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Questions to specific materials, methods or services will be addressed at the conclusion of this presentation.

Course Description

Under the Hood View

In 2015, to better serve the growing needs of the facilities department and the university more broadly, the University of Kansas reset its computerized maintenance management software (CMMS). The presenter will discuss how the system was rebuilt to be an 'all in one' system to handle customer requests, work order information, mobile work order usage, simplified universal workflow, inventory, preventive maintenance, space management, and automated billing. This change, communication, futureproofing, reliable metrics, and universal usability created priceless best practices.

Presenter: Shawn Harding, Director – Facilities Services, The University of Kansas

PROGRAM AREA: Resource Allocation & Workload Prioritization

Learning Objectives

PROGRAM AREA: Resource Allocation & Workload Prioritization

PRESENTED BY Shawn Harding – Director of Facilities Services

UNDER THE HOOD *KU Facilities Services*

KU THE UNIVERSITY OF
KANSAS



KU Stats

Fall 2023 enrollment

29,355*

Academic Staff

1,500

AAU

Big XII



KU THE UNIVERSITY OF
KANSAS



KU Stats

184 'occupiable' buildings

11.2M Gross square feet

6.8M Academic

1.5M Housing

1M Athletics

500k Parking

275k Union*

1M P3*



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KU Stats

Structure = Trade based

Zones implemented in 2012. Fully back to trade based by 2018.

PROs:

Continuous improvement
Asset based structure (asset reliability)
Staffable

CONS:

Cross-shop coordination/handoff (rare)

Surprises:

Customer satisfaction improved



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KU Stats

Budget:

Compensation: \$10.7M

OOE: \$6.4M

10M GSF

Plumbers:

13

HVAC:

13

Electricians:

13

Grounds*: (100ac, ~350ac)

20



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CMMS: Prior system failures (prior to 2016)

The prior system was managed by various leadership with varying goals – result was inconsistent data. Our goal was to initiate standards and workflow processes to ‘future proof’ the system.



Engineered Inefficiencies

- Manual processes
- Duplicate data entry
- Unable to use existing system functions due to customizations.
- Unable to utilize other systems’ data
- ‘Made up’ domains passed on from one administration to another (no standard).
- Proprietary to only our organization (Maintenance).
- “We’ve always done it this way”



Desired metrics unattainable

- **% Reactive maintenance (RM) vs % Preventive Maintenance (PM)**
- Late or Missed PM
- Facility reliability (Uptime/downtime) metrics
- Response time metrics
- Completion time metrics
- High asset costs
- Spend per department, spend per building, spend per asset, spend per trade, spend per item classification, spend per vendor(contractor), spend in overhead per shop...




“You cannot manage what you cannot measure”

- **Work Order Culture**

All work goes to the work order. Capture the ‘Total cost of Maintenance’

- Labor
- Materials
- Services

- **What do you want to know?**

- Quality?
 - Response?
 - Cost?
 - Better communication?
 - Process improvements?
 - Reliability?
- 



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'Noun' management



People

ALL people (275k)
Labor (Rates)
Shops
Departments
User Security



Places

ALL locations
(27,500)
Buildings (182)
Exterior locations

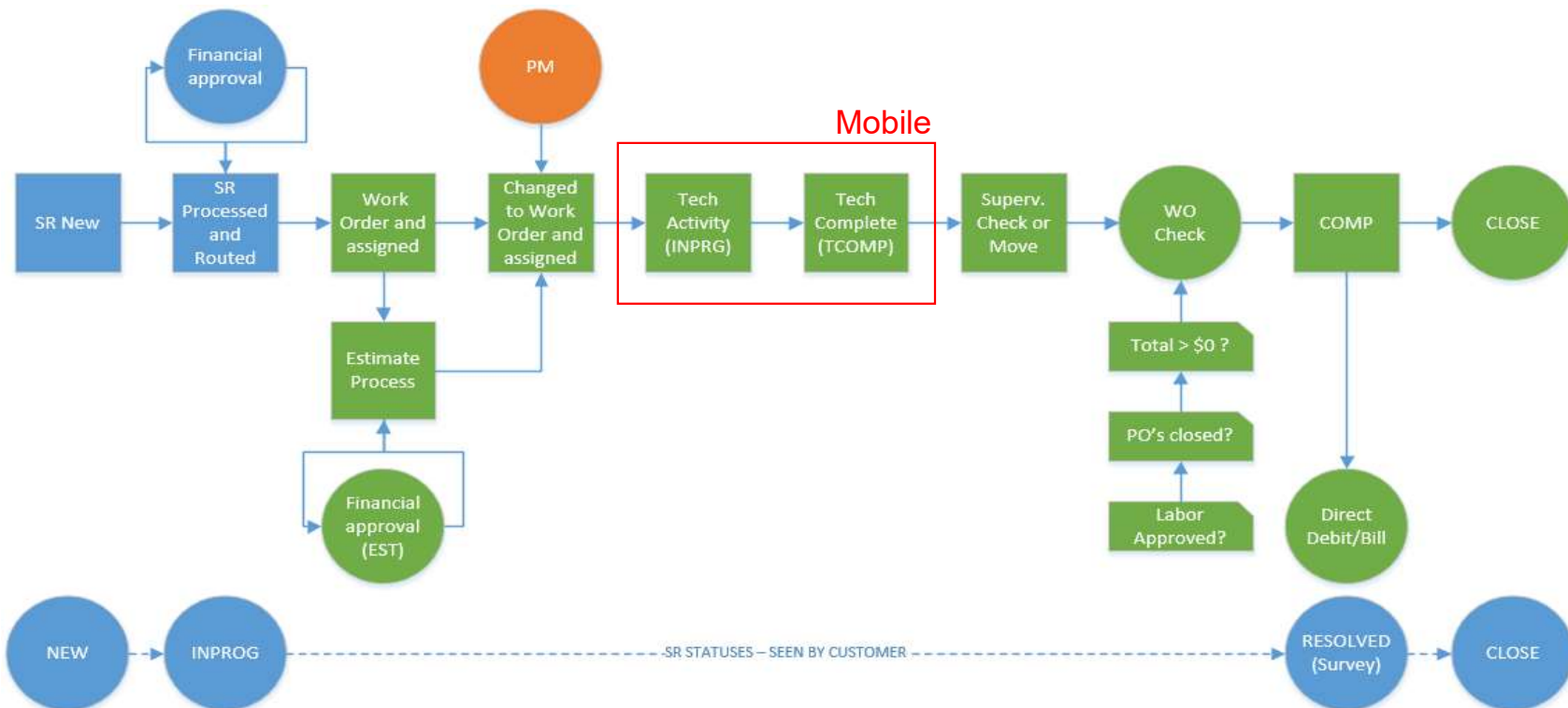


Things

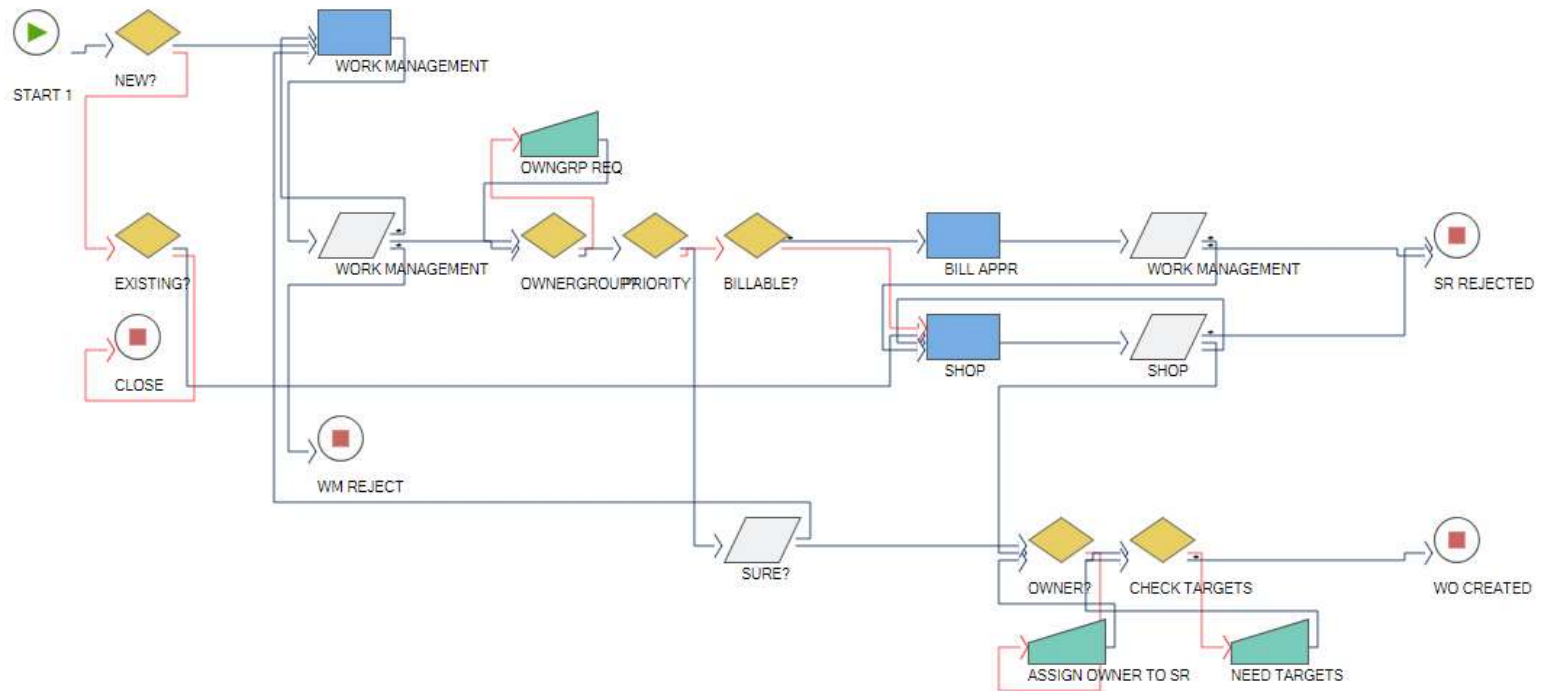
Assets (61k)
Asset Systems
Inventory Mgmt.
Non-inventory items
Tools



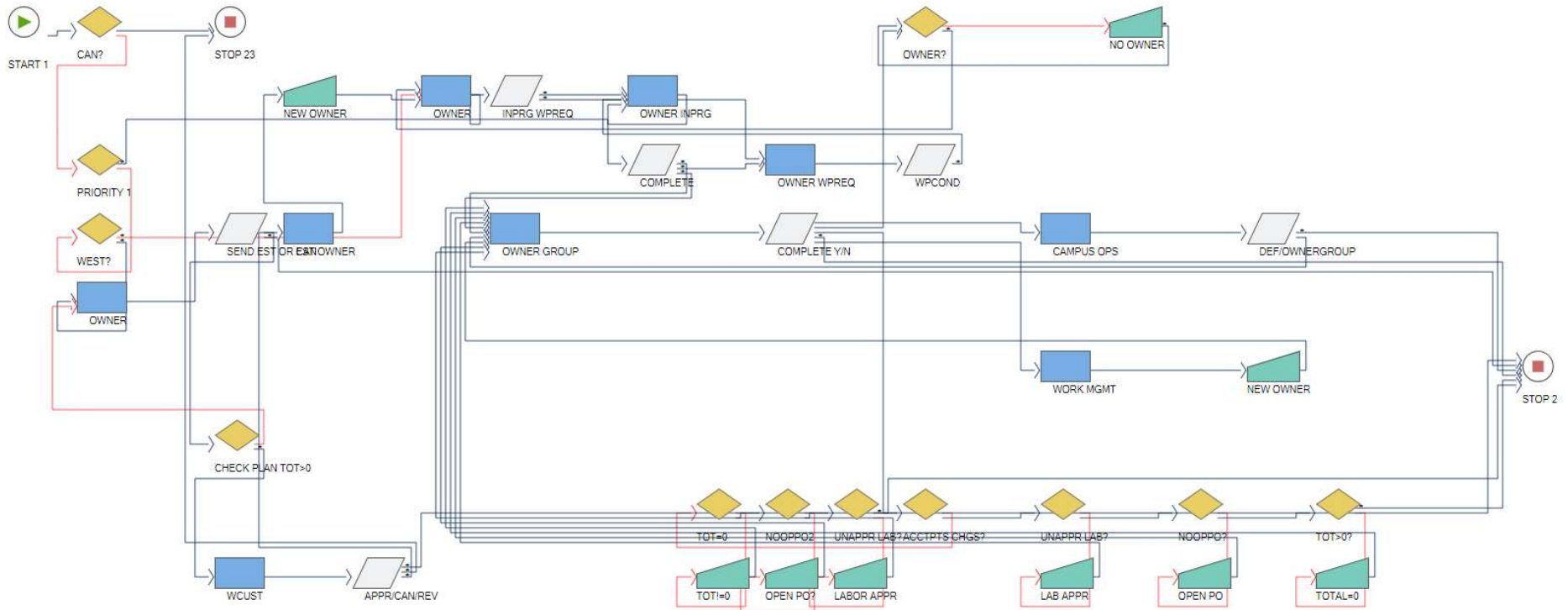
'Verb' management – Workflow overview (USW)



Maximo



Maximo

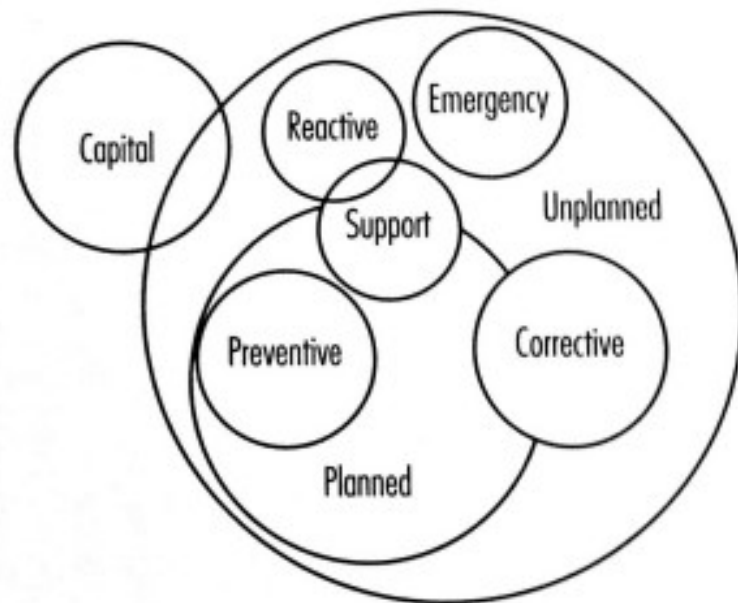


STANDARDS

- Work Type
- Prioritization
- 'Things'
- Services
- Space
- Workflow process

Standardized input = Standardized output

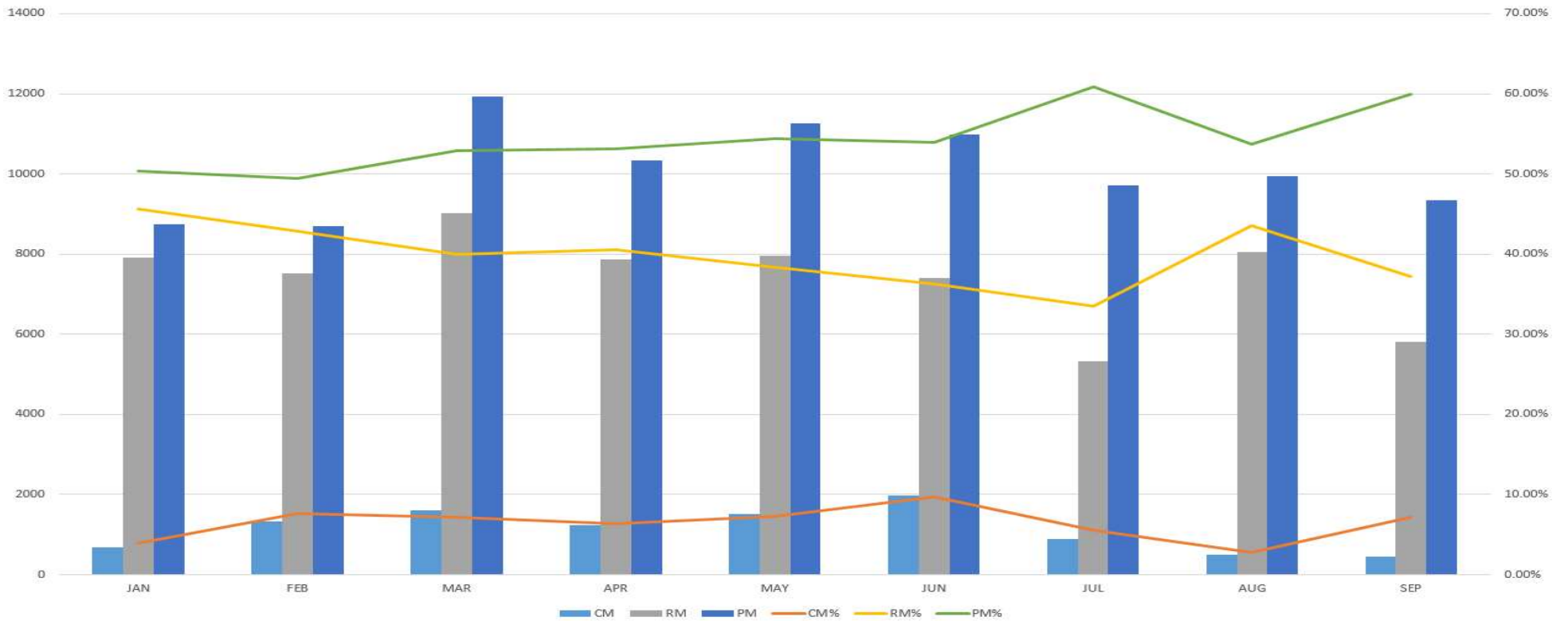
Standards – Work Type



Definitions

- Reactive – ‘Unplanned repair’
- Corrective – ‘Internal correction’
- Preventive – ‘Planned program’
- Support – Departmental support
- Capital – Modification / value increase

Metrics – Work Type comparison (PM/RM)





Standards - Prioritization



Emergency (Immediate response)

Life/safety/imminent property damage threat and/or core/critical service failure.



Urgent (2 hour response)

Potential to become emergency or disrupt service if no action is taken.



Scheduled (Scheduled response)

Date sensitive requests. PM work.



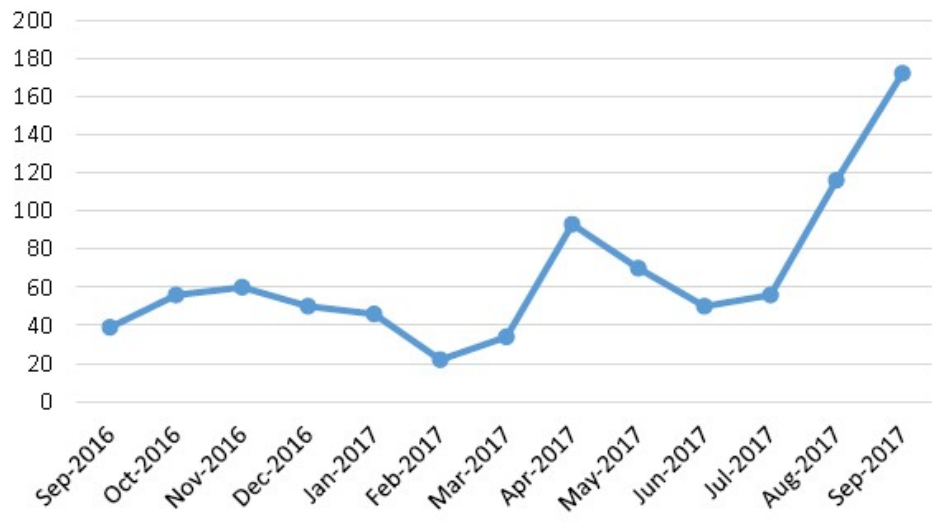
Routine (5 day response)

Non-urgent, non-scheduled.

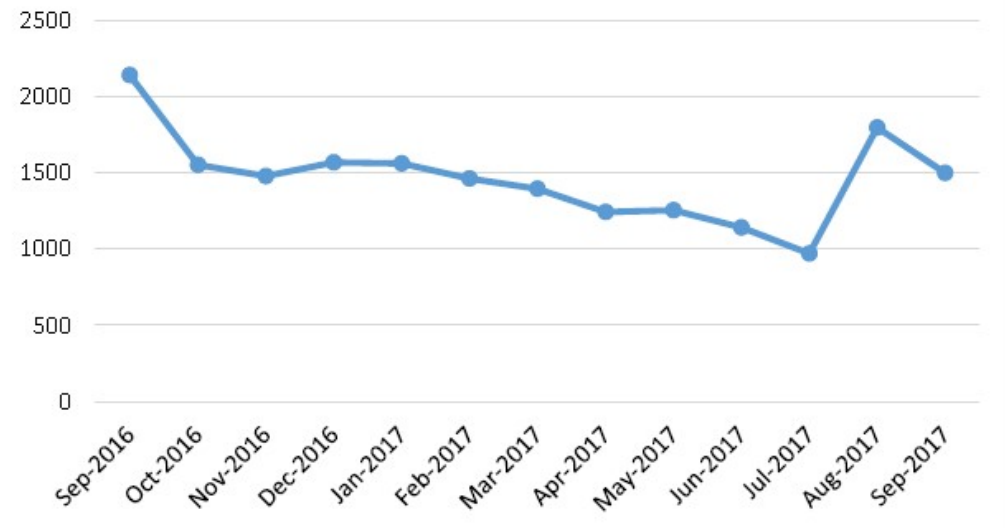


Metrics – Work Type comparison (PM/RM)

Emergency Work Orders



Urgent Work Orders



Standards – ‘Nouns’ (Assets and Items)



UNSPSC

United Nations Standard Products and Services Code
Standard code for international trade.
77,000+ classifications.

Ex. Aleppo olives 50307202

50 000000 = Food Beverage and Tobacco Products (33,475 classes)

5030 0000 = Fresh Fruits (1,292 classes)

503072 00 = Olives (31 classes)

50307202 = Aleppo olives



Standards – Services “Verbs”

Animal trapping	76
Extermination or fumigation services	1437
Rodent control	29
Grand Total	1542



UNSPSC

United Nations Standard Products and Services Code
Standard code for international trade.
77,000+ classifications.

Ex. Pest control 721021__

72 000000 = Building and Facility Construction and Maintenance Services (494 classes)

7210 0000 = Building and facility maintenance and repair services (43 classes)

721021 00 = Pest Control (7 classes)

choose

72102103 = Extermination or fumigation services

72102105 = Animal trapping

72102106 = Rodent control



Standards – Space



KU Space Database

Currently 23,623 spaces.

Classrooms, Labs, auditoriums, corridors, mechanical rooms, restrooms, floors, buildings, roofs, landscape zones, etc.

Key points: [ex. My office, St. Andrews 101a]

- Location itself is a 'serial' number [26842]
- Room number is a separate data field - changeable
- NASF [111]
- Type [31500 - Office Service]
- ARSP [Campus Operations]
- Cost center [7001200]
- Percent assigned [100%]
- Why? - Technician receives a work order with this data.



Standards – Workflow



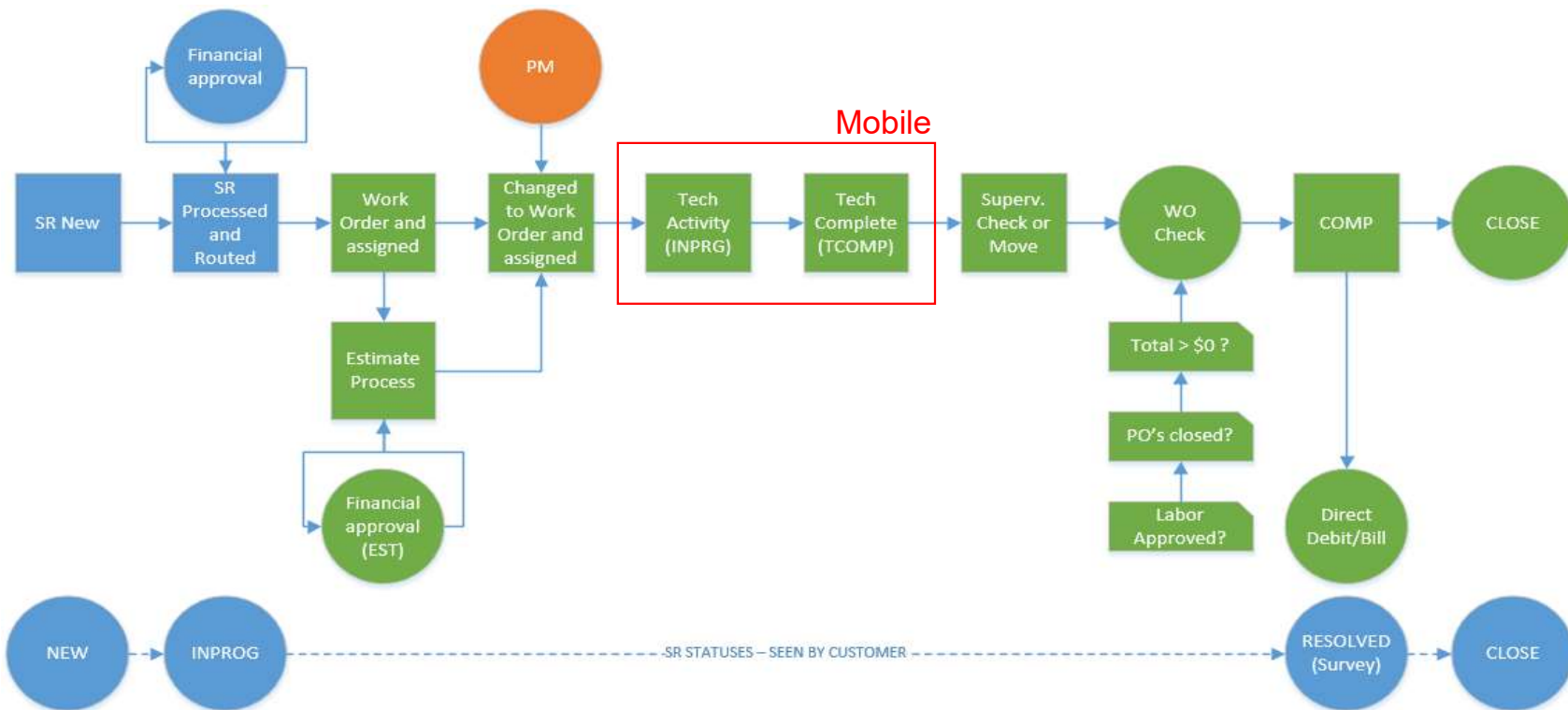
Workflow

Creating an ‘enterprisable’ service workflow model allows any participating service departments to utilize the system and benchmark against other internal groups.

- *Facilities Services
- *IT infrastructure
- *P3 partner
- *Public Safety
- *Recycling/Surplus
- *Campus Planning and Design – Project Management
- *Edwards Campus (remote campus)



Workflow overview



FINANCIALS

- Asset/Location defaults
- Financial approval
- Estimate process
- Purchasing integration
- Automation scripts
- Direct Debit A/R

Standardized input = Standardized output

Maximo – SR Create

Create Service Request

How To

For assistance, call 864-4770 or email facilities@ku.edu

Reported By: S366H815

* Phone: +1 785 864 45

E-mail: s366h815@ku.edu

Affected User: S366H815

Asset: >>

* Location: 26842 >> ST. ANDREWS OFFICE FACILITY, ROOM 110A, OFFICE SI

GL Account: 7001201-099

Reported Date: 9/19/18 11:15 PM

* Reported Priority: 3

Estimate Required?

Asset Site: OPS

Customer: 7001201 >> FS Director's Office

CF1: >>

Request Description

Please enter a summary and a more detailed description of your Service Request.

Summary: Broken door handle

Rich text editor toolbar with icons for undo, redo, bold, italic, underline, strikethrough, bulleted list, numbered list, indent, outdent, link, unlink, insert image, insert video, insert audio, insert document, and insert link. Below the icons are dropdown menus for Font, Size, and Format (set to None).

Classify

Click the detail menu to classify yo

Classification:

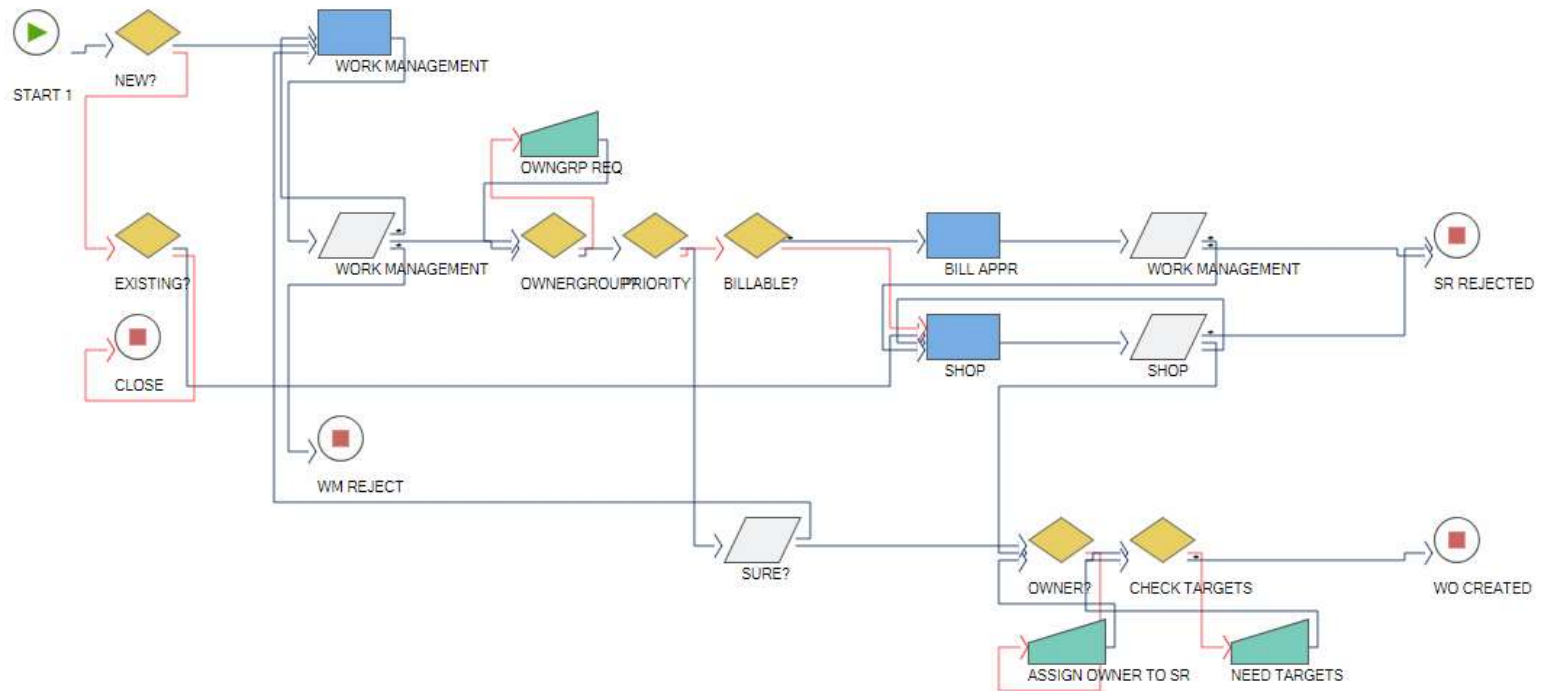
Class Description:

Attachments

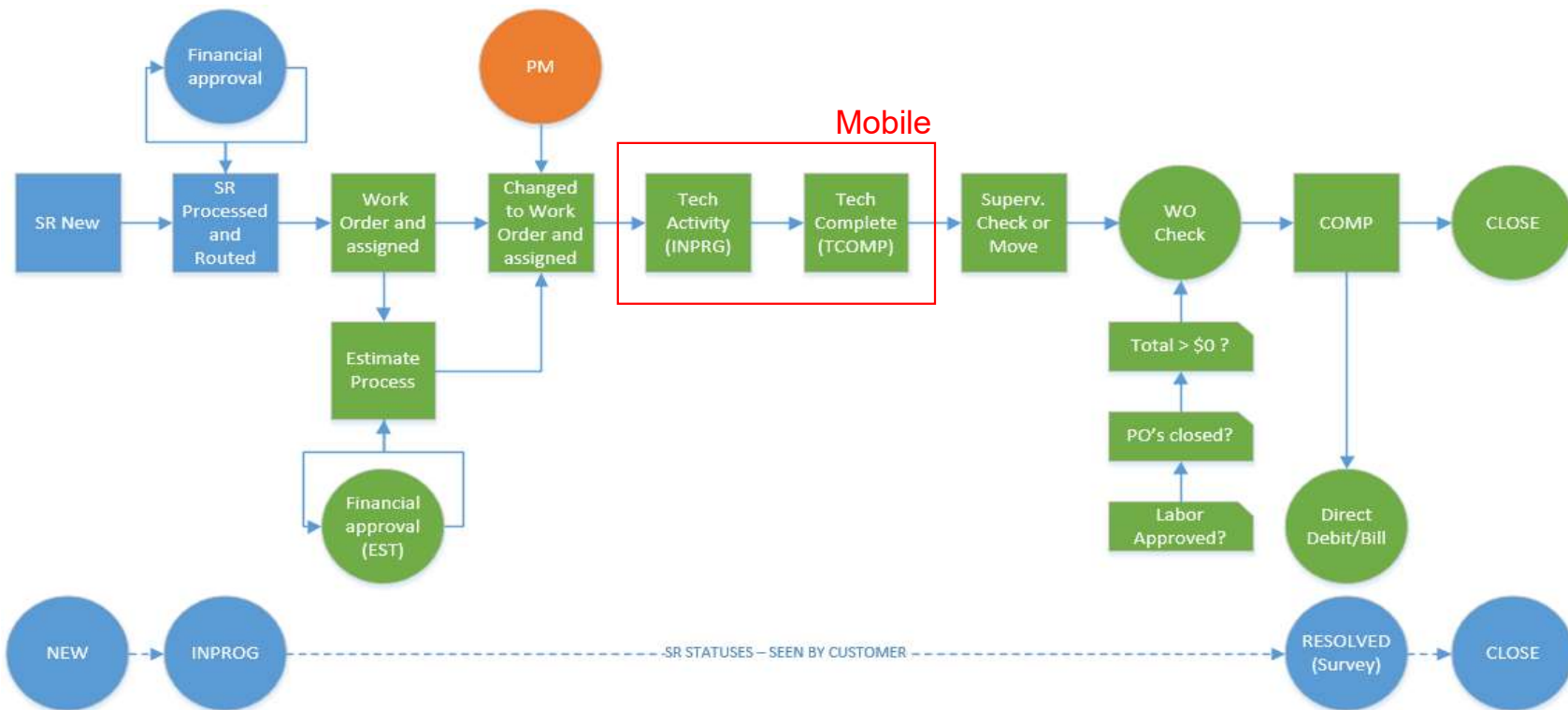
Document



Maximo – SR workflow



Workflow overview





Implementation

Fully implemented

- Facilities Services – Housing, power plant, garage
- Surplus
- Recycling
- Edwards Campus
- P3 partner (outsourced)
- Information technology infrastructure
- FS custodial
- Parking
- Facilities Planning and Design
- Space management (system of record)
- Environmental Health and Safety
- Public Safety – Security infrastructure



Service Request

Active Requests (122)

Search

POSSIBLE SEWAGE LEAK R2447279 - In Progress Created by V103P216 on Wed, March 20, 2024 Location: LOT 80 E JRP HALL Asset: Unspecified Estimated completion date: Wed, March 20, 2024 High priority Comments (1) Cancel	REMOVE PROPAGANDA R2447117 - In Progress Created by T480H627 on Tue, March 19, 2024 Location: LANDSCAPE ZONE U Asset: Unspecified Estimated completion date: Tue, March 19, 2024 Comments
ITTM SIMONS LAB RM 1E1 ELEV UPGRADES R2444681 - In Progress Created by JAMESW on Wed, February 28, 2024 Location: SIMONS LABORATORIES, ROOM 1E1, ELEVATOR Asset: SIMONS LABORATORIES ELEVATOR SC2 Estimated completion date: Thu, March 7, 2024 Comments Cancel	ITTM NICHOLS HALL R R2444677 - In Progress Created by JAMESW on Wed, February 28, 2024 Location: NICHOLS HALL, ROOM 1E1, ELEVATOR Asset: NICHOLS ELEVATOR NH2 Estimated completion date: Thu, March 7, 2024 Comments
ITTM DYCHE HALL RM 1E1 ELEV UPGRADE R2444446 - In Progress Created by JAMESW on Tue, February 27, 2024 Location: DYCHE HALL, ROOM 1E1, ELEVATOR Asset: DYCHE FREIGHT ELEVATOR DHS 5B Estimated completion date: Thu, March 7, 2024	TENT SET UP R2444262 - In Progress Created by A739K444 on Mon, February 26, 2024 Location: TENT 4: GREEN HALL NORTH Asset: TENT 4 GREEN HALL NORTH Estimated completion date: Fri, March 8, 2024

Submit a Service Request

Submit new request

Search Categories

- HVAC
- Electrical
- Plumbing
- Carpentry
- Cleaning Services
- Safety and Security
- Grounds
- Pest Control

Can't find what you're looking for?
[Describe the issue](#)

Service Request

Back Issue Details Submit

Select a subcategory

Who is the request for?
Shawn Harding

Category:
Plumbing

Water Leak Malfunctioning Fixture

Can't find what you're looking for?
[Describe the issue](#)

This screenshot shows the 'Select a subcategory' step of a service request form. The progress bar at the top indicates the 'Issue' step is active. The form includes a 'Back' button, a progress indicator, and a 'Submit' button. The main content area is a dark blue panel with two circular icons representing 'Water Leak' and 'Malfunctioning Fixture'. Below these icons is a link to 'Describe the issue'. On the right side, there are input fields for 'Who is the request for?' (Shawn Harding) and 'Category:' (Plumbing).

Back Issue Details Submit

Add a photo or video of the issue?

No Yes

Who is the request for?
Shawn Harding

Additional information:
--

Description:
Water on the Floor

Category:
Water on the Floor

This screenshot shows the 'Add a photo or video of the issue?' step of a service request form. The progress bar at the top indicates the 'Issue' step is active. The form includes a 'Back' button, a progress indicator, and a 'Submit' button. The main content area is a dark blue panel with a question 'Add a photo or video of the issue?' and two buttons: 'No' and 'Yes'. On the right side, there are input fields for 'Who is the request for?' (Shawn Harding), 'Additional information:' (--), 'Description:' (Water on the Floor), and 'Category:' (Water on the Floor).

Supervisor

Welcome, Shawn Harding

My Active WOs

Work Order	Description	Status	Reported Date	Scheduled Start	Priority
1819994	CEILING LEAK	INPRG	1/18/18 7:37 AM	1/17/18 11:48 PM	1
18160993	REPLACE TRAP 2	APPR	1/23/18 11:09 AM	1/23/18 11:09 AM	3
18161169	CHECK AND OR REPAIR PUMP	APPR	1/20/18 8:38 AM	1/20/18 8:38 AM	3
18161166	CHECK AND OR REPAIR PUMP	APPR	1/20/18 8:39 AM	1/20/18 8:38 AM	3
18118838	FOODSIE PAN APPROPRIATE DRY	APPR	8/21/18 1:18 PM	8/21/18 8:00 AM	3
18111883	CONSTRUCT DOWNHOLE FOUNDATIONS	APPR	10/24/18 1:08 PM	10/26/18 12:02 PM	3

1 - 6 of 6

My TCOHPs Without Charges

Work Order	Description	Status	Owner
22140771	WEEKLY MEETING - SHOP 424 CARPENTRY AND PAINT	TCOHP	RAT
22140929	WEEKLY MEETING - SHOP 424 CARPENTRY AND PAINT	TCOHP	RAT
22100497	HOUSING ROOM INSPECTION Follow-up	TCOHP	G2088603
22188441	WEEKLY MEETING - SHOP 424 CARPENTRY AND PAINT	TCOHP	RAT
22155060	WEEKLY MEETING - SHOP 424 CARPENTRY AND PAINT	TCOHP	RAT
22121942	WEEKLY MEETING - SHOP 424 CARPENTRY AND PAINT	TCOHP	RAT
20208877	Replace 8th Floor F.A. Lab Doors 12427	TCOHP	DCHMLR
22188864	Room Modifications	TCOHP	DCHMLR
22101582	HOUSING ROOM Inspection Follow-up	TCOHP	G2088603
20248504	Boiler Spitting out Black Debris	TCOHP	22664797

1 - 10 of 855

My Unapproved Labor

NO DATA FOUND.

My Persongroup WOs

WO	Description	Ordered Date	Status	Priority
273671	MULTIPLE WO'S, N, 7001801, UNIVERSITY OF KANSAS, SERVICE CALL OUTS SEPTEMBER 2023	8/20/23 1:29 PM	APPR	COMPLETE
278244	2417848, N, 7001735, BUCK-OUT DRAIN IN GAR WASH	2/6/24 10:06 AM	WAPPR	NONE
280482	24187192, C, 7001735, F082664, BATTERY (WARRANTY)	8/6/24 11:48 AM	APPR	COMPLETE
30111693	24171445, N, 7001141, OVERHEAD OFFICE SUPPLIES	2/12/24 12:27 PM	APPR	COMPLETE
281146	24192946, N, 7001423, GARAGE FUEL PUMP REPAIR	3/21/24 1:37 PM	WAPPR	NONE
280896	MULTIPLE WO'S, N, 7001801, FEBRUARY 2024 PEST CONTROL SERVICES	3/11/24 1:58 PM	WAPPR	NONE
280779	24179406, C, 7001735, F082663, BRAKE SERVICE	3/12/24 10:20 AM	APPR	COMPLETE
280808	24185117, N, 7001735, 28034, TOW TO DODGE (CONTRACTED)	2/29/24 10:34 AM	WAPPR	NONE
280920	24197374, C, 7001735, 48016, TIRE	2/27/24 8:39 AM	APPR	COMPLETE
281091	24191844, C, 7001735, F081908, HOSE CLAMP	3/20/24 10:52 AM	APPR	NONE

1 - 10 of 29

My Workflow TCOHPs Ready to COHP

Work Order	Description	Company	Asset	Status	Reported Date	Scheduled Start	Scheduled Finish	Priority
22180071	CHILLER LINE REPAIR	7001800		TCOHP	3/16/23 5:38 PM	3/17/23 9:25 AM	3/23/23 5:55 PM	4
24166523	Request to clean up transient camp	7001800		TCOHP	3/17/24 8:51 AM	3/17/24 11:59 AM	3/17/24 11:59 AM	4
24191170	Surplus Purchase Peter Pavia Molecular Bio	2344000		TCOHP	3/16/24 11:18 AM	3/16/24 8:32 AM	3/16/24 7:32 AM	4

1 - 3 of 3

Jobs / Assignments

Work Order	Last Memo	Object	Start Date	Route	Workflow
1819994	CEILING LEAK, SNOW HALL, ROOM 830, RESTROOM-MEN	WORKORDER	1/18/18 7:37 AM	02	
1817894	BROKEN TILES ON ROOF, SPOONER HALL ROOM ROOF	WORKORDER	7/28/18 10:04 AM	02	
18194235	Fire alarm, WATKINS MEMORIAL HEALTH CENTER	WORKORDER	8/2/18 1:51 PM	02	
18180723	Fire alarm, PEARSON SCHOLARSHIP HALL	WORKORDER	8/2/18 1:59 PM	02	
18160993	REPLACE TRAP 2, STAUFFER-FLINT HALL, ROOM 106, OFFICE SERVICE	WORKORDER	1/23/18 11:09 AM	02	
18181824	Job Temperature Response, HALTFF HALL, ROOM 407, OFFICE	WORKORDER	1/23/18 11:09 AM	02	
18161166	CHECK AND OR REPAIR PUMP, BAILEY HALL, ROOM 13, MECHANICAL/ELECTRICAL	WORKORDER	1/24/19 9:40 AM	02	
18161166	CHECK AND OR REPAIR PUMP, BAILEY HALL, ROOM 13, MECHANICAL/ELECTRICAL	WORKORDER	1/20/18 8:38 AM	02	
18161166	CHECK AND OR REPAIR PUMP, BAILEY HALL, ROOM 13, MECHANICAL/ELECTRICAL	WORKORDER	1/20/18 8:39 AM	02	
18188803	TEMPERATURE ISSUE AGAIN, LIFE CENTRIFUGES	WORKORDER	1/24/19 9:38 AM	02	

My Persongroup SRA

My Persongroup WOs

My Persongroup POs

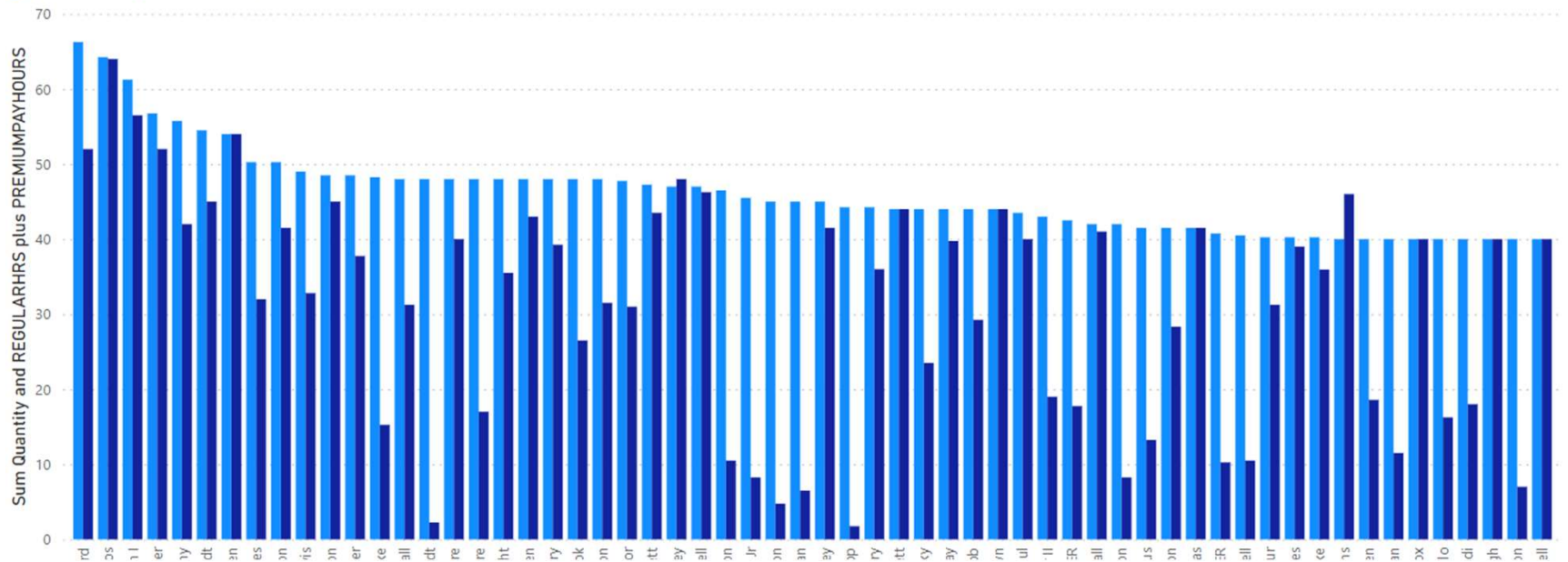
My Workflow TCOHPs Ready to COHP

Jobs / Assignments

HR time vs CMMS reported

Sum Quantity and REGULARHRS plus PREMIUMPAYHOURS by DISPLAYNAME

● Sum Quantity ● REGULARHRS plus PREMIUMPAYHOURS



Zurn Plumbsmart



- Dashboard
- Buildings
- Insights
- Register Product
- Administration
- Support

Search Products...
598
S

Dashboard statistics and reports Edit mode

Active Alerts

83

18

Severity ▾

- Severe: GEN2_EP_BATTERY_STATUS - Flush Valve Battery Voltage Below Threshold**

Details: Battery voltage below threshold for over 1 days.
Location:
- Severe: GEN2_EP_BATTERY_STATUS - Flush Valve Battery Voltage Below Threshold**

Details: Battery voltage below threshold for over 1 days.
Location:
- Severe: FV_ACTD - High Daily Flush Rate**

Details: The device has sent 78 messages in the last 24 hours.
Location:
- Severe: GEN2_SENSOR_BATTERY_STATUS - Faucet Battery Voltage Below Threshold**

Details: Battery voltage below threshold for over 14 days

Top Water Usage

Last 24 hours
Last 7 days
Last month
Last year

Location	Last 24 hours
Water close...	~1100
Closet	~850
BP Flushval...	~550
WC2	~500
BP Flushval...	~500

Top Faucet Activations

Last 24 hours
Last 7 days
Last month
Last year

Faucet	Last 24 hours
Battery Pow...	~230
LAV3	~170
Battery Pow...	~170
LAV3	~170
LAV1	~130

Battery Powered Faucet-WR5Q20M05
 Anschutz Library
 Floor 3
 Room 307 Womens restroom
 Water Used: 12.23 gal.
 Activations: 228
 Uses: 136

Welcome to the new plumbSMART user experience
 We've made exciting enhancements to the plumbSMART user interface, including:





Whiteboard

Reliability

Busy < Productive < EFFECTIVE

QUESTIONS

- Work Order workflow
- Call center processing
- Mobile
- Work completion – direct debit/billing
- Enterprise system
- Static data (space/people/assets)
- Standards
- Cost collecting – locations/assets
- CMMS and deferred maintenance



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