



HEXAGON - POST IMPLEMENTATION REVIEW (23A-12)

Terry Follmer, VP of Internal Audit

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Executive Summary

The Hexagon (Infor) System post go live implementation review is listed as a contingent audit project in the FY2023 Audit Plan approved by the Board. Management requested that the priority of this project be bumped up on the schedule due to the strategic importance of the Hexagon Enterprise Asset Management System. The audit results including the objective, scope, and conclusion are as follows.

Background

The purpose of Enterprise Asset Management (EAM) systems is to enable better, more strategic decisions that extend the asset life cycle, increase safety, and improve profitability. EAM's allow organizations to manage the life cycle of assets from cradle to grave including scheduled preventive work orders and unscheduled repairs in an organized and efficient manner. CapMetro's Infor EAM system went live in December 2020 during COVID, and shortly thereafter during October 2021 Infor was purchased by Hexagon and was renamed the Hexagon system. The EAM system was implemented as a replacement for the legacy SPEAR 4i solution that was deployed in 2006. The Hexagon system has been interfaced with some of the key transit operational systems as follows:

- GasBoy for fueling (Inbound – GasBoy to EAM)
- Trapeze OPS for vehicle availability (Outbound – EAM to Trapeze)
- OrbCAD for incident recording and Work Order generation (Inbound – OrbCAD to EAM for needed repairs)

The Hexagon system is used to manage fixed assets (e.g., vehicles, facilities, HVAC, etc.) and spare parts for vehicles and facilities related preventive and unplanned maintenance as recommended by the original equipment manufacturer. CapMetro has 1,571 Building Maintenance (BM) assets (420 Parent/System assets & 1,151 Child assets) as of Jul 2023. (Parent/System assets represent a collection of Child assets.)

Audit Objective & Scope

The primary objective of this audit was to review internal controls and functionality of the new Infor enterprise asset management system, including the completeness and accuracy of the data.

The scope included a Hexagon post system implementation survey, data analytics on the completeness and accuracy of data in Hexagon, and a review of the policies and procedures that are used to manage asset records updates in the Hexagon system.

Opinion

In our opinion, internal controls are generally in place and properly functioning over CapMetro's Hexagon Enterprise Asset Management system. We identified some areas where internal controls could be further strengthened as follows:

- 1) *FACILITY ASSETS WITH MISSING PREVENTIVE MAINTENANCE PROGRAMS*
- 2) *FTA RECORD KEEPING REQUIREMENTS – ROLLING STOCK*
- 3) *PARTS RECORDS – COMPLETENESS & ACCURACY*
- 4) *HEXAGON USER SURVEY - FEEDBACK ON ISSUES AND IMPROVEMENT OPPORTUNITIES*
- 5) *UPDATE POLICIES AND PROCEDURES*

More details regarding the issues/risks and recommendations can be found below in the detailed audit report.

This audit was conducted in accordance with US Government Accountability Office's Generally Accepted Government Auditing Standards (GAGAS) and the Institute of Internal Auditor's International Standards for the Professional Practice of Internal Auditing. These standards require that we plan and perform the audit to obtain sufficient, appropriate evidence to provide a reasonable basis for our findings and conclusions based on our audit objective. We believe the evidence obtained provides a reasonable basis for our findings and conclusions based on our audit objectives. The audit was conducted by the following staff members in the Capital Metro Internal Audit Department:

- Mazen Shehadeh, Senior Auditor
- Terry Follmer, VP of Internal Audit

Recommendations to strengthen controls and improve accountability were provided to management. Management agrees with the internal audit recommendations and has provided target completion dates which are included in the detailed audit report below. A follow-up audit is performed semi-annually (i.e., May and November) to ensure management action plans for all issued audit reports are completed in a timely manner.

We appreciate the cooperation and assistance provided to us throughout this audit.

Audit Report

Issues & Risk	Recommendation	Management Action Plan																												
<div>1. <u>FACILITY ASSETS WITH MISSING PREVENTIVE MAINTENANCE PROGRAMS</u></div> <div>During migration from Spear to Hexagon, many key fields were not updated or filled in due to lack of project resources, therefore facility assets with missing data values were copied over to Hexagon. We performed some data analytics to determine if all the facility assets have preventive maintenance (PM) plans.</div> <div><table><tr><th colspan="4">Assets Missing Preventive Maintenance (PM) Programs Building Maintenance Assets – August 2023</th></tr><tr><th>Location</th><th># Total Assets</th><th># Assets Missing a PM Program</th><th>% Assets Missing a PM Program</th></tr><tr><td>509 Thompson Lane</td><td>136</td><td>72</td><td>52.9%</td></tr><tr><td>2910 E. 5th Street</td><td>628</td><td>320</td><td>51.0%</td></tr><tr><td>9315 McNeil Road</td><td>637</td><td>124</td><td>19.5%</td></tr><tr><td>624 Pleasant Valley</td><td>20</td><td>2</td><td>10.0%</td></tr><tr><td>Total</td><td>1421</td><td>518</td><td>36.5%</td></tr></table><div>Note: The results above only include child assets. Parent assets were excluded because they represent a group of children assets and not a unique asset.</div></div> <div>Criteria has not been established as to which assets should have a PM plan, therefore number of assets needed formal PM plan is unknown. See Appendix A (see page 8) for details.</div>	Assets Missing Preventive Maintenance (PM) Programs Building Maintenance Assets – August 2023				Location	# Total Assets	# Assets Missing a PM Program	% Assets Missing a PM Program	509 Thompson Lane	136	72	52.9%	2910 E. 5th Street	628	320	51.0%	9315 McNeil Road	637	124	19.5%	624 Pleasant Valley	20	2	10.0%	Total	1421	518	36.5%	<div>The COO and EVP of Capital Construction, Engineering and Design should marshal internal/external resources to take action on:</div> <div><div>a) Physical inventory of facility equipment and update Hexagon and Oracle records based upon this review.</div><div>b) Establish written criteria (e.g. value; life cycle remaining; etc.) for facility assets that should be included in the PM program and then update/create PM’s for assets accordingly.</div><div>c) Ensure asset tags and ID #s are in place and cross-referenced between the Hexagon and Oracle systems based upon the capitalization policy.</div><div>d) Identify required fields to be captured in Hexagon and document in procedure guides, etc. so that the system prompts staff to provide required key information.</div></div>	<div>Management agrees and has developed the action plan below.</div> <div>Target Completion Date: a) b) and d) December 2025 c) May 2026</div>
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<i>Issues & Risk</i>	<i>Recommendation</i>	<i>Management Action Plan</i>
<p>2. <u>FTA RECORD KEEPING REQUIREMENTS – ROLLING STOCK</u></p> <p>The FTA requires that the following ten fields be maintained for all assets that are funded by them:</p> <p>1)Description; 2) Serial number or other identification number; 3) Source of funding (including the Federal Award Identification Number (FAIN)); 4) Acquisition date; 5) Cost; 6) Location; 7) Condition; 8) Date of disposal; 9) Sale price; and 10) Useful life.</p> <p>We performed some data analytics on August 2023 Hexagon records and identified some missing data as follows:</p> <ol style="list-style-type: none"> 1. All assets met the FTA requirement of having an asset ID number and description. However, we noted that 100% of the assets had at least one key field that was missing information (e.g., the Warranty functionality is not being utilized, Funding source not populated, etc.) 2. It appears that the Sold/Scrap Date and Sold Value in Hexagon as required by the FTA is not being recorded. (Note: Some of these may not have been sold.) <p>See Appendix B & C (see page 9 & 10) for details.</p>	<p>The COO and EVP of Capital Construction, Engineering and Design should marshal internal/external resources to take action on:</p> <ol style="list-style-type: none"> a) Ensure any FTA-required fields are complete and accurate by completing the following: <ul style="list-style-type: none"> ○ For any NTD (National Transit Database)-required fields in Hexagon, make the naming conventions consistent with the FTA to eliminate confusion (e.g. use same name used by FTA or at least capture FTA name somewhere). ○ Check newly entered asset records regularly and make timely adjustments if not compliant with FTA requirements. ○ Design report formats to allow direct upload to NTD, simplifying the process. 	<p>Management agrees and has developed the action plan below.</p> <p><u>Target Completion Date:</u> February 2025</p> <ol style="list-style-type: none"> a. Vehicle Maintenance (VM) will review FTA data field terminology and make it match if possible (i.e. if the system does not have conflicting terminology). b. Mandatory fields will be identified with an asterisk, and an FTA Information tab will be created on each asset record. A report will be built to output that data on demand (for both reporting and compliance.) c. Going forward all new assets will have designated required fields populated; we will not attempt to populate older vehicle records with information that may not even be available. d. The warranty module is not a good fit for our fleet configuration and will not be used. Implementation would be onerous and resource consuming resulting in negative ROI.

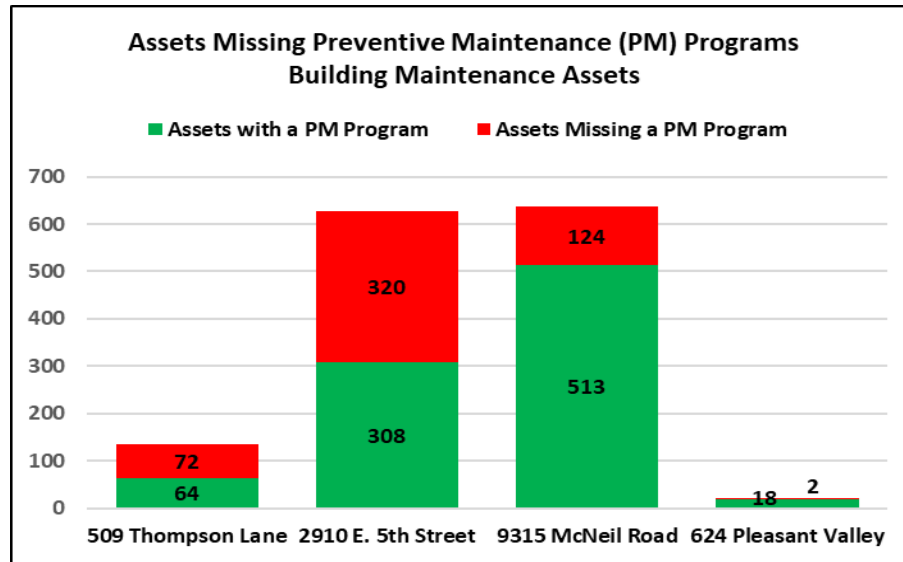
<i>Issues & Risk</i>	<i>Recommendation</i>	<i>Management Action Plan</i>
<p>3. <u>PARTS RECORDS – COMPLETENESS & ACCURACY</u></p> <p>In January 2022 CapMetro took over managing parts for vehicles (non-rail) and facilities. We performed data analytics in August 2023 looking at 9,581 Parts related to Vehicles (Non-Rail) & Facilities and noted the following concerns:</p> <ul style="list-style-type: none"> • Class data not migrated when Parts were purchased from MV Transportation in January 2022, therefore a significant number of Parts are not assigned to a Class (5,879 Parts, 61.4%). • Because Class information is missing, it’s difficult to differentiate on a Filter as to whether it is for a specific Vehicle type (Bus brand and model) and/or by Facilities Part Class (e.g., HVAC, Cooling System, Suspension, etc.). • Appears to be a high rate of Parts that are over-stocked based on “Max” quantity set point (2,958, 31%), however, this can fluctuate depending upon upcoming activity and periods of higher demand. • Other fields for Parts that are missing data: <ul style="list-style-type: none"> ○ Location 1,445 or 15.1% ○ Catalogue Description 965 or 10.1% ○ Quantity 1,595 or 16.6% ○ Price 130 or 1.4% <p>See Appendix D (see page 11 & 12) for details.</p>	<p>The COO and EVP of Capital Construction, Engineering and Design should document record keeping requirements in policies/procedures that cover the following:</p> <ol style="list-style-type: none"> a) Identify which fields (e.g. Class, Catalogue Description, Location, Quantity, Price, Min/Max Quantity, etc.) are required for all parts. b) Perform data analytics to identify all Part numbers that are missing required fields and take necessary actions to ensure Hexagon database records are properly updated. 	<p>Management agrees and has developed the action plan below.</p> <p><u>Target Completion Date:</u> Facilities Parts May 2025</p> <p>Rolling Stock Parts May 2025</p> <ol style="list-style-type: none"> a. Parts data fields such as class will reviewed for usefulness. b. Parts missing data (location, catalog description, etc.) will be reviewed but many of these are blank intentionally (i.e. parts that are not stocked do not have a location, etc.) c. Mandatory fields will be identified with an asterisk, and a report will be built to output that data on demand (for both reporting and compliance.)

<i>Issues & Risk</i>	<i>Recommendation</i>	<i>Management Action Plan</i>
<p>4. <u>HEXAGON USER SURVEY - FEEDBACK ON ISSUES AND IMPROVEMENT OPPORTUNITIES</u></p> <p>We conducted a survey of Hexagon users in July 2023 and the following concerns and opportunities for improvement were provided by users:</p> <ul style="list-style-type: none"> ▪ Inability to correct data input errors after entries are made. ▪ Cumbersome to assign Work Order activities. ▪ User customizations are erased upon system updates. ▪ System freezes or is very slow upon Work Order updates/closures. ▪ Duplication on reports and inconsistent data. ▪ Slow data retrieval for older Work Orders ▪ Access to maintenance, preventative maintenance, and fuel inventory data and reports unavailable due to integration problems. ▪ Gasboy mileage data and Trapeze data not interfacing properly with Hexagon system. ▪ Data interface delays due to system time zone inconsistencies, update frequencies. ▪ Log in difficulties. <p>See Appendix E for the statistics on 15 survey questions which covers questions related satisfaction, productivity, training, etc.. Note – this survey was conducted in July 2023 and management has continued to make continuous improvement in the Hexagon system since that point in time.</p>	<p>The COO and EVP of Capital Construction, Engineering and Design should marshal internal/external resources to take action on some of the user suggestions for improvement listed below:</p> <ul style="list-style-type: none"> ▪ CapMetro specific help materials and training guidance (not generic) ▪ Additional training/advanced training, hands-on mobile training ▪ Stream-line work order creation ▪ Add ability to open multiple work orders of same type from one screen. ▪ Enhance ability to edit/correct previously saved input more easily. ▪ Improve integration/data flow and frequency with other systems (e.g., Trapeze, Gasboy, etc.) ▪ Improve reporting capabilities. ▪ Reduce/eliminate redundant data entry/keying (e.g., entering VMRS 042, 042-010, 042-010-094) ▪ Improve summary and ‘at-a-glance’ data screens. ▪ Improve ‘Data Spy’ query function/capability for search efficiency. ▪ Involve CapMetro Subject Matter Experts (SME) in user-acceptance testing. ▪ Reduce/eliminate system clutter (disabled options/functions/dropdowns) ▪ Improve support/assistance outside regular hours 	<p>Management agrees and has developed the action plan below.</p> <p><u>Target Completion Date:</u></p> <p>May 2025 – Tablet interface is being put in place to help Mechanics enter/retrieve data quicker.</p> <p>May 2027 – update survey questions and re-running the survey to measure progress.</p> <p>a. Need more detailed information to be able to take action based on the survey performed.</p> <p>b. VM can share existing non-generic Hexagon procedures. We have a lot.</p> <p>c. VM holds bi-weekly meetings to identify, prioritize and tackle Hexagon issues. Many of the comments mentioned by the auditor are being addressed in these ongoing meetings.</p>

<i>Issues & Risk</i>	<i>Recommendation</i>	<i>Management Action Plan</i>
<p>5. <u>UPDATE POLICIES AND PROCEDURES</u></p> <p>Although there is no written policies and procedures related to Cycle Counts, we noted that the current cycle count approach for spare parts seems to be working. We noted that there is limited documented policies and procedures related to Enterprise Asset Management activities. In particular, CapMetro has an opportunity to improve written policies and procedures for the following operational and financial controls:</p> <ul style="list-style-type: none"> • <u>Physical Inventory</u> – documented process covering when; how; frequency; who; what forms to use; “blind count” or known count; how to reconcile; when a second count is required; who must approve adjustments based upon materiality; segregation of duties between counter, reconciler, approver and adjuster in Hexagon and Oracle; etc.. • <u>Cycle Counts</u> – same as Physical Inventory listed above. • <u>Hexagon to Oracle Reconciliations</u> - Automated and/or manual reconciliations between assets (i.e. fixed assets, vehicles, parts, etc.) in Hexagon and Oracle. The separate asset #s used in the two systems should be reconciled including certain critical fields (e.g. date, asset description, value, etc.). <p>We have some policies/procedures that need to updated and coordinated across multiple departments and areas.</p>	<p>The COO, CFO and EVP of Capital Construction, Engineering and Design should document, communicate, monitor, and update policies and procedures for all assets (i.e. rolling stock, fixed assets, parts) in Hexagon and Oracle systems that covers the following activities:</p> <ol style="list-style-type: none"> a) Additions/Disposals/Consumption/Adjustments and related recordkeeping in Hexagon and Oracle. b) <u>Physical Inventories & Cycle Counts</u> - documented process covering when; how; frequency; who; what forms to use; “blind count” or known count; how to reconcile; when a second count is required; who must approve adjustments based upon materiality; segregation of duties between counter, reconciler, approver and adjuster in Hexagon and Oracle; etc.. c) <u>Hexagon to Oracle Reconciliations</u> - Automated and/or manual reconciliations between assets (i.e. fixed assets, vehicles, parts, etc.) in Hexagon and Oracle. The separate asset #s used in the two systems should be reconciled including certain critical fields (e.g. date, asset description, value, etc.). d) Management Reporting related to the items listed above. 	<p>Management agrees and has developed the action plan below.</p> <p><u>Target Completion Date:</u> May 2026</p> <ol style="list-style-type: none"> a. VM can share existing processes for cycle counts and inventory control. b. VM will participate in an effort to reconcile Hexagon to Oracle, but understand that Hexagon is the record for parts and assets. If Oracle group wants to reconcile, VM will assist.

Appendices

Appendix A



Assets Missing Preventive Maintenance (PM) Programs Building Maintenance Assets			
Location	# Total Assets	# Assets Missing a PM Program	% Assets Missing a PM Program
509 Thompson Lane	136	72	52.9%
2910 E. 5th Street	628	320	51.0%
9315 McNeil Road	637	124	19.5%
624 Pleasant Valley	20	2	10.0%
Total	1421	518	36.5%

Note: The results above only include child assets. Parent assets were excluded because they represent a group of children assets and not a unique asset.

[illegible]

Appendix B

Key Data Fields in Hexagon Rolling Stock (Non-Rail) Vehicle Assets			
		% of 768 Assets with Missing Data	
FTA Requirement	Name of Field	AUG 2023	
YES - FTA Requirement	In-Service/Purchase Date	43	6%
	Purchase Cost	31	4%
	Condition Rating	4	1%
	Source of Funding	66	9%
	Location	768	100%
	Useful Life	0	0%
No	Warranty Info	768	100%
No	Model #	2	0%
No	Serial #	1	0%
No	Manufacturer	1	0%
No	Useful Life Benchmark	0	0%
No	Target Retirement Date	81	11%
No	Rehabilitation Date	768	100%
No	Replacement Cost	32	4%

Appendix C

CAPMETRO ROLLING STOCK ASSETS Assets Missing Data by Class and Data Field (%) August 2023												
CLASS -->	Bus	Articulated Bus	Cutway Bus	Low Speed Vehicle	Automobile	Mini Van	Midsize Van	Sports Utility Vehicle	Flatbed Truck	Pickup Truck	Utility Truck	Trailer
Total Assets/Class	415	31	131	1	67	21	9	48	16	7	12	10
<u>Data Field</u>												
In-Service/Purchase Date	4%	13%			3%		11%	4%				30%
Purchase Cost	1%	5%			3%			31%				40%
Condition rating												40%
NTD Funding Source				100%	1%	14%	89%	44%	19%	100%	100%	100%
Model												20%
Serial Number												10%
Manufacturer												10%
Target Retirement Date	2%	18%			3%	14%	11%	56%	25%		17%	90%
Replacement Cost	1%	5%			3%		11%	31%				40%

HEXAGON PARTS DATA ANALYTICS
CapMetro - Vehicle (Non-Rail) & Facilities Maintenance Parts

(excludes On-Demand Parts Inventories)

as of 8/30/2023

[Original Data](#)

[Stock Levels](#)

	Count	Percentage
Understock	525	5.5%
Overstock	2,958	30.9%
Fully Stock	6,098	63.6%
	9,581	

[Quantity and No Price](#)

Count	Percentage
79	0.8%

[Missing Min/Max](#)

	Count	Percentage
Missing Min	21	0.2%
Missing Max	24	0.3%
Missing Both	596	6.2%
Missing None	8,940	93.3%
	9,581	

[Value and No Catalog Desc](#)

Count	Percentage
964	10.1%

[Value and No Location](#)

Count	Percentage
1445	15.1%

[Value and No Class](#)

Count	Percentage
5879	61.4%

[Avg. vs. Last Price](#)

	Count	Percentage
>20% Over	390	4.1%
>20% Under	544	5.7%
within 20%	8,647	90.3%
	9,581	

[No Quantity](#)

Count	Percentage
1595	16.6%

Four Stores Incl Above -

Store

Store Description

2910_01

STOCK SOUTH

2910_02

2910 FACILITY MAINTENANCE

Store

Store Description

9315_11

9315 FACILITY MAINTENANCE

9315_12

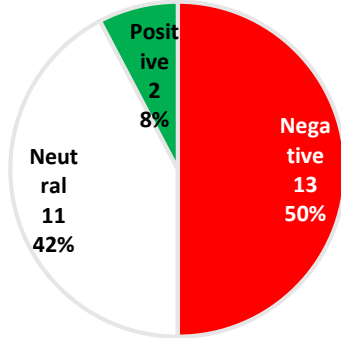
9315 BUS MAINTENANCE PARTS

Results from Testing Key Fields in Hexagon Vehicles (Non-Rail) & Facilities Parts		
Name of Field	Parts Missing Info.	
	AUG 2023	
Class	5,879	61.4%
Location	1,445	15.1%
Min	21	0.2%
Max	24	0.3%
Min & Max	596	6.2%
Supplier Catalog Description	964	10.1%

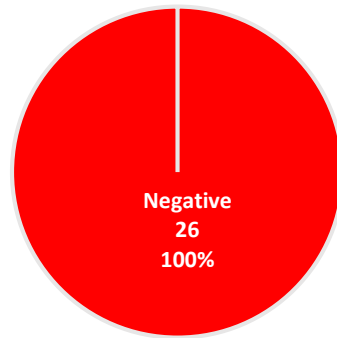
Appendix E

Hexagon User Survey Results - Satisfaction and Impact on Operations

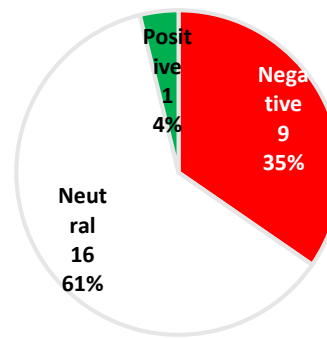
Satisfied with Hexagon?



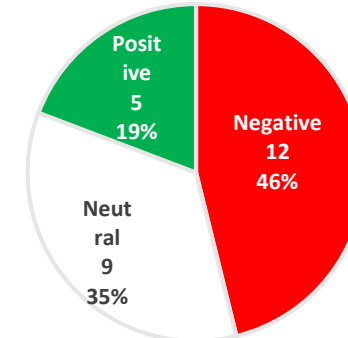
Productivity/Efficiency/Savings?



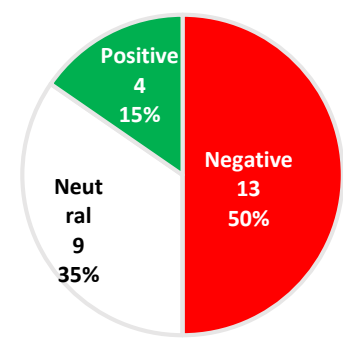
Positive Impact on Operations?



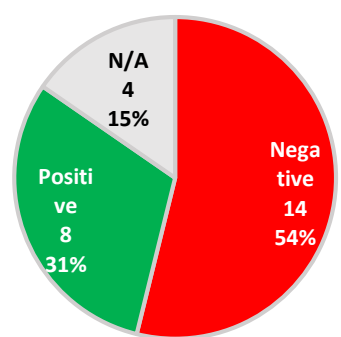
User-friendly and easy navigation?



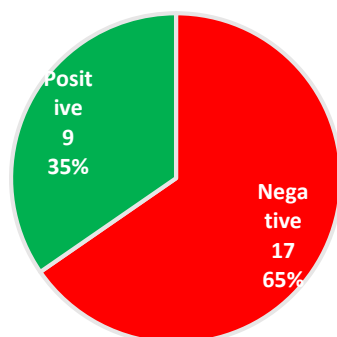
System Performance/Speed?



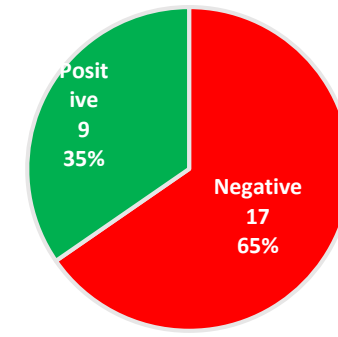
Data consistent with other systems?



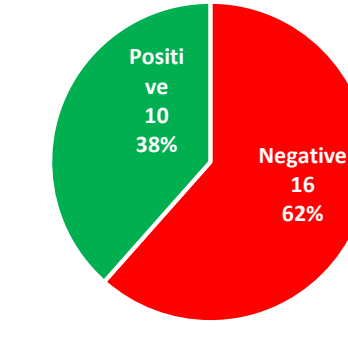
Free from Errors/Bugs/Limitations?



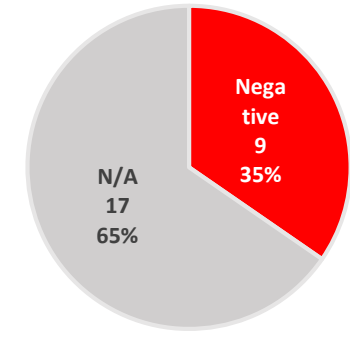
Meets expectations/No challenges?



All essential features are available?

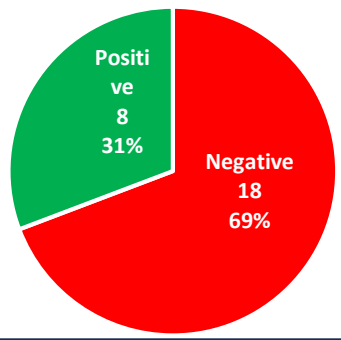


Integration with other systems?



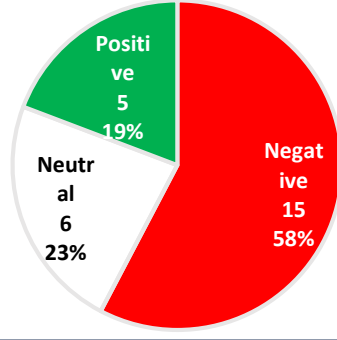
Performance & Reliability

Reliable without significant outages?

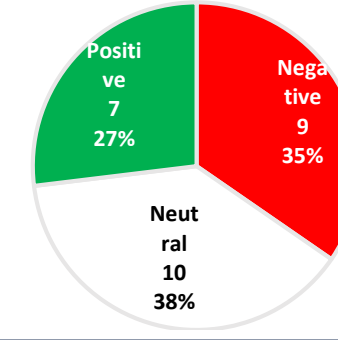


Training

Adequate Training?

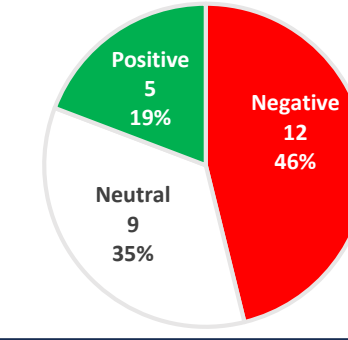


Instructors addressed my questions?



Support Experience

Support responsiveness?



Documentation and on-line help?

