

# OPTIMIZING FINANCIAL & OPERATIONAL PERFORMANCE THROUGH DATA



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# Presentation Objectives

- **Understand**

- *What data to **collect***
- *How to **clean** your data*
- *How to **keep** it clean*

- **Demonstrate**

- *Leveraging data to optimize **Productivity***
- *Leveraging data to improve **Cost Effectiveness***
- *Leveraging data to increase **Value & Recognition***

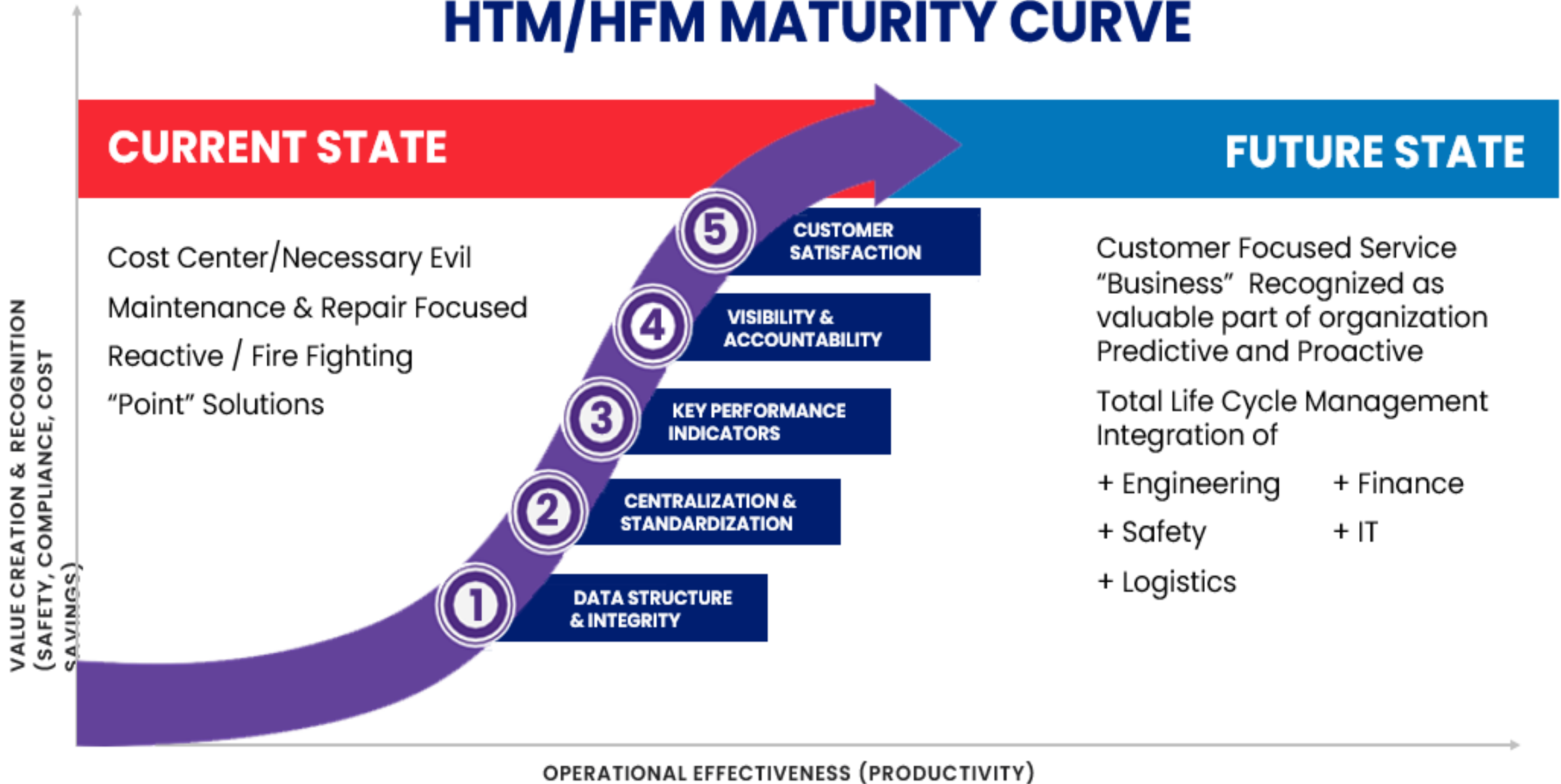
***You can't manage what you don't measure...  
What gets measured gets improved."***  
*- Peter Drucker*

***Do you know what you don't  
know?***

**Awareness  
*inspires*  
Opportunity**

**HTM**   
**MIXER**

# HTM/HFM MATURITY CURVE



# Data Context

**25,246** Mission Partners

**171** Locations

**2,305** Licensed Beds

**2,400+** Physician Network



# Solving Operational Challenges



# Powerful Questions

**“How can we better leverage data and technology to impact care?”**

**“Can we view fleet on an enterprise level with associated costs?”**

**“What is our total asset value & what should we replace?”**

**“What is our financial risk & what we can expect in the future?”**

**“What should we to prioritize for replacement?”**

# Data to Collect

**Device Data**

**Work Order Data**

*Device & Non-Device WOs*

*Time & Labor Costs*

*Material Costs*

**Contract Data**

**Financial Data**

**Customer Satisfaction Data**

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# Mobile X-Ray



<http://classic-imaging.com/refurbished-imaging-systems/>



GE Medical Systems - Product Data P7028-E

# Mobile X-Ray



## Manufacturer

GE
General Electric
GE Healthcare
GE Medical Systems
G.E
G.E.
G.E. HEALTHCARE
G.E. Medical Systems
Ge Healthcare Technologies
GE Healthcare USA [439946]
GE MED SYSTEMS
GE Medical
GE Medical Systems
GE Medical System
GE/X-ray
GE-HEALTHCARE
General Electric Company
General Electric Med. Systems

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<http://classic-imaging.com/refurbished-imaging-systems/>

GE Medical Systems - Product Data P7028-E

# Mobile X-Ray



## Model



GE Healthcare

### Technical Publications

Direction 2166913-1EN  
Revision 15

**AMX-4+ Operation  
(Model 2169360, 2236420 & 2275938  
Series)**

CE  
0459

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<http://classic-imaging.com/refurbished-imaging-systems/>

GE Medical Systems - Product Data P7028-E

# Mobile X-Ray



## Model name variations

AMX 4+
AMX FOUR PLUS
AMX-4 +
AMX4 PLUS
AMX4+
AMX4Plus
AMX-IV +
AMX-IV PLUS

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<http://classic-imaging.com/refurbished-imaging-systems/>

GE Medical Systems - Product Data P7028-E

# Mobile X-Ray



## Device Category

XRAY, Portable X-ray

X-RAY, MOBILE UNIT

X-RAY

Radiographic/Imaging, Mobile

Radiographic Units, Mobile [13-272]

Radiographic Units, General-Purpose

RADIOGRAPHIC UNIT, PORTABLE,  
General

Radiographic Unit, Mobile

RADIOGRAPHIC UNIT, General

RADIOGRAPHIC UNIT, DIAGNOSTIC,  
PORTABLE

Radiographic Systems, General

Radio, Diag, Portable(E/P)

Rad Unit, Mobile, Battery Powered

Portable X-Ray

Portable Rad

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# Mobile X-Ray

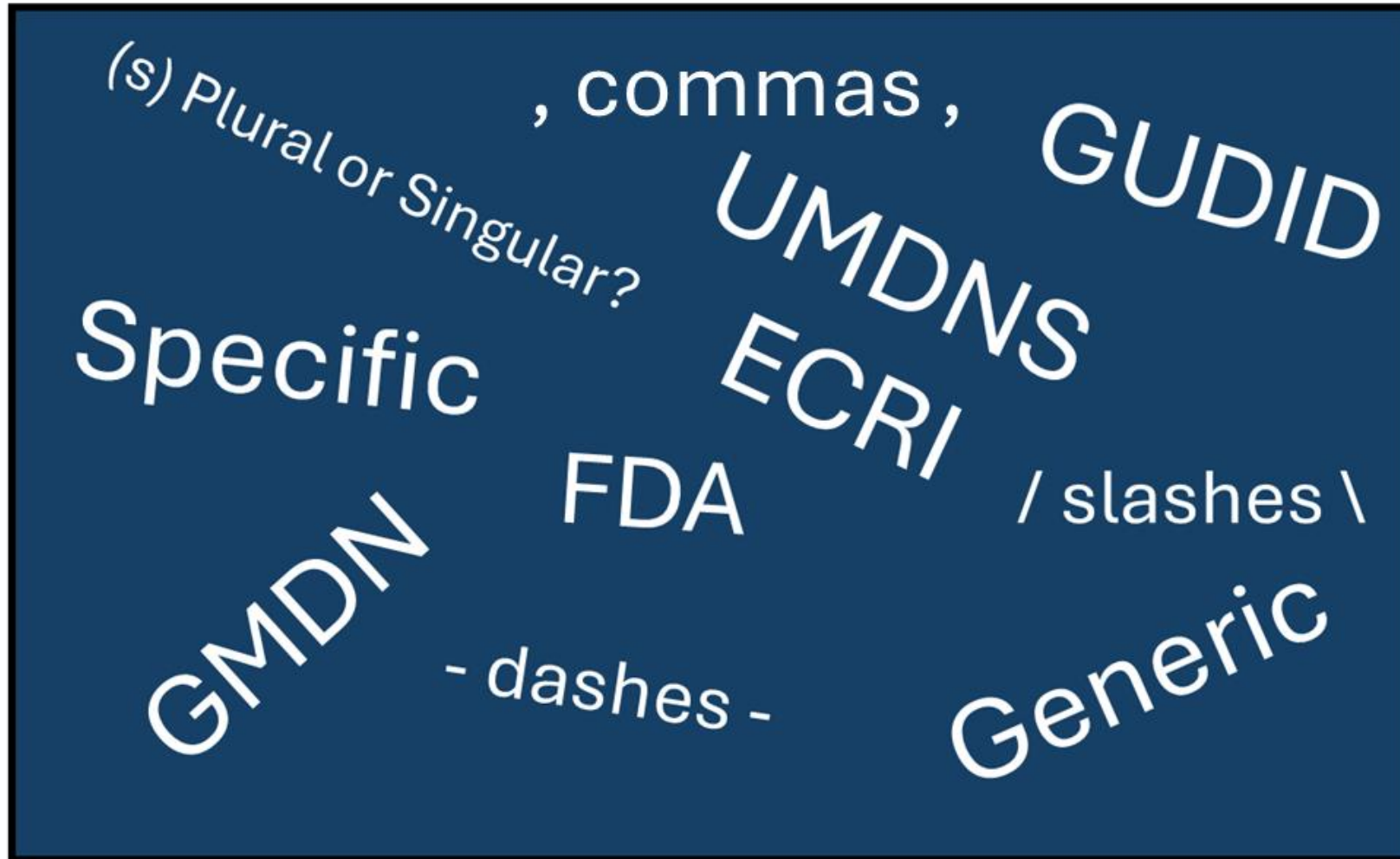


*You can  
classify this  
device in...  
 $19 \times 8 \times 17 =$   
2,584 ways!*

<http://classic-imaging.com/refurbished-imaging-systems/>

GE Medical Systems - Product Data P7028-E

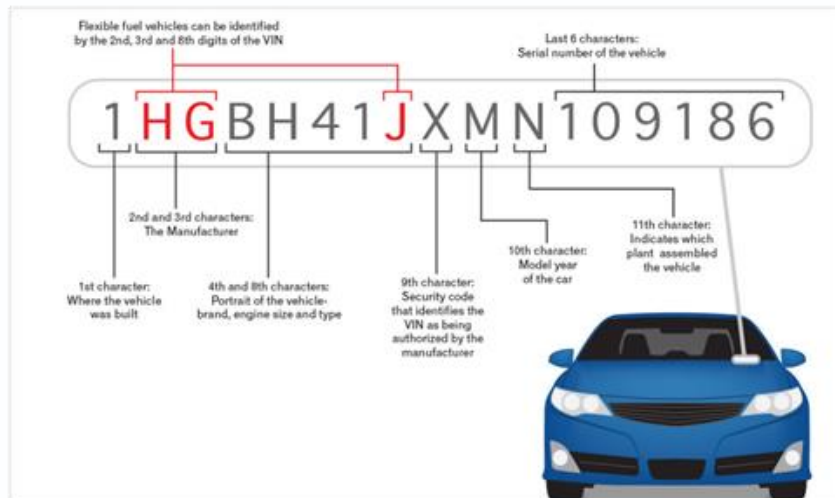
# To Use or Not to Use?



# GMDN & GUDID

Goal: Create a system using Unique Device Identification “UDI” for all medical devices, similar to the auto industry that can track recalls and user information using the VIN #

GMDN: Global Medical Device Nomenclature (based on ISO 15225)



GUDID: Global Unique Identification Database

**UDI = DI + PI**

(01)12345678901234(17)140102(11)100102(10)A1234(21)1234

2014-01-02 2010-01-02 LOT A1234 SN 1234

**Device Identifier(DI)** = mandatory, fixed portion of a UDI that identifies the specific version or model of a device and the labeler of that device

**Production Identifier(PI)** = a conditional, variable portion of a UDI that identifies one or more of the following when included in the UDI:  
Lot or batch number, Serial number, Expiration date, Manufacturing date, and, for an HCT/P regulated as a device, the distinct identification code

# Controlling Nomenclature

Requiring a form with photos of equipment nameplate and branding for any non-existing models and manufacturers in your database is a great way to control your asset nomenclature. DB Administrators can review the information and make a decision that ensures correct information is captured for parts ordering, alerts, and recalls.

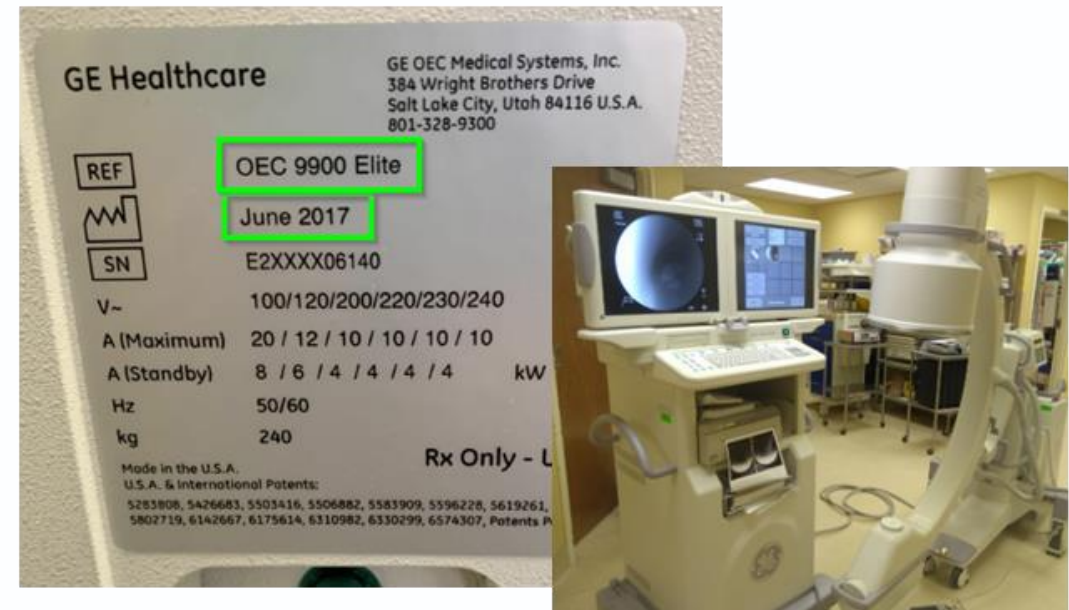
Manufacturer	Model Number	Model Name
GE Healthcare USA	OEC 9900 Elite	OEC 9900 Elite

Medical equipment is subject to continual re-branding and company M&A.

This can be confusing for users when looking at equipment nameplate information.

Manufacturer names should be managed in a way that minimizes Make/Model duplicates.

Updates need to be frequently communicated to the Biomed shops.



# Controlling Nomenclature

Whatever you decide,  
remember the goal:

To clean up your data,  
get rid of duplicates,  
*and* be able to report  
on things easily!



# Cleanup pre-work

- Review your data integrity policy – if you don't have one, make one!

<b>Policy</b>	Device Category Management			
<b>Definitions</b>	Designation for devices of a common functional type, based on UMDNS Standard			
<b>Data Format</b>	First letter of each word capitalized remainder lower case or as agreed by CE Leadership Group			
Section Number	Function	Performed by	Process	Comments
Device 1.1	Creating Device Categories	System Administrator	Select <b>Data Records &gt; Control Records &gt; Device Category Listing</b> , Enable <b>View Archived Records</b> button.	Verify that no existing (active or archived) device category is appropriate for the desired new category.
Device 1.2			Search ECRI Sourcebase for appropriate UMDNS Device Category name. If a match is found copy the name and UMDNS number.	It is sometimes useful to search by the manufacturer name / Products list. If no match is found create a reasonable category in the UMDNS format and email selection to the CE Leadership group for discussion at next opportunity.
Device 1.3			Click <b>Insert</b> . You may be asked to enter password.	

# Data Cleaning Service

## Automated DQA (device quality assessment)

Condition	Device%	Variation%	Model %	Devices	Variations	Resolutions
Resolved	24.4%	14.5%	10.6%	62,257	2,339	1,624
Suspect	14.9%	14.6%	15.3%	37,897	2,348	2,348
Too Few	13.6%	64.1%	67.1%	34,808	10,329	10,329
Unresolved	47.1%	6.8%	7.1%	120,235	1,087	1,087
<b>Total</b>				<b>255,197</b>	<b>16,103</b>	<b>15,388</b>

26.62 devices per variation  
 16.14 devices per variation  
 3.37 devices per variation  
 110.61 devices per variation

## DCN Project (device cleaning/normalizing + more data)

Condition	Device%	Variation%	Model %	Devices	Variations	Resolutions
Resolved	80.9%	31.1%	19.9%	432,689	6,732	3,699
Suspect	8.6%	14.1%	16.4%	46,177	3,049	3,049
Too Few	10.5%	54.9%	63.8%	56,183	11,885	11,885
Unresolved	0.0%	0.0%	0.0%	0	0	0
<b>Total</b>				<b>535,049</b>	<b>21,666</b>	<b>18,633</b>

45.1% reduction in variations  
 64.27 devices per variation  
 15.14 devices per variation  
 4.73 devices per variation  
 - devices per variation



# Expedite Data Standardization

Generative AI is an invaluable tool for handling resource-intensive tasks like data standardization.

DATA MANAGER  
**20,000**  
unique make-model combinations

x



**5 minutes**

to research, validate & pair to other standards

=

**1,667 hours**

which is equivalent to



1 FTE working 40 hours per week for approximately

**10.5 MONTHS**

# Natural Language Processing

NLP may cut this task down to 3-7 days (based on size & cleanliness of the data)

Alcon	Aberrometer	ORA-:	Alcon Laboratories - Surgical	Analyzer, Vision	ORA System-:	0.16044333
Stryker	Adapter, Camera	1188-020-122-:	Stryker Corp	Controller, Camera	1188-010-000-:	0.296885917
Stryker	Adapter, Camera	1288-020-122-:	Stryker Corp	Controller, Camera	1288-010-000-:	0.296885917
Stryker	Adapter, Camera	1488-020-122-:	Stryker Corp	Controller, Camera	1488-010-000-:	0.296885917
Stryker	Adapter, Camera	1488-020-125-:	Stryker Corp	Controller, Camera	1488-010-000-:	0.296885917
Stryker	Adapter, Camera	1588-020-122-:	Stryker Corp	Controller, Camera	1588-:	0.304911787
Stryker	Adaptor, Endoscopic	1088-020-122-:	Stryker Corp	Camera, Coupler, Endoscope	8380-210-:	0.20354889
ERBE	Adaptor, Endoscopic	20183-110-:	ERBE USA	Camera, Coupler, Endoscope	ICC200-:	0.168602287
TSI	Aerosol Generator	8026-:	TSI Inc	Test Equipment, Respiratory Therapy	8026-:	0.19331293
LIVANOVA USA INC.	Air Detector, Heart-Lung Bypass	23-07-50-:	LivaNova USA Inc	Monitor, Blood Parameter		0.222480529
LIVANOVA USA INC.	Air Detector, Heart-Lung Bypass	23-45-20-:	LivaNova USA Inc	Monitor, Blood Parameter		0.215703059
Terumo	Air Detector, Heart-Lung Bypass	5773-:	Terumo BCT	Monitor, Blood Parameter		0.022638
Terumo	Air Detector, Heart-Lung Bypass	802110-:	Terumo BCT	Monitor, Blood Parameter		0.0907698
Terumo	Air Detector, Heart-Lung Bypass	98-0702-0660-6-:	Terumo BCT	Monitor, Blood Parameter		0.04591641
Smiths Medical	Air Detector/Clamp	H-31B-:	Smiths Medical - Division of ICU Medical	ZZ - <DO NOT USE>		0.159375669
Hill-Rom	Airway Clearance Unit, Positive Expiratory Pres:	METANEB-:	Hill-Rom Co Inc - Division of Baxter	Airway Clearance Unit, Vest	104-:	0.198623355
Hill-Rom	Airway Clearance Unit, Positive Expiratory Pres:	PSC1-:	Hill-Rom Co Inc - Division of Baxter	Airway Clearance Unit, Vest	103-:	0.242806605
Hill-Rom	Airway Clearance Unit, Positive Expiratory Pres:	PVL1-:	Hill-Rom Co Inc - Division of Baxter	Airway Clearance Unit, Vest	103-:	0.242806605
Senior Technologies	Alarm, Occupancy	25222-:	Sensit Technologies	Alarm, Occupancy	HXG-2d-:	0.057641715
Posey	Alarm, Occupancy	8282WL-:	Posey Co	Alarm, Occupancy	8373NP-:	0.377036875
Posey	Alarm, Occupancy	8345-:	Posey Co	Alarm, Occupancy	8373NP-:	0.40038775
Posey	Alarm, Occupancy	8374-:	Posey Co	Alarm, Occupancy	8373NP-:	0.429081625
Posey	Alarm, Occupancy	8645WL-:	Posey Co	Alarm, Occupancy	8373NP-:	0.377036875
Posey	Alarm, Occupancy	BED ALARM-:	Posey Co	Alarm, Occupancy	8373NP-:	0.3926095
Medline	Alarm, Occupancy	MDT8175-:	Medline Industries Inc	Alarm, Occupancy	MDS9700-:	0.158597977
Posey	Alarm, Occupancy	Sitter II-:	Posey Co	Alarm, Occupancy	8373NP-:	0.3685195
Posey	Alarm, Occupancy	Sitter On Cue-:	Posey Co	Alarm, Occupancy	8373NP-:	0.38088541
Jewett	Alarm, Refrigerator/Freezer	HemaPro 2000-:	ZZ - Jewett Refrigerator Co.	ZZ - <DO NOT USE>		0.167305188
Natus	Amplifier	012378-:	Natus Medical Inc	Amplifier, EEG	028066-:	0.35084884
Natus	Amplifier	021911-:	Natus Medical Inc	Amplifier, EEG	021911-:	0.40950934
Viasys	Amplifier	040C001-:	Viasys Healthcare	Computer, Diagnostic, EMG	Teca Synergy-:	0.206109352
Viasys	Amplifier	040C009-:	Viasys Healthcare	Computer, Diagnostic, EMG	Teca Synergy-:	0.206109352
Oxford	Amplifier	040C009-:	Oxford Medical Inc	Computer, Diagnostic, EMG	Teca Synergy-:	0.182213235
Cardiac Science	Amplifier	10-00208-01-:	Cardiac Science Corp	ZZ - <DO NOT USE>		0.121078
Vyair Medical	Amplifier	16610-:	Vyair Medical Inc	ZZ - <DO NOT USE>		0
Covidien	Amplifier	5100C-PA-:	Tyco Healthcare - Covidien US	Monitor, SvO2, Cerebral	5100C-:	

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# Tracking Hours

## Device Hours

- Scheduled Maintenance
- Corrective Maintenance
- Incoming Inspections
- Incident Investigations
- Hazard Alerts
- Recalls

## Non-Device Hours

- Department Meetings
- Compliance Training
- Vendor Training
- Administrative Work
- Travel
- Etc.

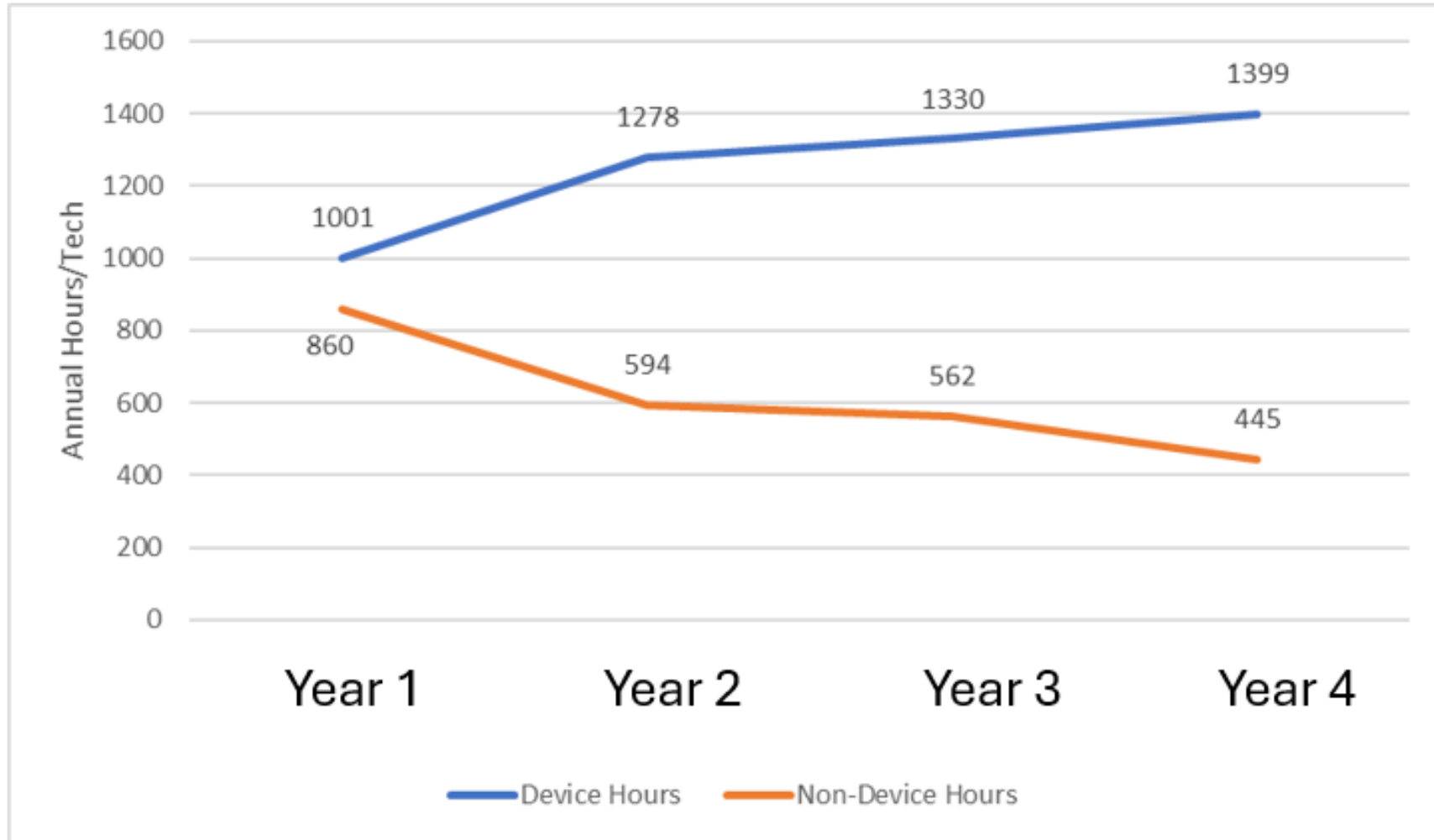
**Average/Tech**  
*1001 Device Hours*  
*859 Non-Device Hours*

# Undocumented Labor

## Labor Productivity Reports (annual)

ID	Yr	Weeks	Avg PM Hrs/Wk	Avg CM Hrs/Wk	Avg Device Hrs/Wk	Avg Non-Dev Hrs/Wk	Avg Doc Hrs/Wk	Avg Undoc Hrs/Wk
11506	2023	19	1.41	0.08	1.49	0.00	1.49	38.51
11534	2023	25	1.58	1.15	2.73	1.12	3.84	36.16
11589	2023	52	11.81	17.10	28.91	14.95	43.87	0.00
11696	2023	52	14.06	17.75	31.81	4.23	36.05	3.95
11691	2023	48	8.18	3.61	11.79	1.15	12.94	27.06
11730	2023	52	9.93	6.30	16.23	4.27	20.50	19.50
11773	2023	52	13.86	18.92	32.78	5.90	38.68	1.32
11513	2023	52	18.08	4.50	22.58	4.93	27.51	12.49
11518	2023	19	2.64	1.17	3.81	0.34	4.15	35.85
11526	2023	47	0.51	1.91	2.42	1.44	3.86	36.14
11551	2023	52	14.02	10.69	24.71	7.97	32.68	7.32
11552	2023	52	17.53	13.23	30.76	6.27	37.02	2.98
11542	2023	52	18.38	17.17	35.55	2.23	37.78	2.22
11560	2023	52	1.56	26.11	27.66	15.20	42.86	0.00
11578	2023	52	19.80	6.89	26.69	7.48	34.17	5.83

# Device Hours Trend



# Daily Productivity Reporting

Work Order and Non-WO Labor (Dates)

200 Showing pages 1 - 1 of 723 pages, 1 - 200 of 144531 rows

Employee	Labor Date	WO Hours	Non WO Hours	Travel Hours	Total Regular Hours	Overtime Hours	PTO Hours	Total Hours	CMs Touched	PMs Touc...	Total Work Orders Touched
Dunsmuir, Patrick W.	04/21/2025	5.10	2.30	0.00	7.00	0.00	0.00	7.00	4.00	0.00	4.00
Eberle, Jeff M.	04/21/2025	6.95	0.00	0.00	6.95	0.00	0.00	6.95	5.00	3.00	8.00
Gentry, Teresa M.	04/21/2025	6.55	1.50	0.00	8.05	0.00	0.00	8.05	10.00	0.00	10.00
Kleckner, Christian E.	04/21/2025	4.56	1.00	1.63	7.19	0.00	0.00	7.19	8.00	2.00	10.00
Thronsdon, Timothy J.	04/21/2025	0.10	0.00	0.00	0.10	0.00	0.00	0.10	1.00	0.00	1.00
Kormah, Augustus B.	04/21/2025	7.00	0.00	0.00	7.00	0.00	0.00	7.00	3.00	0.00	3.00
Thomas, Tisean C.	04/21/2025	5.75	1.50	0.00	7.25	0.00	0.00				
Zachmeyer, Danny L.	04/21/2025	5.22	2.40	0.00	7.62	0.00	0.00				
Martin, Lucas J.	04/21/2025	6.25		2.00	8.75	0.00	0.00				
<b>Total</b>		<b>1,098,03</b>	<b>105,521.4</b>	<b>19,686.8</b>	<b>1,223,240</b>	<b>6,374.86</b>	<b>66,738.4</b>				

Explainer

Tech can drill down to all WO and Non-device entries for the day to correct/update as needed

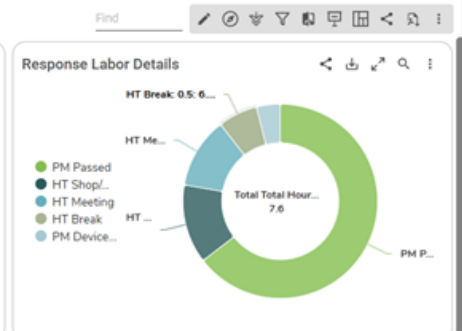
Productivity and Hours / Productivity and Hours Details

Productivity and Hours Details 04/21/2025

Non-WO Labor Details

200 Showing pages 1 - 1 of 1 pages, 1 - 4 of 4 rows

WO ID	WO Status	EmployeeID	Action Date	Response	Labor Type	Line Type	Rate Type	Hours
Zachmeyer	NA	Zachmeyer, Danny L.	04/21/2025	HT Break	Hammer Time	Labor	NA	0.25
Zachmeyer	NA	Zachmeyer, Danny L.	04/21/2025	HT Break	Hammer Time	Labor	NA	0.25
Zachmeyer	NA	Zachmeyer, Danny L.	04/21/2025	HT Meeting	Hammer Time	Labor	NA	0.9
Zachmeyer	NA	Zachmeyer, Danny L.	04/21/2025	HT Shop/Work Area Cleaning	Hammer Time	Labor	NA	1
<b>Total</b>								<b>2.4</b>

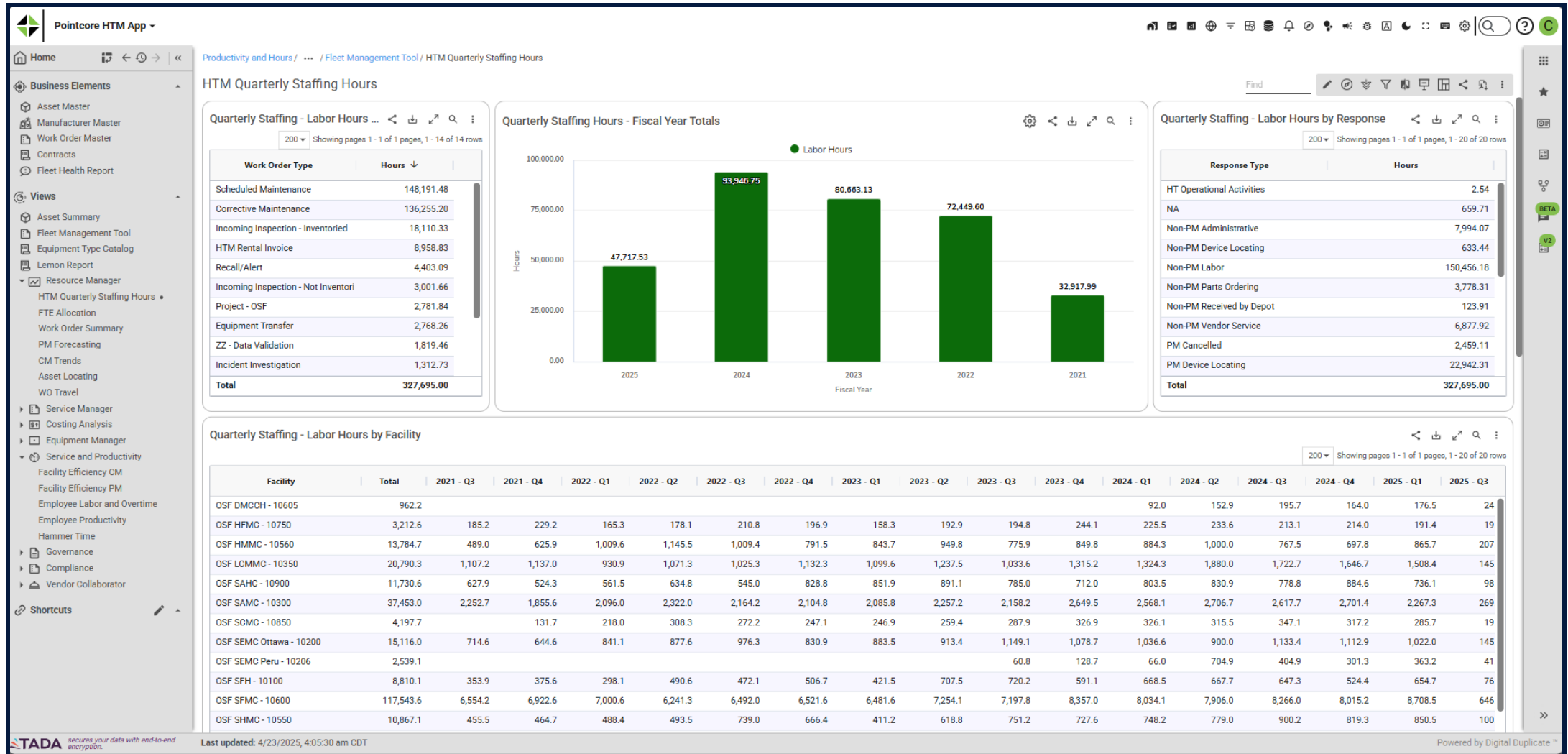


WO Labor Details

200 Showing pages 1 - 1 of 1 pages, 1 - 4 of 4 rows

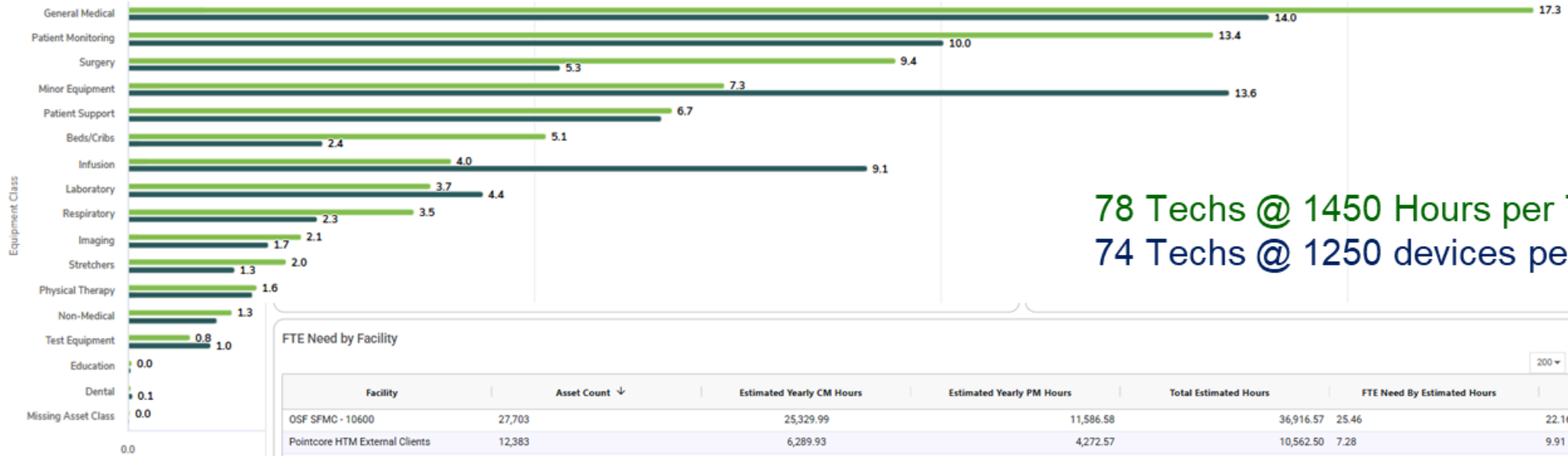
AIMS Link to WO	Work Order Number	WO Type	WO Status	EmployeeID	Action Date	Response	Labor Type	Rate Type	Labor Hours
1204783	2353857	PM	Unable to Locate	Zachmeyer, Danny L.	04/21/2025	PM Device Locating	In-House	Standard	0.3
1217925	2366914	PM	Closed	Zachmeyer, Danny L.	04/21/2025	PM Passed	In-House	Standard	2.17
1218829	2367768	PM	Closed	Zachmeyer, Danny L.	04/21/2025	PM Passed	In-House	Standard	0.75
1219029	2367968	PM	Closed	Zachmeyer, Danny L.	04/21/2025	PM Passed	In-House	Standard	2

# Numbers Tell the Story



# Forecast w/ Device Hours

FTE Need by Asset Class



78 Techs @ 1450 Hours per Tech  
74 Techs @ 1250 devices per Tech

FTE Need by Facility

Facility	Asset Count ↓	Estimated Yearly CM Hours	Estimated Yearly PM Hours	Total Estimated Hours	FTE Need By Estimated Hours	FTE Need By Device Count
OSF SFMC - 10600	27,703	25,329.99	11,586.58	36,916.57	25.46	22.16
Pointcore HTM External Clients	12,383	6,289.93	4,272.57	10,562.50	7.28	9.91
OSF SAMC - 10300	9,837	8,186.78	3,981.53	12,168.31	8.39	7.87
OSF SJMC - 10500	6,752	5,606.53	2,398.46	8,004.99	5.52	5.40
OSF LCMMC - 10350	5,600	4,830.98	2,285.35	7,116.33	4.91	4.48
OSF SMMC - 10700	4,158	3,597.12	1,553.15	5,150.27	3.55	3.33
OSF SEMC Ottawa - 10200	4,015	3,350.73	1,641.10	4,991.83	3.44	3.21
OSF HMMC - 10560	3,605	2,943.36	1,701.64	4,645.00	3.20	2.88
OSF SAHC - 10900	2,766	2,331.22	1,261.25	3,592.47	2.48	2.21
OSF SHMC - 10550	2,757	2,159.52	1,265.61	3,425.13	2.36	2.21
OSF SFH - 10100	2,537	2,291.15	1,116.78	3,407.93	2.35	2.03
OSF SJJWAMC - 10400	2,169	1,734.67	964.70	2,699.37	1.86	1.74
OSF SEMC Peru - 10206	1,965	1,499.87	733.88	2,233.75	1.54	1.57
OSF SCMC - 10850	1,478	1,222.45	646.10	1,868.55	1.29	1.18

# Manning Data

Device Type	Devices	Hours per Device	Total Device Hours
MODULE, INFUSION PUMP	4,906	0.41	1,644.70
PCU, INFUSION PUMP	1,921	0.40	670.76
WARMER, PATIENT	619	1.12	234.60
VENTILATOR	296	1.49	242.50
LIFT, PATIENT	286	0.67	154.83
COMPRESSOR, SEQUENTIAL	272	0.41	77.10
ELECTROSURGICAL UNIT	264	0.94	143.25
THERMOMETER	259	0.74	130.25
DEFIBRILLATOR/MONITOR	255	1.33	264.30
WARMER, BLOOD/FLUID	247	0.75	74.64
PUMP, AIR	227	0.43	94.45
CABINET, WARMING	224	0.98	139.80
INFUSION PUMP	210	0.74	93.35
SCANNER, ULTRASOUND	185	1.65	171.40
MONITOR, VITAL SIGNS, INTERMITTENT	177	0.78	85.65
PULSE OXIMETER	175	0.82	9.00
UPS	167	0.80	104.50
MONITOR, PHYSIO, MULTI-PARAMETER	167	0.69	28.95
WASTE MANAGEMENT SYSTEM	164	1.23	114.50
SCALE	152	0.73	88.45
PUMP, SUCTION	131	1.37	146.40

# Staffing

<b>Modality</b>	<b>Metro Net Adds</b>	<b>Metro hrs/year</b>	<b>Central Net Adds</b>	<b>Central hrs/year</b>	<b>KM Net Adds</b>	<b>KM hrs/year</b>	<b>North Net Adds</b>	<b>North hrs/year</b>	<b>South Net Adds</b>	<b>South hrs/year</b>	<b>System Total hrs/year</b>	<b>FTE's</b>
<i>General Biomedical Totals</i>	903	1447.30	736	971.80	-161	-10.28	802	990.32	474	464.78	3863.92	3.14
<i>Biomedical Specialty Totals</i>	54	92.10	18	104.93	8	50.95	15	77.02	19	66.17	391.17	0.32
<i>Imaging Group I Totals</i>	78	241.80	35	468.99	12	50.71	26	371.44	37	453.28	1586.22	1.29
<i>Imaging Group II Totals</i>	67	302.58	49	209.33	20	17.00	51	95.43	44	83.36	707.70	0.58
<b>TOTALS</b>	1102	2083.78	838	1755.05	-121	108.38	894	1534.21	574	1067.59	6549.01	5.32

<b>Modality</b>	<i>Total Hours Added</i>	<i>Available Device Hours per FTE</i>	<i>Total FTE's</i>
<i>General Biomed</i>	3863.92	1230.25	3.14
<i>Biomed Specialty</i>	391.17	1230.25	0.32
<i>Imaging I</i>	1586.22	1230.25	1.29
<i>Imaging II</i>	707.70	1230.25	0.58
<b>FTEs All Modalities</b>	6549.01	1230.25	<b>5.32</b>

### **Inventory Growth**

<i>Aurora Total Inventory 8/22/2006</i>	45,501
<i>Net Adds 08/23/2006 to 8/07/2007</i>	3,287
<i>Aurora Total Inventory 8/7/2007</i>	48,788
<b>Percentage Inventory Growth</b>	<b>7.22%</b>

**Productivity = 100.8%**

# Presentation Objectives

- Understand

- *What data to **collect***
- *How to **clean** your data*
- *How to **keep** it clean*

- Demonstrate

- *Leveraging data to optimize **Productivity***
- • *Leveraging data to improve **Cost Effectiveness***
- *Leveraging data to increase **Value & Recognition***

# Resource Planning

## Scheduled Maintenance & Failures (by Type & Model)

Detail	<div style="display: flex; justify-content: space-between;"> <span>PM</span> <span>CM</span> </div>								Total WOs	Total Hours	Total Labor	Total Avg Hours
	Scheduled				Repair							
	WOs	Hours	Labor	Avg Hours	WOs	Hours	Labor	Avg Hours				
MODULE, INFUSION PUMP	193,306	97,540	\$ 7,803,208	0.86	88,643	57,570	\$ 4,605,620	0.88	281,949	155,110	\$ 12,408,828	0.88
BECTON DICKINSON - 8100	173,048	85,661	\$ 6,852,862	0.70	83,036	52,459	\$ 4,196,737	0.70	256,084	138,120	\$ 11,049,599	0.70
BECTON DICKINSON - 8120	9,995	5,520	\$ 441,582	0.86	2,757	2,162	\$ 172,933	0.84	12,752	7,681	\$ 614,514	0.85
BECTON DICKINSON - 8110	9,521	5,805	\$ 464,411	1.17	2,292	2,228	\$ 178,226	1.08	11,813	8,033	\$ 642,637	1.12
BECTON DICKINSON - 8000	742	554	\$ 44,353	0.58	558	722	\$ 57,725	1.15	1,300	1,276	\$ 102,078	0.96
INFUSION PUMP	126,873	74,726	\$ 5,978,097	0.99	81,904	65,026	\$ 5,202,089	1.19	208,777	139,752	\$ 11,180,186	1.10
BECTON DICKINSON - 8015	73,155	35,299	\$ 2,823,886	0.79	22,042	13,705	\$ 1,096,431	0.85	95,197	49,004	\$ 3,920,318	0.82
ICU MEDICAL - 4000	16,392	11,070	\$ 885,564	0.91	23,163	15,372	\$ 1,229,742	0.85	39,555	26,441	\$ 2,115,306	0.87
BAXTER HEALTHCARE - 35700BAX	16,171	11,166	\$ 893,318	0.97	20,814	17,140	\$ 1,371,227	0.90	36,985	28,307	\$ 2,264,545	0.93
ICU MEDICAL - 3500	4,058	3,415	\$ 273,198	1.21	2,626	3,249	\$ 259,942	1.10	6,684	6,664	\$ 533,140	1.15
ICU MEDICAL - 2110	3,279	2,581	\$ 206,462	1.07	1,184	1,264	\$ 101,126	1.02	4,463	3,845	\$ 307,588	1.04
EXCELSIOR MEDICAL - ESP-60	1,464	895	\$ 71,636	0.58	621	293	\$ 23,412	0.51	2,085	1,188	\$ 95,048	0.54
ICU MEDICAL - PLUM	1,315	802	\$ 64,136	0.78	2,623	2,570	\$ 205,572	1.22	3,938	3,371	\$ 269,708	1.08
ICU MEDICAL - PLUM A+	1,134	199	\$ 15,914	0.28	112	125	\$ 10,024	1.15	1,246	324	\$ 25,938	0.89
B BRAUN - OUTLOOK 400	1,040	897	\$ 71,728	1.24	3,008	4,607	\$ 368,576	1.76	4,048	5,504	\$ 440,304	1.60
MOOG - 10D	925	1,277	\$ 102,143	2.15	150	190	\$ 15,176	1.58	1,075	1,466	\$ 117,319	1.92
BAXTER HEALTHCARE - INFUS OR	769	535	\$ 42,826	0.74	281	405	\$ 32,378	1.32	1,050	940	\$ 75,205	1.06
MEDFUSION - 3500	756	538	\$ 43,055	1.16	267	421	\$ 33,690	1.48	1,023	959	\$ 76,746	1.34
ICU MEDICAL - LIFECARE PCA	541	346	\$ 27,649	0.49	145	102	\$ 8,122	0.83	686	447	\$ 35,771	0.65

# Resource Planning

## Failure Rate (defensible AEM strategies)

StatMake	Model_SA	Type_SA	DeviceGroup	TotTags	ModelTags	ModelCMs	ModelYrs	Avg CMs/Yr
BAXTER HEALTHCARE	35700BAX	INFUSION PUMP	Infusion	72,413	10,728	27,655	6	1.210
ICU MEDICAL	PLUM	INFUSION PUMP	Infusion	59,073	1,276	2,747	5	1.328
BAXTER HEALTHCARE	COLLEAGUE	INFUSION PUMP	Infusion	30,439	238	309	1	1.179
ICU MEDICAL	LIFECARE	INFUSION PUMP	Infusion	23,497	186	248	5	1.078
ICU MEDICAL	3500	INFUSION PUMP	Infusion	19,994	1,869	5,286	6	1.179
ICU MEDICAL	CADD SOLIS	INFUSION PUMP	Infusion	13,754	1,185	2,008	6	1.157
BAXTER HEALTHCARE	FLOGARD	INFUSION PUMP	Infusion	13,066	117	151	4	1.238
ICU MEDICAL	4000	INFUSION PUMP	Infusion	12,003	4,809	33,482	6	1.681
B BRAUN	INFUSOMAT SPACE	INFUSION PUMP	Infusion	9,264	51	63	4	1.033
B BRAUN	PERFUSOR SPACE	INFUSION PUMP	Infusion	7,863	122	265	6	1.162
B BRAUN	OUTLOOK 400	INFUSION PUMP	Infusion	6,600	495	3,008	3	2.488
ICU MEDICAL	20792	INFUSION PUMP	Infusion	6,564	937	1,622	2	1.302
BAXTER HEALTHCARE	PCA II	INFUSION PUMP	Infusion	4,425	236	1,137	2	2.961
BECTON DICKINSON	7130	INFUSION PUMP	Infusion	4,393	1	1	1	1.000
ICU MEDICAL	6101	INFUSION PUMP	Infusion	4,295	44	76	2	1.206
BECTON DICKINSON	7230	INFUSION PUMP	Infusion	4,221	4	8	2	1.600
BAXTER HEALTHCARE	INFUS OR	INFUSION PUMP	Infusion	4,201	242	419	5	1.218

# Supply Expenses

## CORPORATE HEALTHCARE TECHNOLOGY MANAGEMENT

ORG-AREA 505-5512

ACCT	DESC	2016 TOTAL BUDGET	2016 YTD MAY
640005	MINOR EQUIPMENT	110,789	35,981
640010	OFFICE SUPPLIES	24,121	8,319
640015	PRINTED FORMS	30	-
640020	COMPUTER SOFTWARE	62,200	8,015
640025	GENERAL HOUSEKEEPING SUPPLIES	3,352	22
640045	MINIMUM ORDER CHARGE	571	180
641000	CONSUMABLE MED SURG SUPPLIES	231,238	95,447
641015	OXYGEN AND GASES	70,000	5,896
650000	DIETARY FOOD SUPPLIES	348	169
650015	BEVERAGES	52	140
650030	DIETARY CHINA AND PAPER	161	29
⊕ 699005	COST TRANSFER DIETARY	2,916	1,736
699010	COST TRANSFER DIETARY EMPLY RECOG	546	-
699020	COST TRANSFER DIETARY FLR STOCK	239	186
<b>SUPPLY EXPENSE</b>		<b>506.563</b>	<b>156.120</b>

# Other Expenses

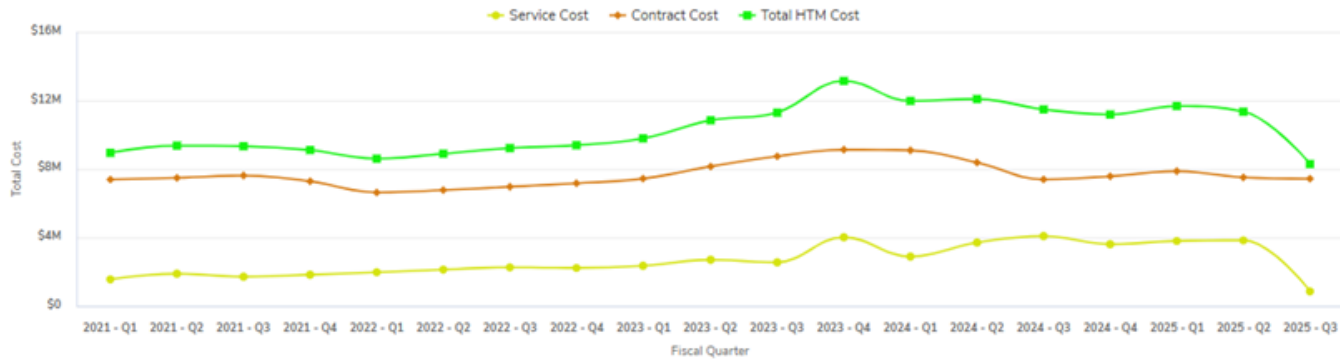
ACCT	DESC	TOTAL BUDGET	YTD MAY
740050	ALLOCATED COURIER SERVICES	2,300	605
744000	COST TRANSFER ALL OTHER	312	-
744005	COST TRANSFER PRINT SHOP	536	158
744180	COST TRANSFER PLANETREE EXP	133	-
748000	PROFESSIONAL EDUCATION EXP	-	25,157
748005	PROF EDUCATION REGISTRATION FEE	-	130,568
764000	MAINTENANCE AND SERV CONTRACTS	7,551,237	2,849,360
764015	PARTS	3,027,409	1,113,106
764035	MAINT AND REP ENDOSCOPIC EQ	820,000	199,242
764040	MAINT AND REPAIR XRAY TUBES	2,058,500	775,111
764045	MAINT AND REP INSTRUMENTS	105,000	34,264
770000	MISCELLANEOUS EXP	(77,431)	-
770005	FREIGHT	185,000	66,842
770010	DUES		925
770050	LIBRARY SUBSCRIPTIONS		516
774000	OUTSIDE SERVICES MEDICAL		1,120
774100	OUTSIDE SERVICES NON MEDICAL		4,564
774115	OUTSIDE SERVICES WASTE REMOVAL	305	130
774120	OUTSIDE SERVICES EXTR PRINT AV	437	27
774145	OUTSIDE SVC CLIN ENG AND MAINT	4,798,456	1,681,348
778000	BUILDING RENTAL		340
778005	EQUIPMENT RENTAL	5,000	23
778010	COPIER FAX	6,482	1,937
778020	AUTO LEASING	157,661	54,231
784006	PCARD TAX		25
788000	AUTO EXPENSE	183,627	95,772
788025	BUSINESS TRAVEL	6,000	8,111
790005	UTILITIES TELECOM	110,000	38,645
790040	UTILITIES INTERNET CHARGES	500	-
<b>OTHER EXPENSE</b>		<b>18,941,464</b>	<b>7,082,127</b>
<b>TOTAL</b>		<b>19,448,027</b>	<b>7,238,247</b>

# Monitor ever-rising costs

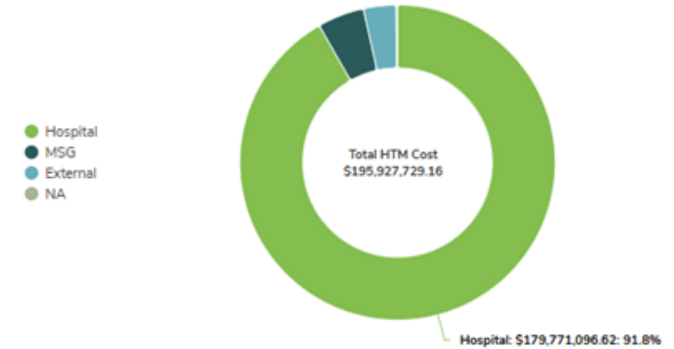
## HTM Quarterly Costing

[QUARTERLY COSTING](#)
[LABOR COSTING](#)
[PARTS COSTING](#)

### Total HTM Costing by Fiscal Quarter



### Total HTM Cost by Service Line

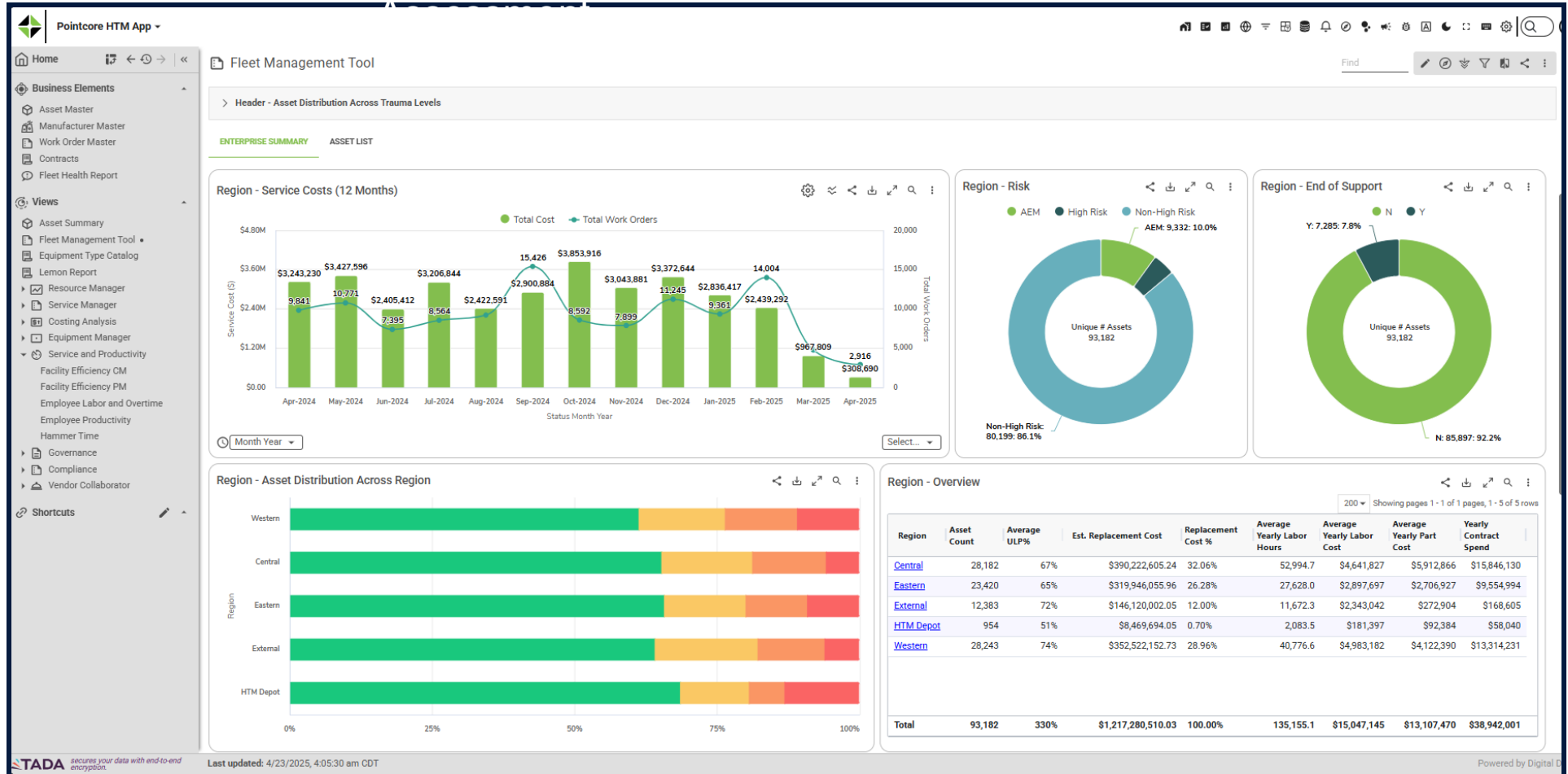


### Fiscal Quarter Costing Allocation

Fiscal Quarter	In-House Total Labor Cost		In-House Total Part Cost	Vendor Total Labor Cost		Vendor Total Part Cost	Total Contract Cost	Total Cost
<a href="#">2025-Q3</a>	\$478,568	[No Title]	\$119,033	\$216,065	\$42,133		\$7,432,905	\$8,288,703
<a href="#">2025-Q2</a>	\$1,565,191		\$504,277	\$1,483,317	\$284,435		\$7,508,231	\$11,345,452
<a href="#">2025-Q1</a>	\$1,540,733		\$391,373	\$1,381,084	\$487,839		\$7,874,557	\$11,675,586
<a href="#">2024-Q4</a>	\$1,420,499		\$537,074	\$1,244,427	\$405,859		\$7,572,014	\$11,179,872
<a href="#">2024-Q3</a>	\$1,417,534		\$538,878	\$1,574,299	\$553,389		\$7,393,543	\$11,477,643
<a href="#">2024-Q2</a>	\$1,330,197		\$536,913	\$1,088,146	\$751,491		\$8,377,852	\$12,084,600
<a href="#">2024-Q1</a>	\$1,244,094		\$481,346	\$883,940	\$274,959		\$9,089,499	\$11,973,838
<a href="#">2023-Q4</a>	\$1,140,821		\$587,448	\$1,719,764	\$564,942		\$9,127,006	\$13,139,982
<a href="#">2023-Q3</a>	\$1,010,088		\$723,440	\$673,072	\$217,360		\$8,737,710	\$11,285,670
<b>Total</b>	<b>\$23,748,992</b>		<b>\$10,705,420</b>	<b>\$10,973,088</b>	<b>\$4,518,172</b>		<b>\$145,982,057</b>	<b>\$195,927,729</b>

# Comprehensive Fleet Review

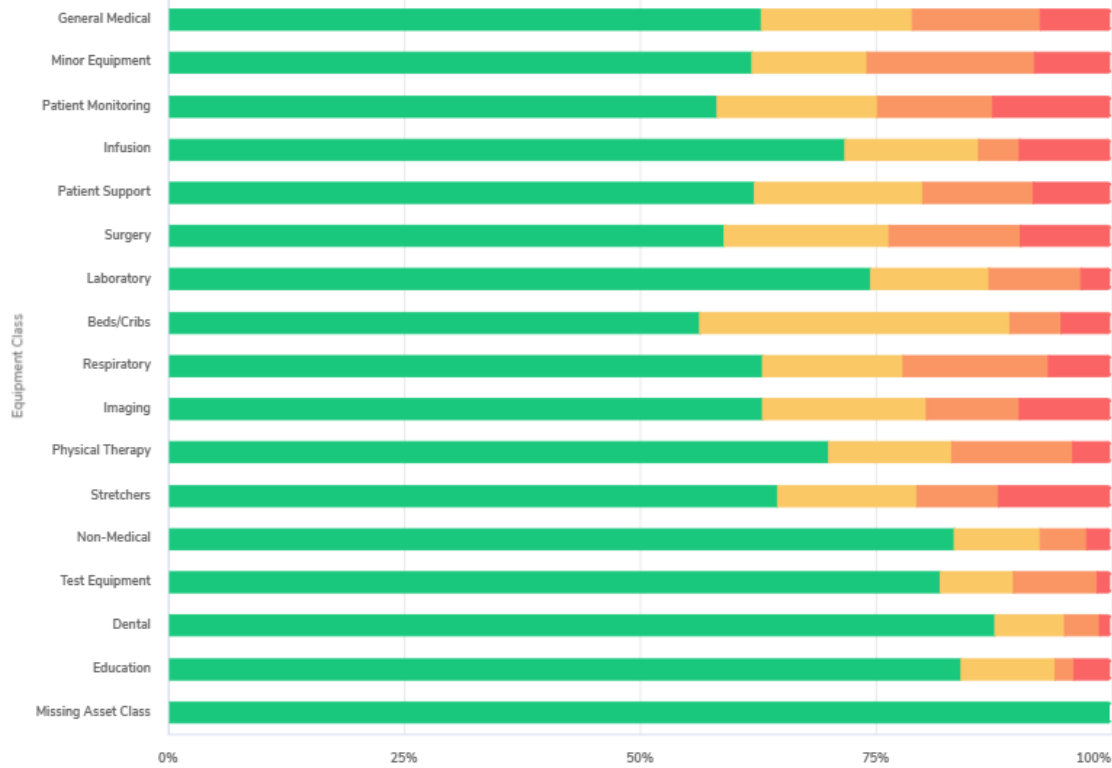
with Total Cost of Ownership and Lifecycle



# Comprehensive Fleet Review

with Total Cost of Ownership and Lifecycle

Region - Trauma Distribution Across Class



Region - Asset Distribution Across Class

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Equipment Class	Asset Count	Asset %	Est. Replacement Cost	Replacement Cost %	Average Yearly Labor Hours	Average Yearly Labor Cost	Average Yearly Part Cost	Yearly Contract Spend
<a href="#">Beds/Cribs</a>	2,991	3.21%	\$38,341,526.91	3.15%	5,278.8	\$382,647	\$109,732	\$3,976
<a href="#">Dental</a>	81	0.09%	\$489,081.00	0.04%	43.5	\$7,843	\$32	\$0
<a href="#">Education</a>	50	0.05%	\$257,747.00	0.02%	58.5	\$3,728	\$1,005	\$0
<a href="#">General Medical</a>	17,553	18.84%	\$140,535,957.51	11.55%	25,474.5	\$2,317,876	\$502,200	\$494,083
<a href="#">Imaging</a>	2,167	2.33%	\$480,382,147.05	39.46%	30,183.4	\$2,683,805	\$10,345,693	\$22,752,687
<a href="#">Infusion</a>	11,375	12.21%	\$46,921,071.00	3.85%	8,831.5	\$3,132,186	\$85,033	\$0
<a href="#">Laboratory</a>	5,459	5.86%	\$95,070,382.10	7.81%	8,881.0	\$1,207,500	\$737,987	\$2,404,873
<a href="#">Minor Equipment</a>	16,944	18.18%	\$8,466,745.88	0.70%	7,706.9	\$911,369	\$43,434	\$9,834,523
<a href="#">Missing Asset Class</a>	16	0.02%	\$0.00	0.00%	24.5	\$1,420	\$3	\$0
<a href="#">Non-Medical</a>	1,378	1.48%	\$5,044,515.10	0.41%	4,809.5	\$173,763	\$30,263	\$138,236
<a href="#">Patient Monitoring</a>	12,544	13.46%	\$86,173,179.62	7.08%	14,470.4	\$1,215,208	\$317,514	\$385,227
<a href="#">Patient Support</a>	8,215	8.82%	\$23,924,400.99	1.97%	6,361.1	\$609,899	\$55,759	\$11,950
<a href="#">Physical Therapy</a>	1,917	2.06%	\$7,831,417.61	0.64%	1,417.7	\$138,244	\$12,134	\$0
<a href="#">Respiratory</a>	2,920	3.13%	\$42,935,606.89	3.53%	5,267.1	\$381,190	\$208,748	\$53,557
<a href="#">Stretchers</a>	1,649	1.77%	\$18,502,603.36	1.52%	1,908.5	\$189,528	\$21,542	\$0
<a href="#">Surgery</a>	6,648	7.13%	\$219,539,165.32	18.04%	12,455.0	\$1,522,851	\$632,893	\$2,862,292
<a href="#">Test Equipment</a>	1,275	1.37%	\$2,864,962.69	0.24%	1,983.3	\$168,089	\$3,498	\$596
<b>Total</b>	<b>93,182</b>	<b>100.00%</b>	<b>\$1,217,280,510.03</b>	<b>100.00%</b>	<b>135,155.1</b>	<b>\$15,047,14</b>	<b>\$13,107,470</b>	<b>\$38,942,001</b>

# Standardize & Plan

Plan replacements at fleet level over multiple years

Fleet Health Forecast

Find

> Trauma Matrix Definitions

FLEET HEALTH FORECAST

YEAR 1

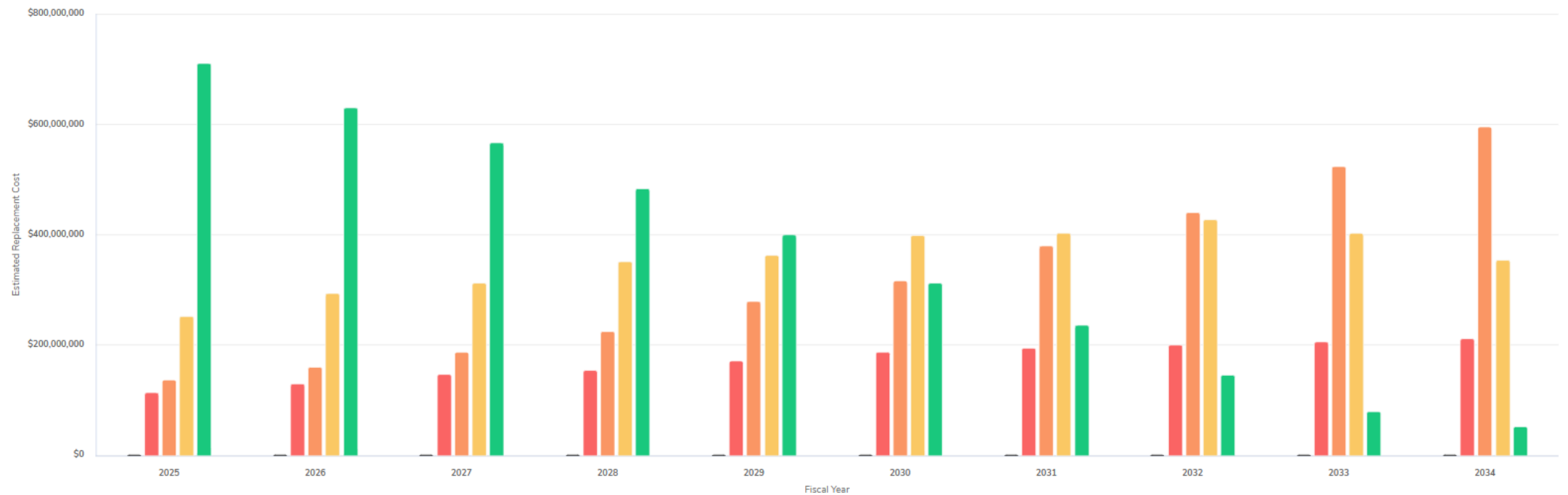
YEAR 2

YEAR 3

YEAR 4

YEAR 5

Trauma Distribution By Fiscal Year



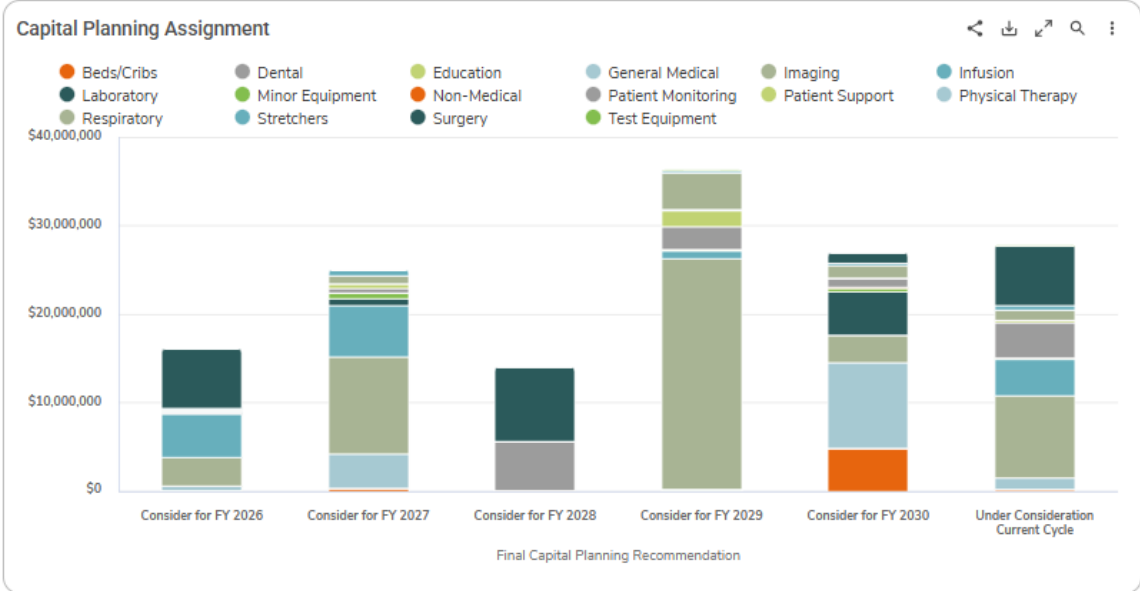
# Capital Planning

## Capital Planning Overview- (Admin)

Find        

[CP EXECUTIVE OVERVIEW](#)
[CP ENTERPRISE OVERVIEW](#)
[CP FORECASTING](#)
[CP WORKBENCH- ADMIN](#)
[CAPITAL LIST OF ASSETS \(NOT UNDER CONSIDERATION\)](#)

Assets in Scope <b>12,594</b>	Est. Replacement Cost <b>\$145,994,845</b>	Top Critical Assets <b>5,228</b>	Top Critical Est. Replacement Cost <b>\$45,742,606</b>
----------------------------------	---	-------------------------------------	---



### CP Overview Assets Under Consideration - Assignment Totals

200 Showing pages 1 - 1 of 1 pages, 1 - 6 of 6 rows

Current Recommendation	Count of Assets Under Consideration	Total Estimated Replacement Cost
<a href="#">Consider for FY 2026</a>	1,417	\$16,091,647
<a href="#">Consider for FY 2027</a>	3,945	\$24,983,119
<a href="#">Consider for FY 2028</a>	1,247	\$13,956,481
<a href="#">Consider for FY 2029</a>	1,405	\$36,274,341
<a href="#">Consider for FY 2030</a>	2,112	\$26,944,389
<a href="#">Under Consideration Current Cycle</a>	2,468	\$27,744,868
<b>Total</b>	<b>12,594</b>	<b>\$145,994,845</b>

# Presentation Objectives

- **Understand**

- *What data to **collect***
- *How to **clean** your data*
- *How to **keep** it clean*

- **Demonstrate**

- *Leveraging data to optimize **Productivity***
- *Leveraging data to improve **Cost Effectiveness***
- • *Leveraging data to increase **Value & Recognition***

# Year One Accomplishments

**\$5M**

Additional funds released during the first year

**\$1.6M**

Saved in FY25 from bulk purchases

**200%**  
**YOY Growth**

In HTM Management over traditional processes based on the results of the first year

**\$200K**

**Travel Labor Savings**

By optimizing PM schedules for clinics by field services

**~45%**

reduction of Clinical and HTM Leadership work hours

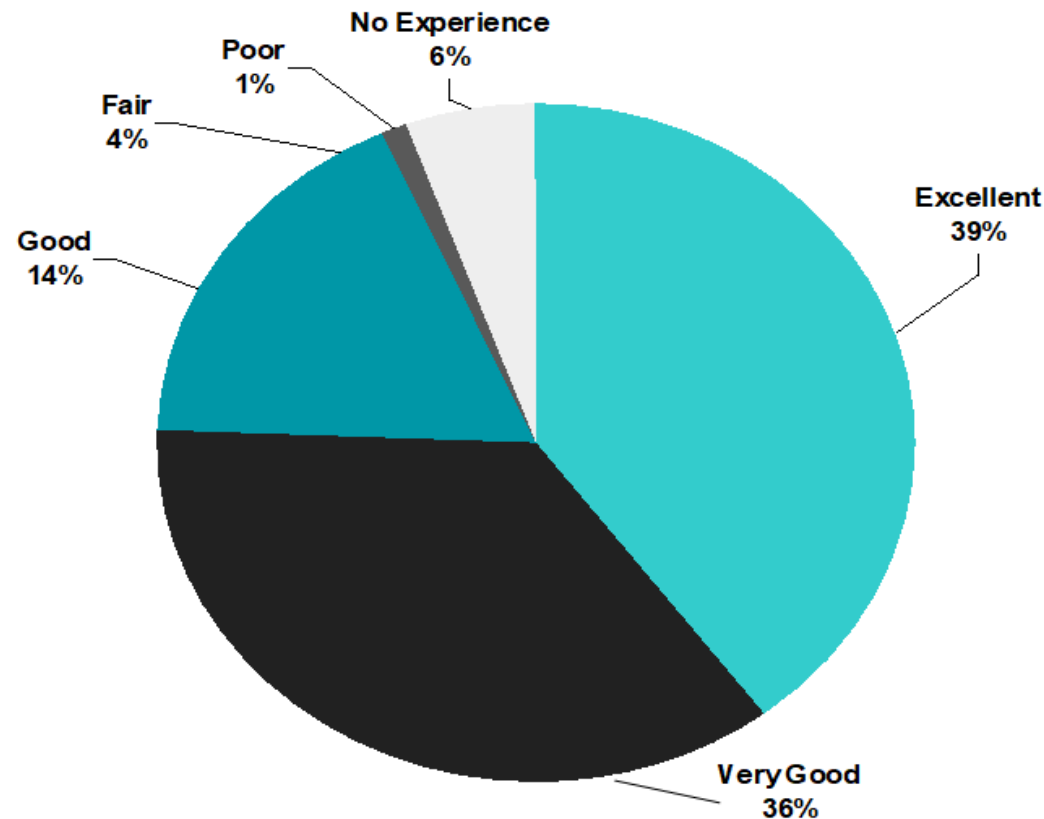
**25%**

projected additional reduction of hours

# Customer Satisfaction Survey

Overall Quality of Services – 1 Year

Q12. Please rate the overall quality of services you receive from Clinical Engineering.



Mean=4.15

N= 998

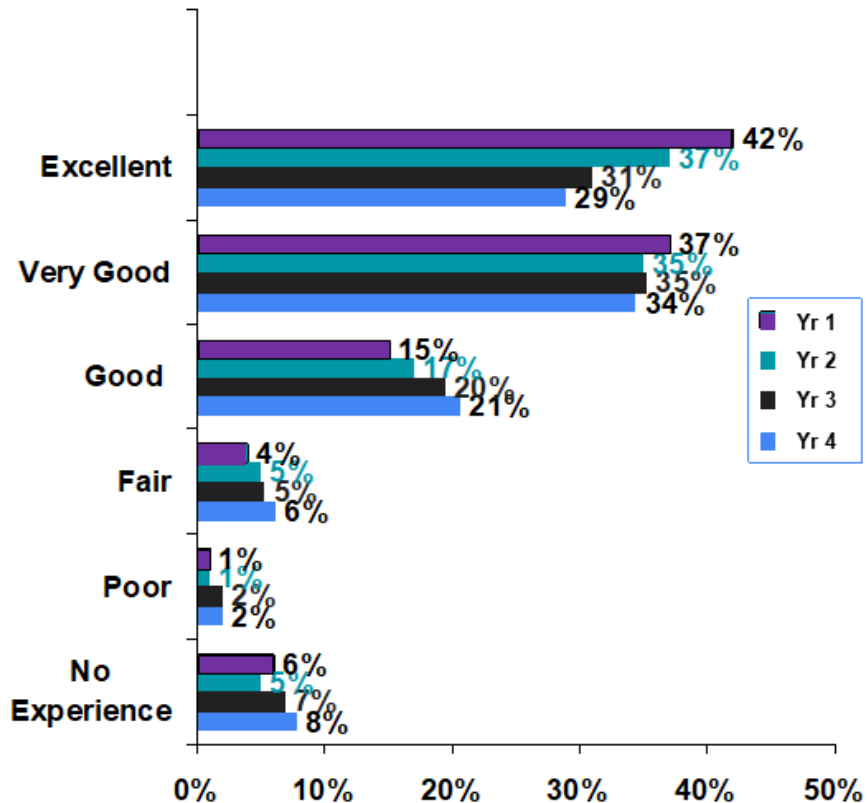


N= 998 Surveys  
(Pie Chart)

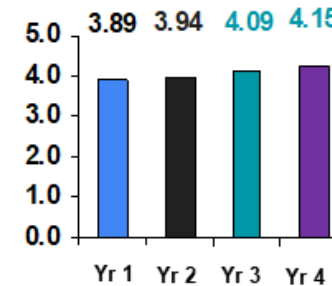
# Customer Satisfaction Survey

## Overall Quality of Services – 4 Years

Q12. Please rate the overall quality of services you receive from Clinical Engineering.

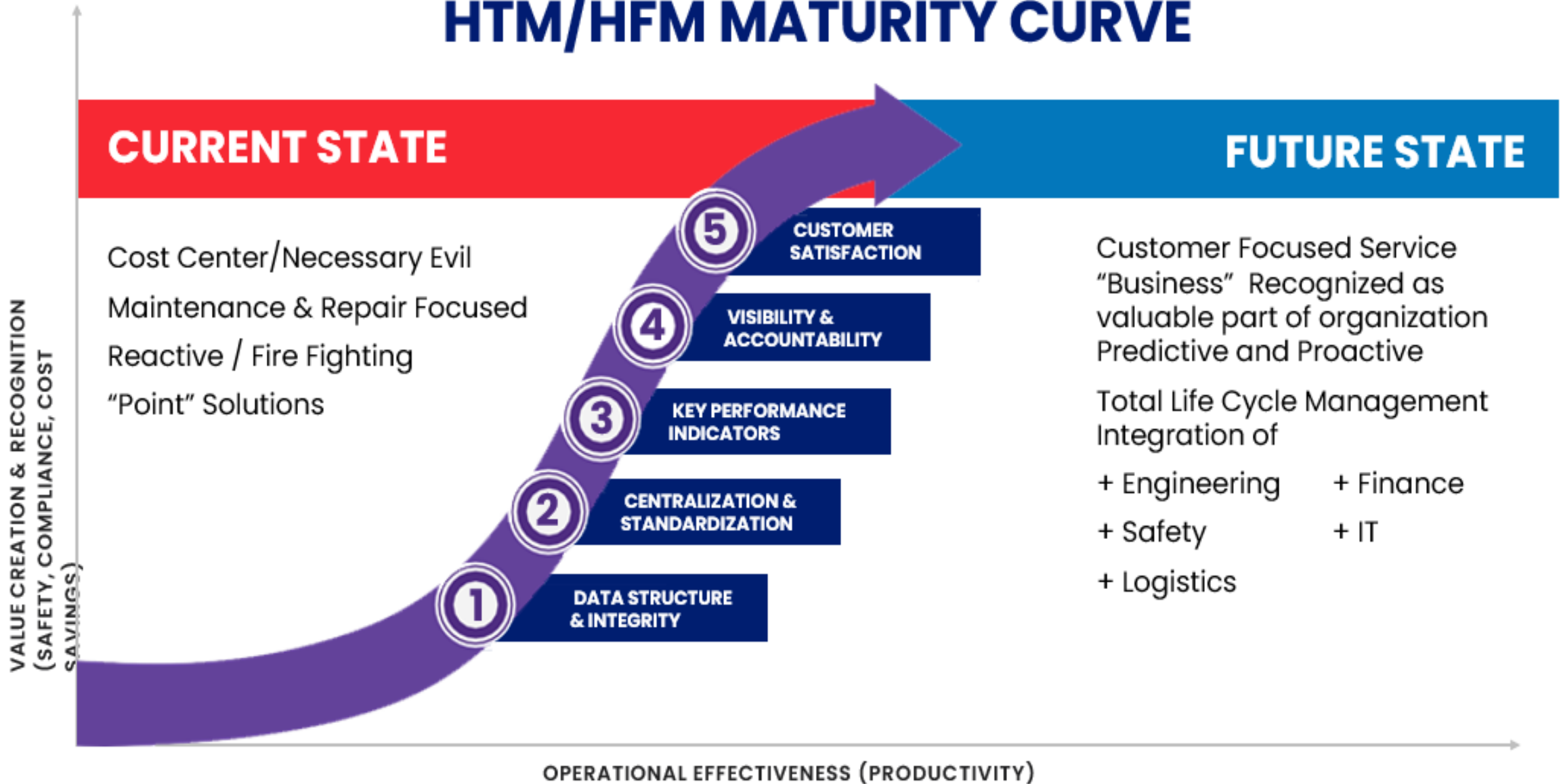


	Yr 1	Yr 2	Yr 3	Yr 4
Mean	3.89	3.94	4.09	4.15
N	1,333	1,179	1,175	998



Total Surveys	
N=1,446	Yr 1
N=1,266	Yr 2
N=1,177	Yr 3
N= 998	Yr 4

# HTM/HFM MATURITY CURVE



# Q&A Session



Al Gresch  
VP of HTM Consulting  
Phoenix Data Systems



Chris Funk  
Manager of Data Intelligence  
Pointcore/OSF Healthcare



# Thank you!

[AGresch@goaims.com](mailto:AGresch@goaims.com)

[Christopher.R.Funk@pointcore.com](mailto:Christopher.R.Funk@pointcore.com)

