles and responsibilities for the major participants in the classroom technology upgrade, renovation, or new construction process have not been clearly defined.[2]

- o There are no approved design and technical standards for classrooms.

- o There is no standardization of or agreement about the process to improve or construct individual classrooms. For example, there is no clear agreement about which parties should be involved in the various types of projects and at what stage of the process they should be consulted.

Additionally, classroom availability for upgrades or renovations is limited to the summer months. If one or two classrooms per quarter could be made available for renovations in accordance with a comprehensive schedule or plan, work could be completed in a way that would use personnel and other resources in a more balanced, efficient manner.

In the past, all of these issues were exacerbated by the fact that classroom upgrades that required funding in addition to the Registrar's annual allocation, including those that were part of the 2020 initiative, were allocated funds in accordance with the annual budget cycle. This meant that project planning and purchasing for work to be completed during summer break could not be done at a natural pace that might take advantage of vendor discount opportunities, but had to be done very close to installation dates.

Finance, Operations and Administration (FOA)'s recent decision to treat GAC improvements as a multi-year program with an allocation of approximately $20 million over 5 years should alleviate this problem. FOA intends to engage the Procurement department to optimize vendor pricing.

It should be noted that the $20 million designated for this purpose have not yet been allocated in accordance with a comprehensive plan nor has a process been established to ensure there will be accountability for the achievement of specific objectives with those resources. AMAS understands that FOA has directed the Instructional Facilities Master Plan Project Advisory Committee's Classrooms Work Group to develop a detailed plan. AMAS further understands that FOA has directed that budget-to-actual reporting be completed for the expenditure of these funds. A process to complete and review that reporting and clear accountability for results has not yet been established.

Recommendations

On behalf of the campus as whole, IET should initiate discussions with campus leadership and other stakeholders to address the overall vision, decision-making authority, implementation processes, design and technical standardization, scheduling plans for classroom technology upgrades and renovations, a regular technology refresh process, and ongoing classroom technology maintenance, as well as new classroom construction.

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[2] In addition to IET, major, regular participants in the process of maintenance and improvement of UC Davis classrooms include: the Instructional Space Advisory Committee Group of the Academic Senate; the Instructional Facilities Master Plan Project Advisory Committee and its Classrooms Work Group; Design and Construction Management (DCM); the Registrar's Office; and the Facilities department, including Custodial Services.

Management Corrective Actions

1.   By June 15, 2017, the Vice Provost-CIO will schedule a meeting with campus leadership to discuss the campus process for classroom technology upgrades and renovations, a regular refresh process, and ongoing classroom maintenance, as well as processes for the construction of new classrooms.

B. IET must assess its capacity to complete planned classroom upgrades and expand as indicated.

IET provides design, installation, and maintenance services for audio visual (AV) equipment in campus classrooms. Prior to the fiscal year ending June 30, 2016, IET completed five or fewer classroom upgrades per year. The ATS division was responsible for that work. As part of the 2020 initiative, it is expected that the campus will upgrade 18-22 classrooms per year for five years, beginning with the 18 upgrades completed in the summer of 2016.The CR division will be responsible for the IET portion of work completed in the future.

AMAS has found no evidence that a formal capacity assessment process took place to respond to this three to four fold expansion in work and influx of equipment. On the contrary, we found that AV equipment purchased for a 2015 upgrade in Olson Hall was received without being entered into any inventory tracking system and was stored in at least 20 temporary storage locations because there was not sufficient warehouse space.

This project was cancelled and replaced with a project for full renovation of the classrooms, but the original equipment received was not returned. In February of 2016, a physical inventory was taken of that AV equipment and items with a total cost value of $959,915 were located.

The CR Network Service and Construction Manager has stated that all efforts were made to deploy that equipment in the general assignment classroom upgrades that took place during the summer of 2016. It is not known at the present time how much remains on hand as the equipment still has not been entered into any of IET's tracking systems.

IET management and staff state that current warehouse capacity is inadequate for current and future needs, particularly when influx for active projects is high. The AV equipment described above is still stored in multiple temporary locations. Planned 2020 classroom upgrades will require additional large inflows of AV equipment for the next four years.

CR management states that current staffing levels are not adequate to complete the administrative tasks required to track these inflows.

Recommendations

IET CR and Business Operations Unit (BOU) should assess its warehouse capacity and inventory equipment management staffing for adequacy to manage the planned 2020 classroom upgrades, ongoing classroom maintenance, and other anticipated inventory space needs. IET should develop a proposal to address deficiencies in warehouse and staff resources as indicated by this assessment.

IET must conduct a physical inventory of the untracked AV equipment on hand using the February 2016 count as a starting point for expected counts and locations. The equipment that remains on hand must be entered into Pinnacle, CRs equipment tracking software.

Management Corrective Actions

1. By September 15, 2017, IET will assess its warehouse and equipment inventory management staffing capacity for adequacy to manage the planned classroom upgrades, ongoing classroom maintenance, and other anticipated inventory space needs. IET will develop a report with recommendations for review by the Vice Provost-CIO.

2. By September 15, 2017, IET will assess the physical security of its equipment storage areas, and will make recommendations to the Vice Provost-CIO for improving physical security and user access control for all IET equipment storage areas.

3. By October 15, 2017, IET will develop a proposal that can be submitted to the campus Space Planning Committee and/or via the annual budget process to address warehouse and equipment inventory management staffing capacity needs and physical security and access control deficiencies, as indicated by the assessment that was conducted for MCAs 1 and 2.

4. By October 15, 2017, the Vice Provost-CIO will schedule a meeting with the Interim Lead of the FOA to discuss IET's needs for warehouse space and equipment inventory staff.

5. By August 15, 2017, CR will implement a process to incorporate new AV equipment into its Pinnacle inventory management system.

6. By January 15, 2018, IET will use the February 2016 physical inventory record of the untracked AV equipment to determine how much of that equipment is still on hand. IET will ensure that viable equipment that has not yet been deployed is properly safeguarded and added to the Pinnacle equipment tracking system. Obsolete or unusable items will be disposed through Aggie Surplus, and those disposals will be documented.

C. IET must improve its ability to complete equipment inventory reporting functions. IET could improve efficiency and effectiveness in equipment inventory management with a unified system.

CR maintains the campus phone, Ethernet data network, wireless network, television/cable, and emergency radio systems for UC Davis.

We interviewed CR managers and staff to gain an understanding of the current processes in place to track equipment from the time of purchase to disposal within CR. We then attempted to track three test selections of each type of inventory item from procurement through the inventory systems and to disposal, if that occurred.

Our work led us to conclude that CR has adequate control over, and records for, items with cost value over $5,000 that are tracked within the Kuali Financial System (KFS) and the Capital Asset Management system (CAMS). We observed that CR has effectively used Pinnacle to support operation of its networks, and our investigation substantiated no incident of improper governmental activity related to equipment management within CR.

At the same time, we observed the following deficiencies in IET's ability to demonstrate adequate stewardship of University resources:

1. CR has a notable amount of equipment with individual item cost value under $5,000 that due to the number of these items owned, represents value in the aggregate that it might be appropriate to track.

   These items might best be classified as Non-Inventorial or Other Inventorial Items as defined by UCOP Business and Finance Bulletin BUS-29 Management and Control of University Equipment, and therefore subject to the requirement that they be safeguarded and tracked. [A] [B]

2. We noted that the Pinnacle system cannot now produce a report of inventory at any point in time, it can only provide a real time snap shot. We noted that Pinnacle data has not been compiled in a manner that allows tracking between or comparison to CAMS.

3. We observed that for at least one test selection, there was no adequate explanation within Pinnacle for why the item had been disposed within 18 months of being placed in service.[3] CR's Pinnacle Analyst stated in subsequent discussion that this is representative of current practices within CR, namely that complete, current information is not consistently maintained.

4. RapidFire aka eTurns system (RapidFire), the software which is used to certify Supplies Inventory at year end for balance sheet reporting in KFS, is also unable to produce a report at any but the current time, nor can it be used to perform a reconciliation of inventory between periods.[C]

Finally, in the course of our work, we observed that IET as a whole uses seven major software programs to track equipment (see an overview in Appendix B). Additional shadow systems run primarily in Excel are regularly in use, and there is limited or no interface among the major systems.

These are the most significant observations that resulted from our work. Three additional items are noted in Appendix A along with a reference to their associated corrective actions.

Recommendations

To meet basic business standards, IET must develop the ability to:

- Produce reports listing all inventorial and non-inventorial equipment in custody at any point in time, the cost value of that equipment, and its location.
- Complete a reconciliation of items tracked both in the Pinnacle and CAMS system.
- Account for changes in equipment balances between periods.

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[3] This item was one of 36 AP215 access points noted as disposed within Pinnacle in October/November 2016. The Pinnacle system showed that the disposal was related to "Project 3815," but no further explanation was provided. As project tracking and billing does not now take place in Pinnacle, no further information on the disposal could be obtained without an inquiry to staff. Pinnacle has the ability to track status of individual items-- e.g. "damaged" or "obsolete" and then to note the action taken, such as "sent to repair" or "disposed". Staff do not consistently use this function.

- Efficiently create and review an audit trail for individual items that move through equipment management systems from purchase to disposal. That function should provide sufficient information to demonstrate how University resources were expended with adequate stewardship.

IET as a whole should consider the adoption of a single, unified equipment management system to be used by CR, BOU, and any other part of the organization that maintains inventories.

Management Corrective Actions

1. By December 15, 2017, IET will reevaluate its policy of tracking only equipment over $5,000. Per UCOP and campus policy, IET will consider whether a lower threshold or different thresholds would be more appropriate given the aggregate value of items under that amount. IET will also consider theft sensitivity as a means of determining if items should be tracked. IET will document its equipment tracking policy.

2. By December 15, 2017, IET will develop the ability to produce reports that can list all equipment in custody that is deemed appropriate to track per the evaluation performed in MCA 1, at a point in time, its cost value, and its location. Data maintained and reporting capacity will be adequate to reconcile CAMS reports at any fiscal period end to any other systems in operation.

3. By November 15, 2017, IET will develop and implement a standard process for the approval and documentation of the disposal of all equipment that has been deemed appropriate to track per the evaluation performed in MCA 1.

4. By January 15, 2018 IET will develop the ability to complete roll-forward reconciliations of all equipment in custody that has been deemed appropriate to track per the evaluation performed in MCA 1, and of its Supplies Inventory. These reconciliations will account for additions and subtractions in the totals between periods. IET will complete an initial reconciliation and a process to complete such reconciliation annually.

5. By November 15, 2017, IET will assess formal separation of duties within the Storehouse per the criteria in Appendix A of this report. IET will document that assessment and will develop and implement a plan to improve as indicated.

6. By October 15, 2017, IET will conduct a security review of RapidFire to evaluate the risk to University data due to the use of the RapidFire software. IET will then develop and implement a plan to mitigate risks identified in the security review.

7. By January 15, 2018, IET will review the equipment inventory management systems and business processes used in all of its units, and make recommendations to the Vice Provost-CIO for improvements that can be made to reduce the number of systems that are used and/or to reduce the complexity of inventory management business processes.

APPENDIX A

	Criteria	Exceptions Noted--IET to Remedy	MCA
1	Physical security: Equipment should be stored in secure facilities with controlled access.	Per staff, the key to TB162, an auxiliary warehouse used to store items that are no longer tracked is the same key for the CR and Network Operations Center (NOC) building. Many have copies of this key. Keycard security access system is only partially in place within IET.	B.2
2	Separation of duties: Adequate separation of duties should exist such that those who approve purchase of, receive, manage, use, and dispose items are not responsible for actions that are conflicting, and that no individual is responsible for a key action and the documentation of that action. Appropriate roles should exist in inventory management software to maintain this separation.	RapidFire does not allow for access roles for proper separation of duties. All with a RapidFire login may adjust quantities. An audit trail function exists; but there is no formal or documented review process of the audit trail.	C.5
3	IT Security: University data should be secure, with adequate backup of critical data. University data should not be accessible to outside parties.	UC Davis RapidFire inventory data is visible to Anixter, a distributer vendor to the University that hosts the software. UC Davis has no agreement with Anixter regarding ownership or use of the data. No regular download of UC Davis inventory data from the Anixter cloud is completed by UC Davis staff. Risk exists that the campus could lose data if the company shut down or if UC Davis elected to discontinue use of this distributor.	C.6

APPENDIX B

Overview of IET Inventory Tracking Systems

The software systems listed below are used within IET to track equipment inventory of various types. Individual equipment items may be entered into more than one system. This happens routinely for items with cost value over $5,000 as those must be tracked in the campus Kuali Financial system for UC and campus financial reporting. These are tracked both in Kuali and at least one other IET software system.

KFS CAMS includes all equipment with cost value >= $5K

Pinnacle. Used by CR for operational tracking; has capacity for full ERP deployment

RapidFire. Used by Storehouse for supplies inventory and CR & ATS project equipment.

Tech van

eSchedule. Used to track ATS equipment (limited use only)

Rodan. Used for Data Center Equipment

ESP. Used for desktop equipment owned by IET

ESPX. Used for departmental desktop equipment

AMAS inquiry as described in Section C focused on CR systems only – the CAMS, Pinnacle, and Rapid Fire software and the business processes surrounding those.