

# **Comm & Info Services**

## **-IT Support & Maint.**

### **Unit**

# **Annual Report**

## **FY2019**

*“The two words ‘information’ and ‘communication’ are often used interchangeably, but they signify quite different things. Information is giving out; communication is getting through.” – Sydney J. Harris*

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# Executive Summary

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## Unit Definition

The Communications and Information Services IT Support & Maintenance unit serves the Facilities Services department's digital needs by developing and supporting hardware and software solutions that facilitate the functions of the FS department.

## FY19 Operating Highlights

- Assisted the Design Services department with the Cone Zone Website.
- Purchased 42 new computer and SSD/RAM upgrades to extend the life of 57 current machines.
- Managed over 1,400 online devices, 111 Tablets/Mobile Devices, 261 2-Way Radios. This includes 178 user assigned desktop workstations and multiple FS Staff shared workstations.
- Digital signage is now available using Hypersign to integrate with Campus Wide System or simple slideshow for Facilities Services specific presentations.
- We assisted with Lutron Lighting upgrade at Neyland Stadium, Thompson-Boling Arena and New Lutron installation at Ken & Blaire Mossman Building.
- 3D printed parts are being tested.
- Drone Pilot training is underway.
- Created Sharepoint site to share small-scale floor plan drawings of UT facilities
- We are currently heavily involved with new office setups and multiple office relocations as part of the Facilities Services NextGen 2.0 initiative and new building construction on campus.

## Vision

The group seeks to provide a forward looking and thinking viewpoint that will help the FS department position itself for continued excellence in the management of the University of Tennessee's facilities through the use of current and emerging technologies.

## Moving Forward

The unit intends to continue its focus on supporting the hardware, software, and telecommunications needs of the Facilities Services department to maximize the effectiveness of these systems to help leverage the FS department's work efforts. The group will continue to cross-train all members of the team so that they can back one another up with overlapping skill sets as well as developing deeper skills in each individual's area of focus.

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## Unit Definition

**The IT Support & Maintenance** unit's charter is:

The purpose of the IT Support & Maintenance unit is to act as an embedded unit within the Facilities Services department to provide support for the hardware, software, and information technology needs of the entire department in order to create a highly integrated state-of-the-art office that empowers Facilities Services to act as a professional facilities management organization that efficiently and effectively operates and maintains the University's built environment in a manner that supports the larger University community's mission, vision, and values.

The unit acts as a digital forge for the Facilities Services department with the responsibility of continually investigating emerging technologies and assessing them for potential useful benefit by the FS group in order to foster and advance early adoption of technological innovation, push the boundaries of existing technology, and pave the way for the FS group to be the highest performing unit possible.

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## Operating Highlights

### **CIS IT Team**

#### **Hardware**

- The team continuously evaluates computer and telecommunications hardware in use or needed to help the FS department perform at the highest possible level.
- Constantly replaces or upgrades equipment with newer technology that yields ever-increasing performance by the FS teams.
- The group is constantly available to respond when FS personnel encounter issues with their computer equipment.

#### **Software**

- The team works to optimize software systems in use and evaluates the potential for use of additional software to find methods by which FS can offer the highest level of service achievable.

#### **Archibus**

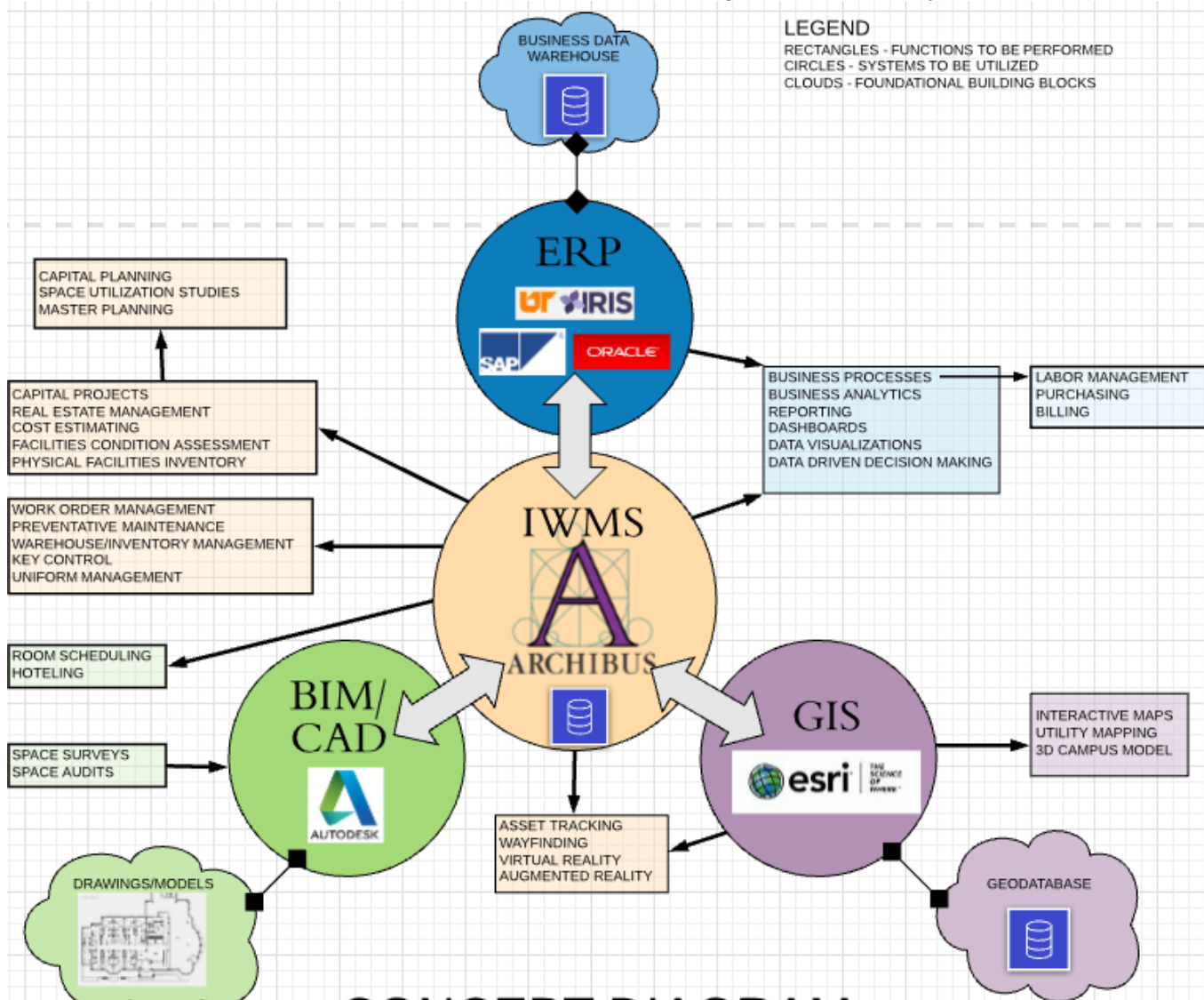
- The Archibus system is currently being upgraded from version 21 to version 24. Version 24 brings the promise of added and streamlined functionality that can confer tangible benefit to the FS department.
- Integrations with other platforms are in planning or underway, including BIM, GIS, and 3D wayfinding navigation platforms.
- Migrations of other systems into the Archibus platform are underway, including Cost Estimating, Uniform Management, Utilities Cost assessment, and Warehouse/Inventory Management.
- Collection and sharing of data held in the system helps enable other units to make decisions based on the information conveyed by the data.

#### **Other highlights**

- The team has recently acquired a UAV drone that can be used to harvest data, perform exploratory evaluations of difficult to reach locations, and monitor facilities operations. The team is preparing for the day when UAVs can be used to perform maintenance and repair activities, increase safety of personnel, and further the efficiency of facilities management operations in ways yet to be discovered.
- The team has worked recently to evaluate the use of Oculus virtual reality systems to identify potential uses by the department.

# Vision

It is an exciting time for the Facilities Services IT Support & Maintenance unit. Several years of foundational work are quickly culminating into a blooming Integrated Work Management System (Archibus) that will become the central cog in multiple enterprise level systems that will enable FS to finely hone the services that the department provides to the University and will empower units beyond the Facilities group to render data driven decisions. The next year will see the realization of multiple IT initiatives, including integrations between Archibus, GIS, and BIM platforms, implementation of a mobile platform, as well as enhancements to existing business processes, including warehouse/inventory tracking, asset tracking, and utility billing. The below diagram depicts a conceptual schematic view of how Archibus will mature into the central cog for all of these systems.



CONCEPT DIAGRAM -  
 FUTURE STATE OF ARCHIBUS AS A  
 CENTRAL ENTERPRISE SYSTEM  
 COG

Specific tasks or projects targeted for completion by the team during the upcoming year include:

- Complete the upgrade of Archibus from version 21.2 to 24.
- Complete computer hardware upgrades funded by CUP (Computer Upgrade Program)
- Implement all Archibus system enhancements itemized in the list of Work Tickets (currently 47 open tickets); Assist with completion of open enhancement Work Tickets assigned to OIT (currently 111 open tickets); Triage and address any future enhancement requests that are received
- Migrate all remaining functions of the legacy CMMS into Archibus (uniform management, utility tracking, cost estimating, and project requests)
- Establish integration between Archibus and ESRI GIS software
- Connect Revit models to Archibus to begin reaping the advantages of BIM software
- Develop proficiency with and obtain FAA licensure for the operation of UAV aircraft; Continue to explore how this technology can benefit the department
- Create dashboards that quickly convey useful metric visualizations
- Implement bar coding system for warehouse inventory, then extend to asset management
- Integrate Condition Assessment data into Archibus
- Implement use of 3D Navigator; further explore VR (Virtual Reality) and AR (Augmented Reality) opportunities
- Configure and roll-out mobile Archibus application
- Identify and create reports and enhancements that positively impact the user experience

## Challenges/Needs Assessment

### **Hurdles to be overcome:**

- A substantial amount of high-skilled work will be required to continue to advance the work of the unit.
- Cooperation of all FS units will be needed in order to successfully establish or migrate information systems that can be of maximum benefit to each unit.
- Acceptance by end users must be achieved to further the successful use of new or upgraded platforms, particularly the Archibus system.
- Ongoing support from the upper administration will be needed to fully achieve the benefits of the team's vision.
- The ratio of IT support personnel to total FS personnel will constitute a challenge, especially as the Facilities Services department increases to full staffing levels.



# Strategy

## **Overcoming challenges**

The strategy for overcoming the stated challenges is to:

- Add staff that can bring additional expertise in the current focus areas. Specifically, an Archibus System Analyst position has been added to the team to provide dedicated development support to the initiatives related to that area.
- Thoughtfully plan and manage interactions with other business units to assure that their needs are heard and integrated into any system adaptations that will affect their unit.
- Replace or upgrade computer hardware funded through the CUP (Computer Upgrade Program) to keep FS users productive.
- Orchestrate a coordinated roll-out of the new Archibus version (v24) and added functionality to illustrate benefits to end users in a way that generates excitement and enthusiasm while mitigating potential anxiety about changing technological systems.
- Demonstrate the value that the team can bring to the FS department as well as to the University at large by developing and tracking tangible measures and metrics.
- Test the benefits of utilizing 3D printed parts to determine how this technology can be harnessed.
- Develop proficiency using UAV drones to gather data and aid FS maintenance operations and possibly other University units.
- Expand the digital signage program as a communication and outreach tool.

# Performance Tracking/Evaluation

## KPIs (Key Performance Indicators)



“You can’t manage what you can’t measure.” – Peter Drucker

The team will be working to identify and establish metrics that can provide meaningful measures of the impact of both the unit and the department as a whole. The focus will be on metrics that quantify increases in efficiency realized by the efforts of the team and the systems that they support. Some specific measures include:

- Calculate the number of Work Tickets executed by the IT Support & Maintenance team. Possibly measure the intensity of work effort and display in a visualization.
- Measure the number of unique annual visitors and average daily visitors to the Archibus main webpage. Compare to previous annual numbers and present in a graph.
- Measure the turn around time for Work Requests submitted. Evaluate the data to continuously improve service times.
- Measure the impact of Preventative Maintenance work by calculating a ratio of PM Work Requests relative to the number of reactive Work Requests for each building as well as campus-wide. Explore the possibility of identifying a dollar amount of cost savings generated by performing preventative maintenance instead of reactive maintenance. Also, calculate the percentage of On-time Completed PM Work Requests as well as PM costs to On-Demand Costs.
- Calculate the cost of building maintenance per gross square foot and track annual changes to document increases in efficiency.
- Measure the energy use of each building per gross square foot and compare to other buildings to identify buildings that might be candidates for energy efficiency improvements. Provide a data visualization that sets a benchmark for energy efficiency based on the year a building was constructed and indicates if a building performs below or above that benchmark.
- Additional metrics will be established as increased reporting and statistical evaluations become available.

## Resources

The IT Support & Maintenance unit has a stated goal of helping maximize the efficiency of Facilities Services operations through the use of technology. The team places great priority on the efficient use of resources and seeks to continually improve and promote responsible stewardship of University assets. The services and systems that the group provides help measure and refine methods of efficient resource utilization including money (dollars), time (person-hours), assets (equipment), and space (square feet) for Facilities Services operations. Strategies for maximizing efficiency include:

- Provide effective technology support for audio/visual, computer, multimedia, voice, video, and web-based applications and services to help enable the Facilities Services department to continually increase efficiency.
- Promote and facilitate the effective integration of technology into the mission of the Facilities Services department through planning, programming, training, consulting, and other support activities.
- Develop and track metrics that help gauge the utilization and efficiency of the department's technology tools.
- Promote the sharing of resources, including equipment and data to leverage the department's ability to function in a nimble and responsive manner.
- Develop and maintain highly effective, reliable, secure, and innovative information systems to support the functions of the Facilities Services department.
- Facilitate the collection, storage, security and integrity of electronic data while ensuring appropriate access.
- Promote new uses of information technology within the department through the support for exploratory and innovative applications.
- Provide fast and reliable access to available information systems.

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## Team Members



**Shawn T. Benson**  
**Archibus System Analyst**

Acts as a subject matter expert for the Archibus system. Continuously develops Archibus to support the needs of the Facilities Services department.



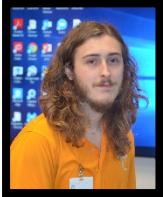
**Jim McCarter**  
**Senior IT Technician**

Provides network, hardware & peripheral support to department. When network issues escalate outside of his skillset, he collaborates with OIT to correct issues. Provides support to Archibus System Analyst performing any tasks within his skillset.



**Tim Baker**  
**IT Technician II**

Provides desktop support to end-users, manages radios, tablets and any other mobile devices. Provides support to Archibus System Analyst by creating BIRT reports or performing other tasks within his skillset.



**Garrett Jones**  
**Student Assistant**

Provides support to team by handling administrative tasks and/or provides desktop support to users depending on IT knowledge and experience.



Figure 4. 2019 IT Support Ticket statistics

Number of support tickets created: 1197

Desktop Issues	170	Microsoft Office	11
Hardware-Laptop	97	Network- Device Classification	11
Communications	80	Active Directory- Folder Access	11
Hardware- Printing	80	Purchasing	11
Audio/Visual	66	Hardware- Phones	9
Microsoft Outlook	64	Printing from Windows	9
Software Install	43	Smart Phone Email Setup/Issues	7
User Profile	43	Hardware-Keyboard/Mouse	7
Archibus	30	Recycling	6
Miscellaneous Software	28	Software Upgrade	5
Training	26	Adobe Reader	4
Miscellaneous	25	Email Management	4
Network- No connection	25	New User Profile Setup	4
Paperwork	25	Legacy Database	3
Adobe Suite	23	Lutron Lighting	3
Web Browsers	22	Two Factor Authentication	3
Hardware-Scanners	22	Emergency Management	2
Web Site Maintenance	21	Hardware- Move	2
Anti-Virus/Malware	19	Sharepoint	2
File Backups	19	Hardware- Tablet	2
Security Cameras	18	VPN	2
Network- Port Activation	17	Wireless	2
Phishing Attempts	17	Conference Room Setup	1
Hardware- Monitor	15	Power Outage	1
Network- Device Registration	15	Hardware- Radio	1
Hardware- Time Clock	15	Tablet App	1
Equipment Inventory	13		
LISTSERV Maintenance	12		
Windows	12		
Miscellaneous Hardware	11		

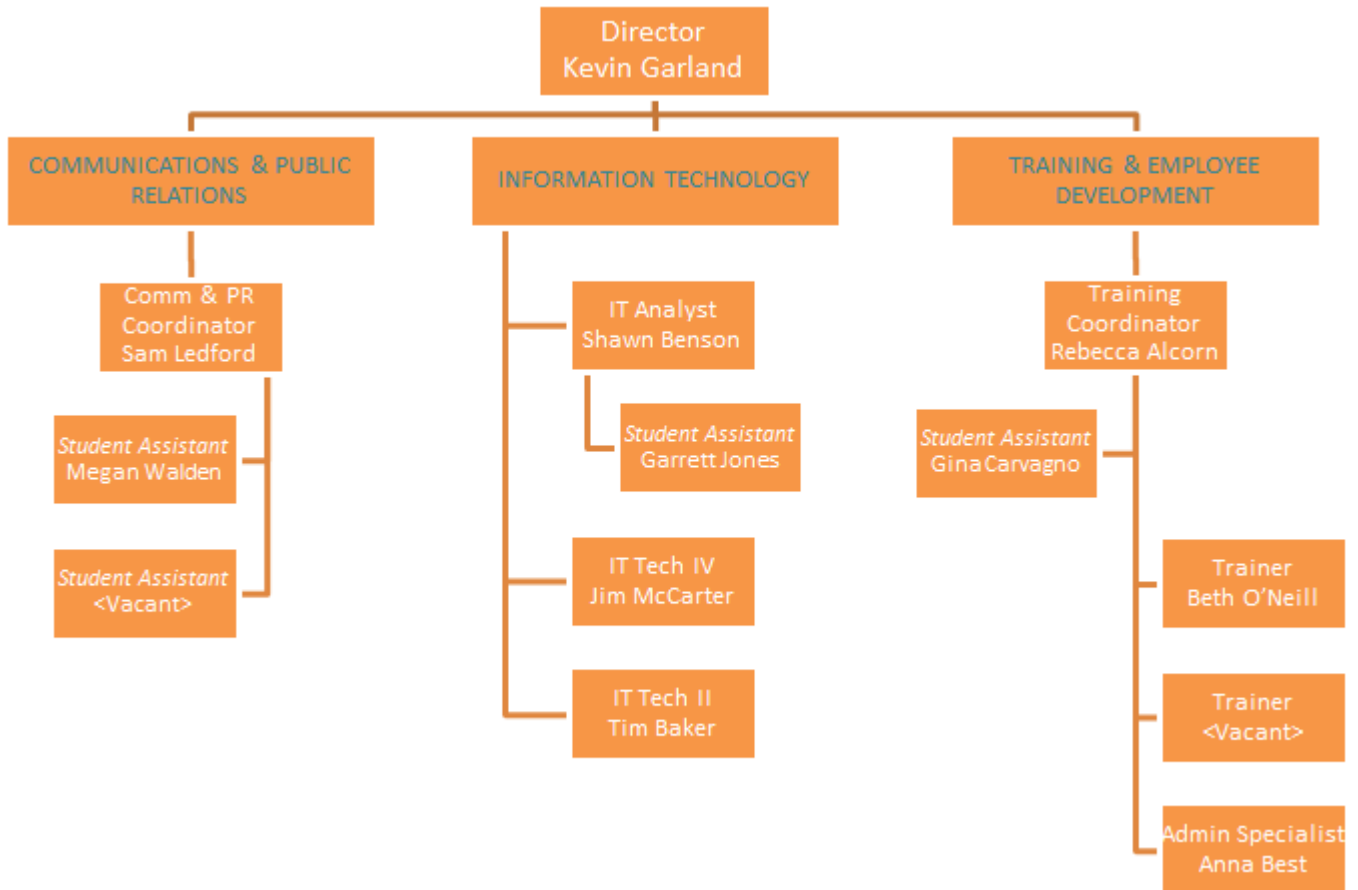
Average time per request including small projects: 48.8 minutes

Preferred Method of Contact by Customer

Walkup	43%
Email	37%
Walk-in	12%
Phone	6%

Most Active Time of Day	8:00 AM -10:00 AM	35.5%
Most Active Hour	8:00 AM-9:00 AM	21.6%
Least Active Time of Day	3:00 PM – 5:00 PM	15.5%
Least Active Hour of Day	4:00 PM – 5:00 PM	6.7%

# Org Chart





THE UNIVERSITY OF  
TENNESSEE

KNOXVILLE

FACILITIES SERVICES

Communication and Information  
Services Department

ANNUAL REPORT

**FY2019**

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