



2023-2024 Educational Webinar Series

Medical Equipment Planning for Healthcare Organizations

May 30, 2024

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About the Moderator



Priyanka Shah, MS

Priyanka Shah is a senior project engineer in the Device Evaluation group at ECRI where she performs medical device evaluations, investigates system failures, develops practical guidance for healthcare facilities, conducts accident investigations, and consults healthcare facilities on pre-purchase selection, and appropriate use of medical equipment, and health IT systems. She is the lead subject matter expert on physiologic patient monitoring, alarm management, EHR usability, and telehealth.

She has spoken on physiologic monitoring, usability of EHRs, cleaning and disinfection best practices at several regional and national conferences hosted by groups such as the Association for the Advancement of Medical Instrumentation (AAMI) Human Factors and Ergonomics Society (HFES) in Healthcare Symposium, and at the New Jersey/Delaware chapter of the Healthcare Information and Management Systems Society (NJ/DV HIMSS) annual convention.

Priyanka came to ECRI with a background in research engineering and program management. Priyanka holds a Master of Science degree in Biomedical Engineering from Purdue University and a Bachelor of Technology in Biomedical and Instrumentation Engineering from Ganpat University, India.

Logistics

- ❖ All attendees have their microphones muted during the presentation.
- ❖ Questions to the panelists must be submitted via the “Q&A” feature in Zoom at any time. They will be addressed at the Q&A portion.
- ❖ If there is any urgent issue, please use the “chat” feature to communicate with the host/moderator.
- ❖ Please remember to complete the webinar evaluation after attending. A link will be provided at the end.

About the Speaker



Dean Skillicorn, BS, CBET, CHTM
St. Luke's Health System

Dean Skillicorn is the Imaging Services Manager for St. Luke's Health System in Boise, ID. St. Luke's is an 8-hospital, 270-clinic health system in Southwestern Idaho. The HTM Department at St. Luke's is a part of the Information Health Technology Division of St. Luke's. HTM supports over 40,000 devices system-wide through a service level concept of three regional service managers who manage general healthcare devices and an imaging services manager who manages imaging equipment services system-wide. St. Luke's employs 22 BMETs, 5 Imaging Service Specialists, and 5 Managers who report directly to a Senior Director for IHT.

Dean is a Certified Biomedical Equipment Technician with a Bachelors Degree in Business from Oregon State University (2020). Dean is also an avid flyfisherman and fishes much of Idaho, Oregon, and Montana.

About the Speaker



Carol Davis-Smith, MS, CCE, FACCE
Carol Davis-Smith & Associates, LLC

Current Role:

- President of private healthcare technology consulting firm
- Director of the University of Connecticut Clinical Engineering Internship Program within the university's Biomedical Engineering department

Education and Experience:

- MS degree from the University of Arizona – department of electrical and computer engineering with a specialization in clinical engineering
- BS in Bioengineering Technology from the University of Dayton
- 30+ years in roles ranging from frontline staff clinical engineer to executive leadership
- Served as the vice chair of clinical engineering for AAMI Board of Directors
- Former (founding) member of the AAMI Technology Management Council
- Former member of the United States Board of Examiners for Clinical Engineering Certification

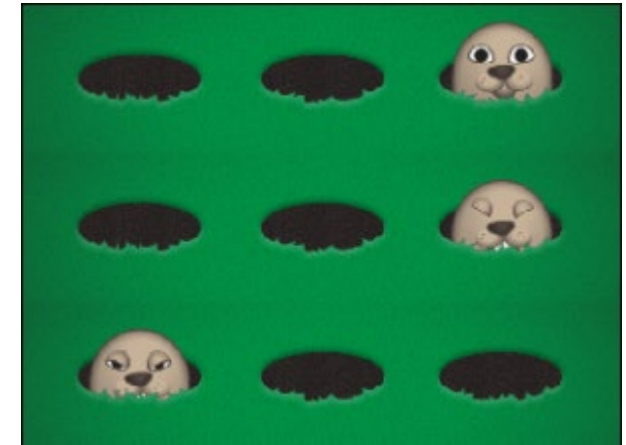
Session Description

Forecasting healthcare technology requirements is a major challenge for every healthcare organization.

Today's session will provide a roadmap and resources to help you design a program that supports your organization's unique requirements and constraints.

Quick Review – What is technology forecasting?

- Anticipating and planning for
 - Upgrades for existing assets
 - Reallocation of existing assets
 - Replacement of existing assets
 - Introduction of new technology and products



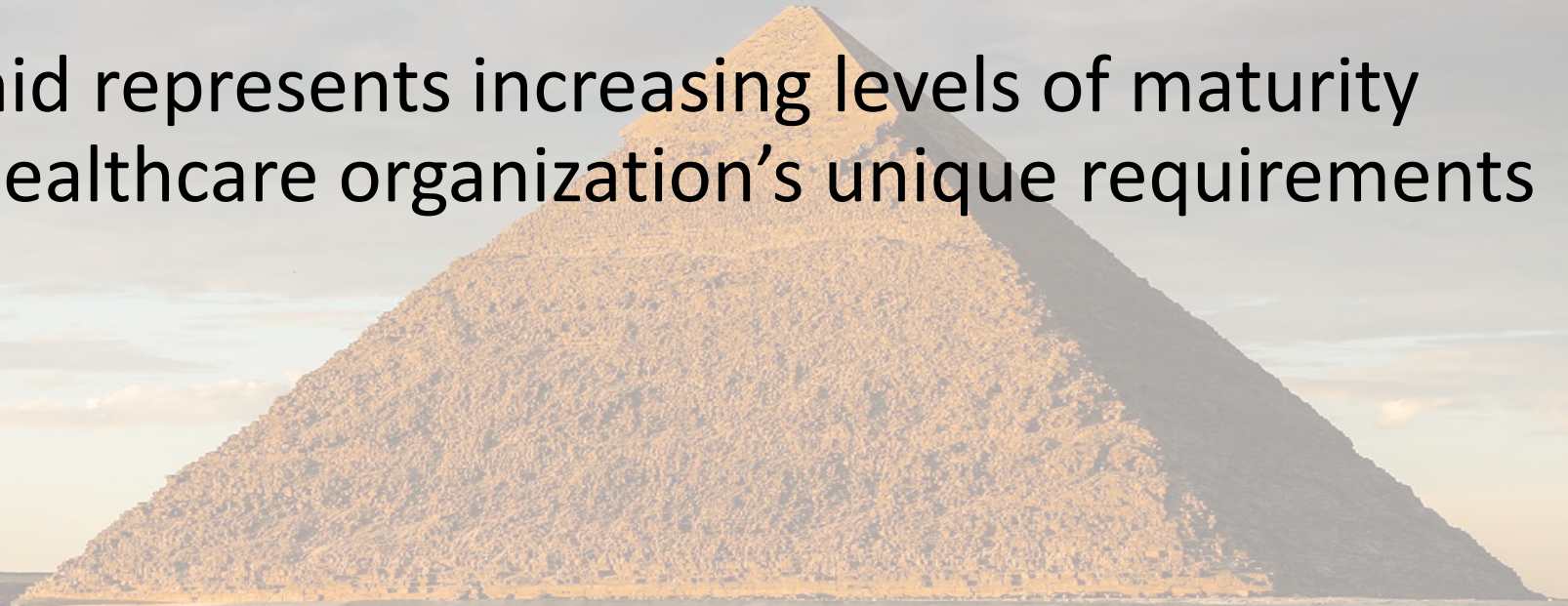
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- Balancing clinical, financial, and technical perspectives
- It is NOT whack-a-mole or wish lists

Program Maturity – one size fits some

Below the base of the pyramid is reactive – not a program

Climbing the pyramid represents increasing levels of maturity that address your healthcare organization's unique requirements and constraints.



The desert floor – Below the pyramid base

Dark and foreboding

Lack of visibility and trust

Questionable strategy

Minimal “success”



Tier 1 – at the base

Policy – Process – Procedure

Basic data introduced

Focus on 1-2 categories

Diagnostic imaging

Surgical services

Fleet management

Tier 1

Tier 1 – at the base

Process

- Data collection
- Data analysis
- Preliminary recommendations
- Key clinical stakeholder review
- Refined recommendations
- Key financial stakeholder review
- Prioritized recommendations

Resources

- Key stakeholders identified
 - Influencers versus Decision-Makers
- CMMS
- Financial asset management system
- Dedicated resource(s) to execute process

Tier 1 – Data at the base

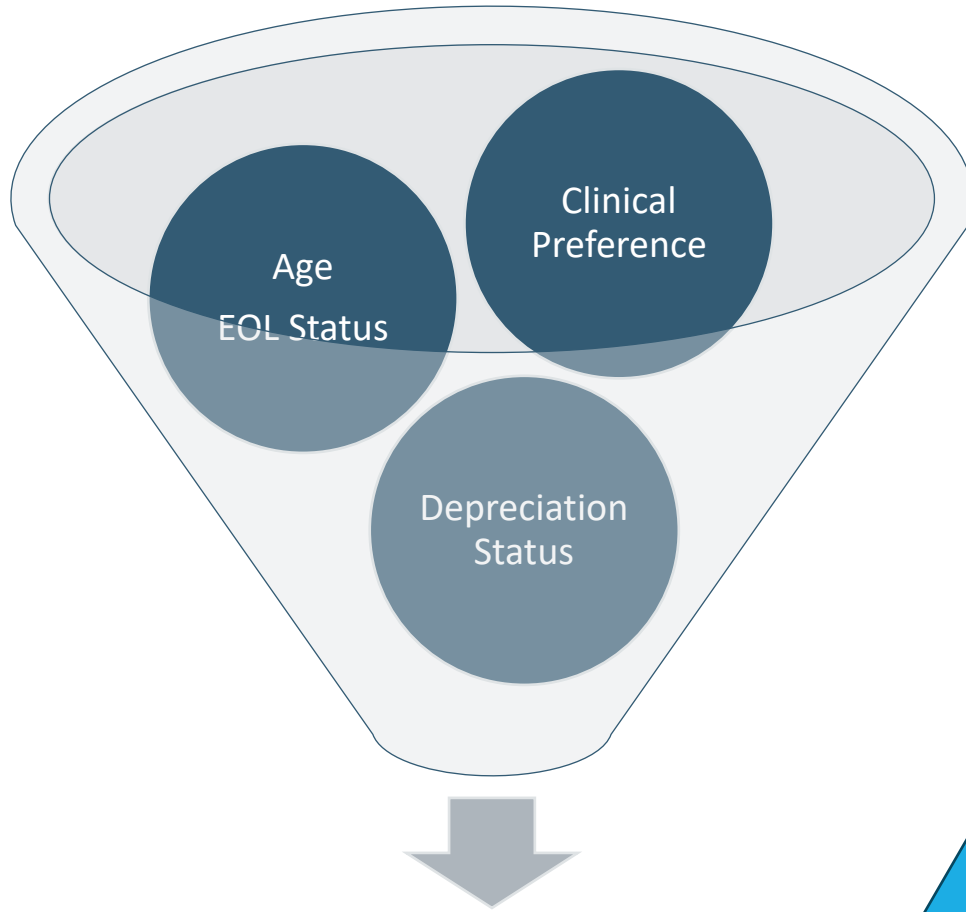
CMMS

- Manufacturer
- Model name/number
- Purchase date
- Installation (activation) date
- Cybersecurity attributes
 - Operating system
 - Cyber risk score

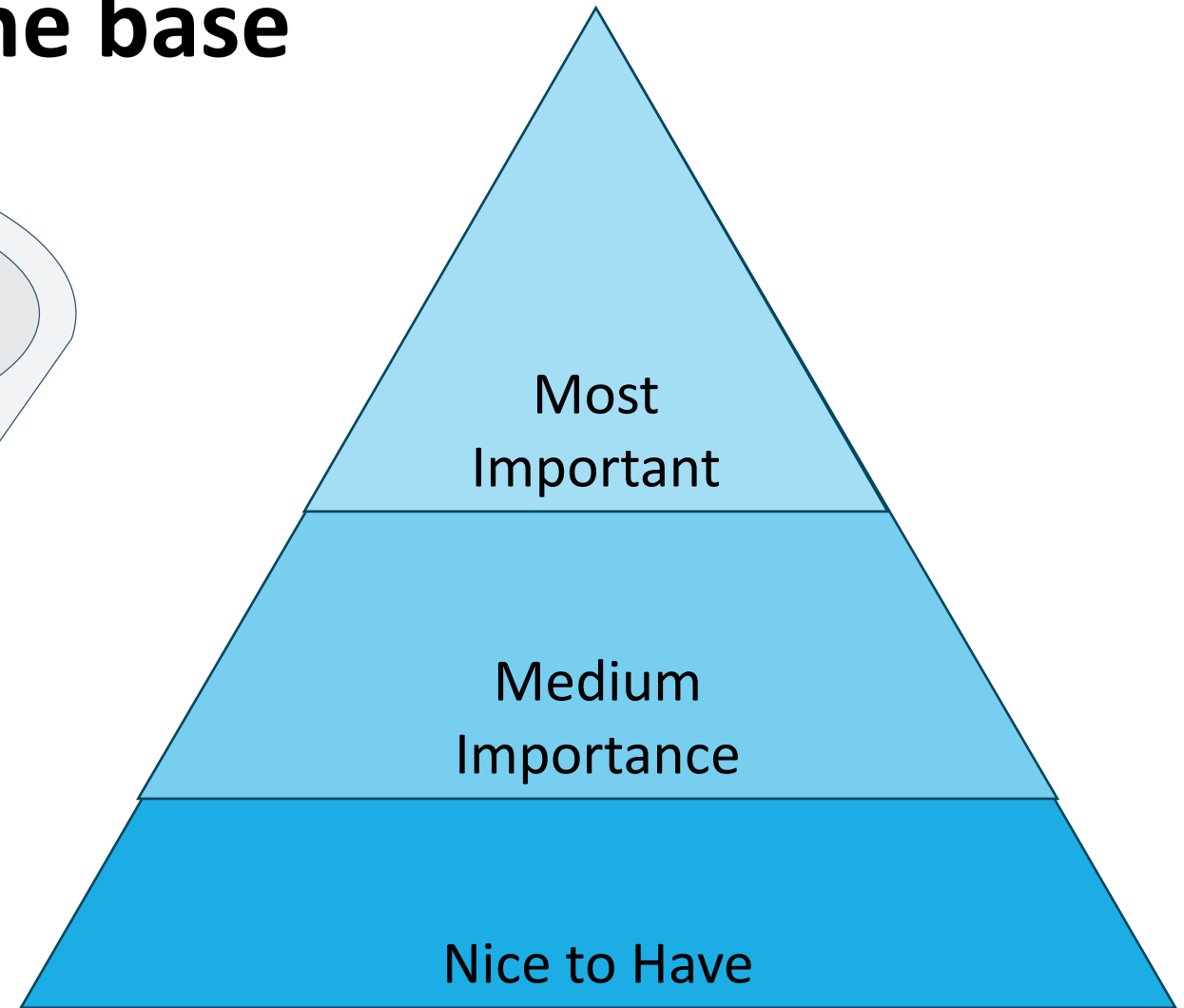
Financial Asset Mgmt System

- Capital threshold(s)
- Depreciation status

Tier 1 – Forecasting at the base



Prioritization



Tier 2 – at the midpoint

All tier 1 attributes plus ...

Increasing transparency and trust

Advanced data and analysis

Consideration of 2+ categories collectively

Tier 2

Tier 2 – at the midpoint

Process

- Key clinical stakeholder engagement
- Key financial stakeholder engagement
- Data collection
- Data analysis
- Preliminary recommendations
- Key clinical stakeholder review
- Key financial stakeholder review
- Refined and prioritized recommendations
- Formal business cases

Resources

- Key stakeholders identified
 - Influencers versus Decision-Makers
- CMMS
- Financial asset management system
- Financial strategies, goals, and objectives
- Clinical utilization – historic data
- Cross-functional dedicated resources to execute process

Tier 2 – Data at the midpoint

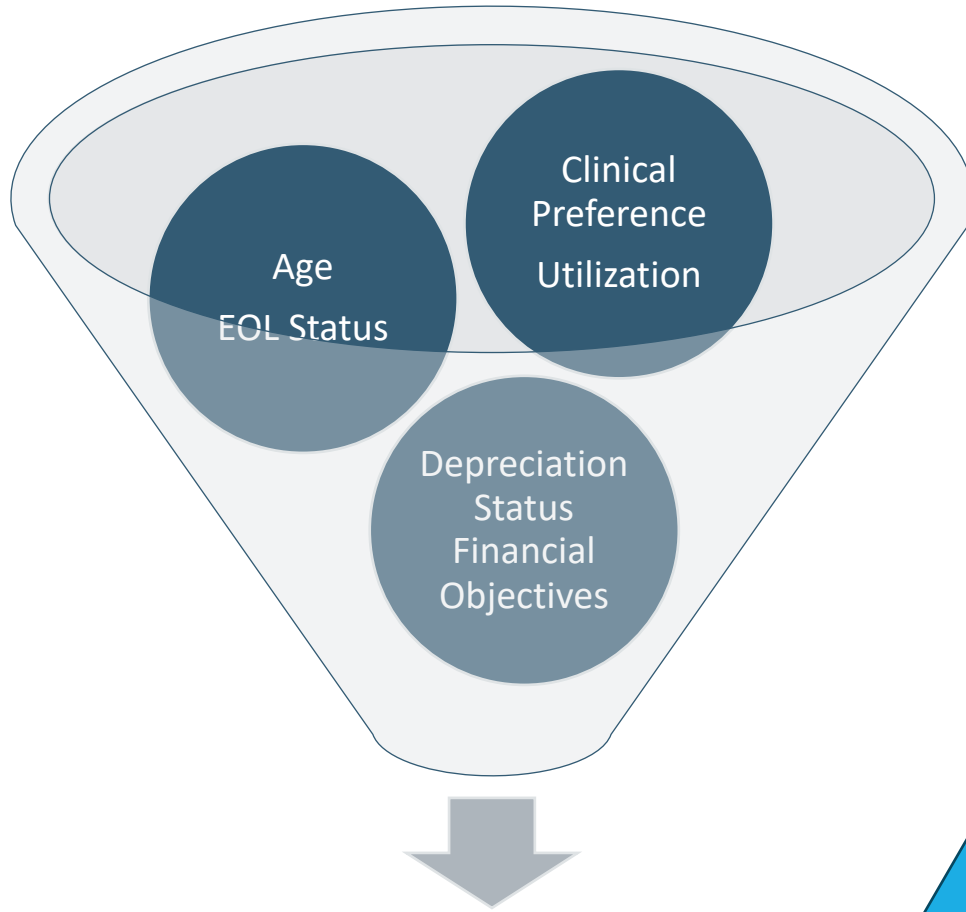
CMMS

- Manufacturer
- Model name/number
- Purchase date
- Installation (activation) date
- Cybersecurity attributes
- Maintenance history

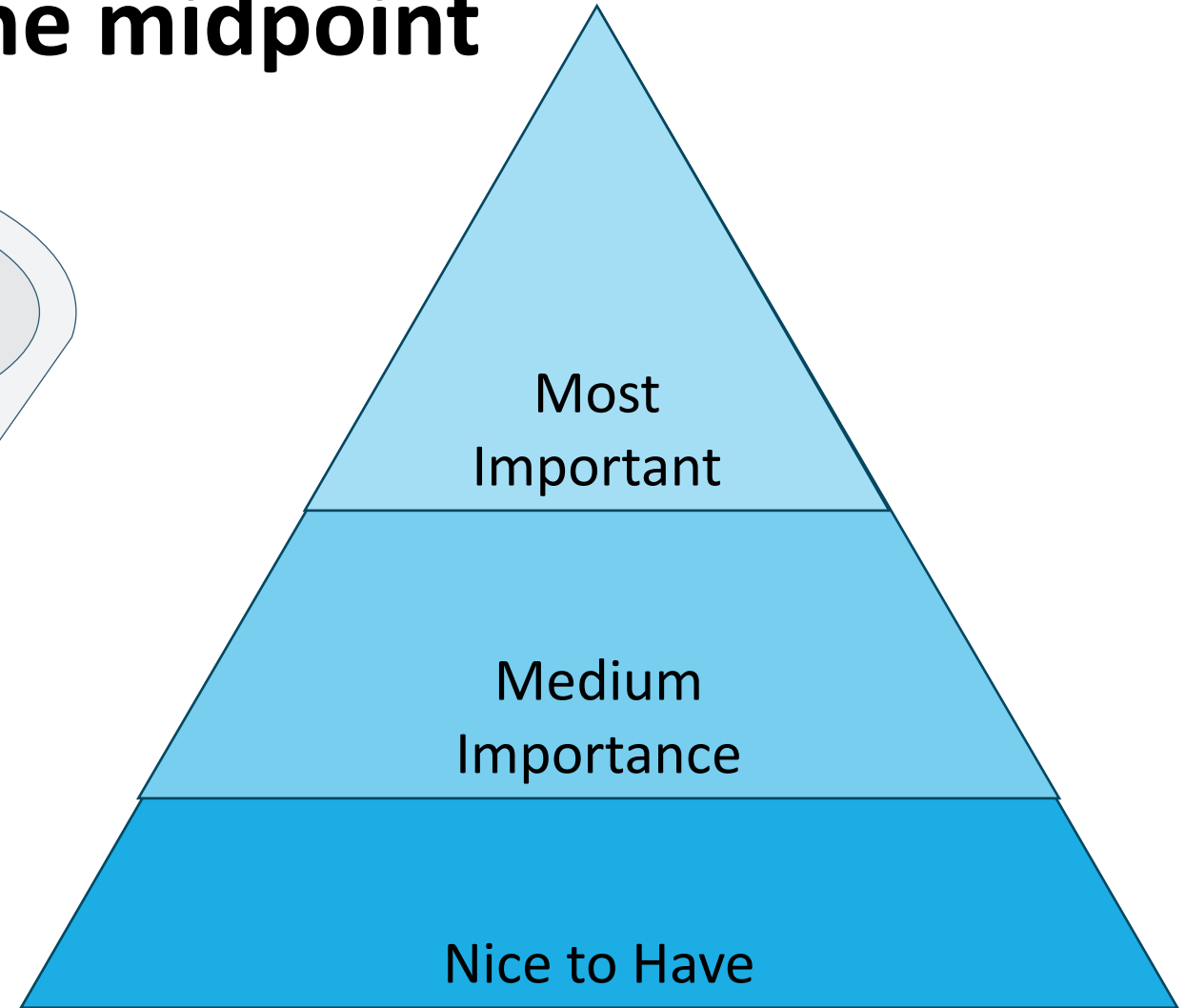
Financial Systems

- Capital threshold(s)
- Depreciation status
- Capital funding processes and thresholds
 - Medical equipment and systems
 - IT equipment and systems
 - Construction and renovation

Tier 2 – Forecasting at the midpoint



Prioritization



St. Luke's Health System

Serving Southern Idaho, Eastern Oregon and Northern Nevada

As the only Idaho-based, not-for-profit, community-owned and community-led health system, St. Luke's is dedicated to our mission to improve the health of people in the communities we serve.



Evolving a Technology Management Strategy

Current State Progression

- ✓ Leverage HTM team to consult on front-end replacement replanning
- ✓ Outlined multi-year replacement roadmaps for proactive and predictable capital replacement plans
- ✓ Implemented a technology platform to track prioritization plans and move away from spreadsheets
- ✓ Created a review cycle for all modalities to continuously refresh replacement plans

Imaging Modality Review Cycle

Imaging Equipment Replacement *3 month review cycle*

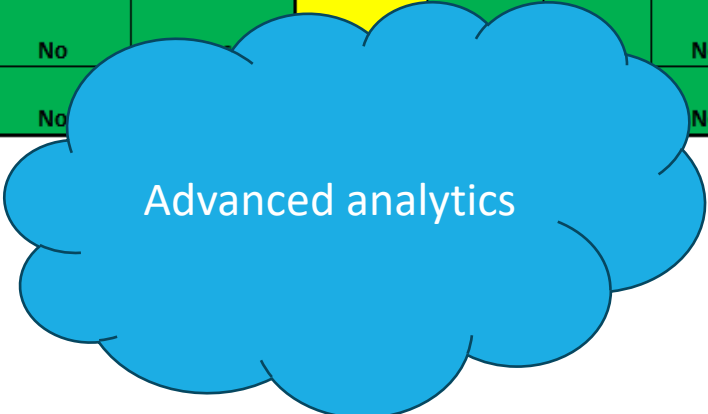
Modalities	2022 Review Start	2023 Review Start
Cardiology PVL/Echo Ultrasound	Mar-22	Mar-23
Molecular (PET/CT)	Mar-22	Mar-23
Rad Fluoro	Jun-22	Jun-23
DEXA Bone Density	Jun-22	Jun-23
Mammography	Jun-22	Jun-23
General Radiology	Jun-22	Jun-23
Molecular Nuclear Medicine	Oct-22	Oct-23
Cardiovascular/Interventional	Oct-22	Oct-23
C-Arms	Oct-22	Oct-23
Mini C-Arms	Dec-22	Dec-23
Injectors	Dec-22	Dec-23
MRI	Jun-23	Jun-23
CT	Jun-23	Jun-23
Portable X-Ray	-	Jan-23
General Ultrasounds	-	Jan-23
POC Ultrasound	-	Jan-23

- ✓ Established a 3-month review period for each modality led by HTM to validate data
- ✓ Department leaders then review and confirm prioritization for replacement within the modality
- ✓ Capital Portfolio Manager facilitates final prioritization exercise and creates replacement plan justification for executive approval
- ✓ Finance and Executives endorse or modify recommendations for inclusion in the capital plan
- ✓ Supply Chain engaged vendors for equipment selection, negotiation and installation with approved replacement plan
- ✓ Re-review the modality replacement plan annually

Implementing Imaging Replacement Roadmap

Technology Assessment

Equipment Information	Operating and System Software with CyberSecurity						End of Product Life Information and Scoring			
	Operating System	Software Rev	Windows Upgrade?	Upgrades Available?	CyberSecurity Threat Status	Cyber Security Remediation?	Technology Status	EOPL Date	EOL Date	EOS Date
Equipment Name/Location	Win 7	4	Yes	Yes	Yes	Yes	Mature	No	No	No
Equipment Name/Location	Win 7	2	Unknown	Unknown	Yes	Yes	Mature	Yes	No	No
Equipment Name/Location	Win 7	2	Unknown	Unknown	Yes	Yes	Mature	No	No	No
Equipment Name/Location	Win 7	2	Unknown	Unknown	Yes	Yes	Mature	No	No	No
Equipment Name/Location	Win 7	2	Unknown	Unknown	Yes	Yes	Mature	No	No	No
Equipment Name/Location	Win 7	2	Unknown	Unknown	Yes	Yes	Mature	No	No	No
Equipment Name/Location	Win 7	2	Unknown	Unknown	Yes	Yes	Mature	No	No	No
Equipment Name/Location	Win 7	2	Unknown	Unknown	Yes	Yes	Mature	No	No	No
Equipment Name/Location	Win 10	5	NA	NA	No	Yes	Declining	No	No	No
Equipment Name/Location	Win 10	5	NA	NA	No					No
Equipment Name/Location	Win 10	5	NA	NA	No					No



Legend	
Current	1-5 yrs
Matured	6-7 yrs
Declining	8-10 yrs
Obsolete	11-14 yrs
Sunset	15-17 yrs
Beyond Sunset	17+ yrs

End of Product Life (EOPL/EOM)

End of Life (EOL)

End of Service Life (EOSL)/EOS

Implementing Replacement Roadmaps

Replacement Plan Modeling

Equipment Information	Operating and System Software with CyberSecurity						End of Product Life Information and Scoring				Replacement Plan Modeling					
	Operating System	Software Rev	Windows Upgrade?	Upgrades Available?	CyberSecurity Threat Status	Cyber Security Remediation?	Technology Status	EOPL Date	EOL Date	EOS Date	FY23	FY24	FY25	FY26	FY27	FY28
Equipment Name/Location	Win XP or older	NA	No	No	Yes	No	Sunset	Yes	Yes	Yes		100,000				
Equipment Name/Location	Win XP or older	NA	No	No	Yes	No	Sunset	Yes	Yes	Yes		100,000				
Equipment Name/Location	XP	4.9.5.9	No	No	Yes	No	Sunset	Yes	Yes	Yes			100,000			
Equipment Name/Location	XP	4.9.5.9	No	No	Yes	No	Sunset	Yes	Yes	Yes			100,000			
Equipment Name/Location	XP	9.1.0.12	No	No	Yes	No	Sunset	Yes	Yes	Yes	Replaced					
Equipment Name/Location	XP	9.1.0.12	No	No	Yes	No	Sunset	Yes	Yes	Yes	Replaced					
Equipment Name/Location	WIN7	9.3.0.2	Unknown	Unknown			Declining	No	No	No						
Equipment Name/Location	XP	9.1.0.12	No	No	Yes	No	Sunset	Yes	Yes	Yes						
Equipment Name/Location	XP	9.1.0.14	No	No	Yes	No	Sunset	Yes	Yes	Yes						
Equipment Name/Location	XP	9.1.0.14	No	No	Yes	No	Sunset	Yes	Yes	Yes						
Equipment Name/Location	XP	9.1.0.14	No	No	Yes	No	Sunset	Yes	Yes	Yes						
Equipment Name/Location	WIN7	9.3.0.2	Unknown	Unknown			Declining	No	No	No						
Equipment Name/Location	XP	9.1.0.14	No	No	Yes	No	Sunset	Yes	Yes	Yes						



Base replacement plan modeling by fiscal year on technology assessment. Adjust between budget years with finance partners.

Tier 3 – at the peak

All tier 1 and tier 2 attributes plus ...

High levels of transparency and trust

Expert levels of data and analysis

Consideration of all categories collectively

Established fund for core replacement requirements

Tier 3

Tier 3 – at the peak

Process

- Key clinical stakeholder engagement
- Key financial stakeholder engagement
- Data collection
- Data analysis
- Preliminary recommendations
- Key clinical stakeholder review
- Key financial stakeholder review
- Refined and prioritized recommendations
- Formal business cases with ROI forecasts
- Process for monitoring achievement of business case benefits and ROI

Resources

- Key stakeholders identified
 - Influencers versus Decision-Makers
- CMMS
- Financial asset management system
- Financial strategies, goals, and objectives
- Clinical utilization – historic data
- Cross-functional dedicated resources to execute process
- External expertise
 - Technology assessment firms (e.g., payors)
 - Healthcare strategy firms (e.g., Sg2)

Tier 3 – Data at the peak

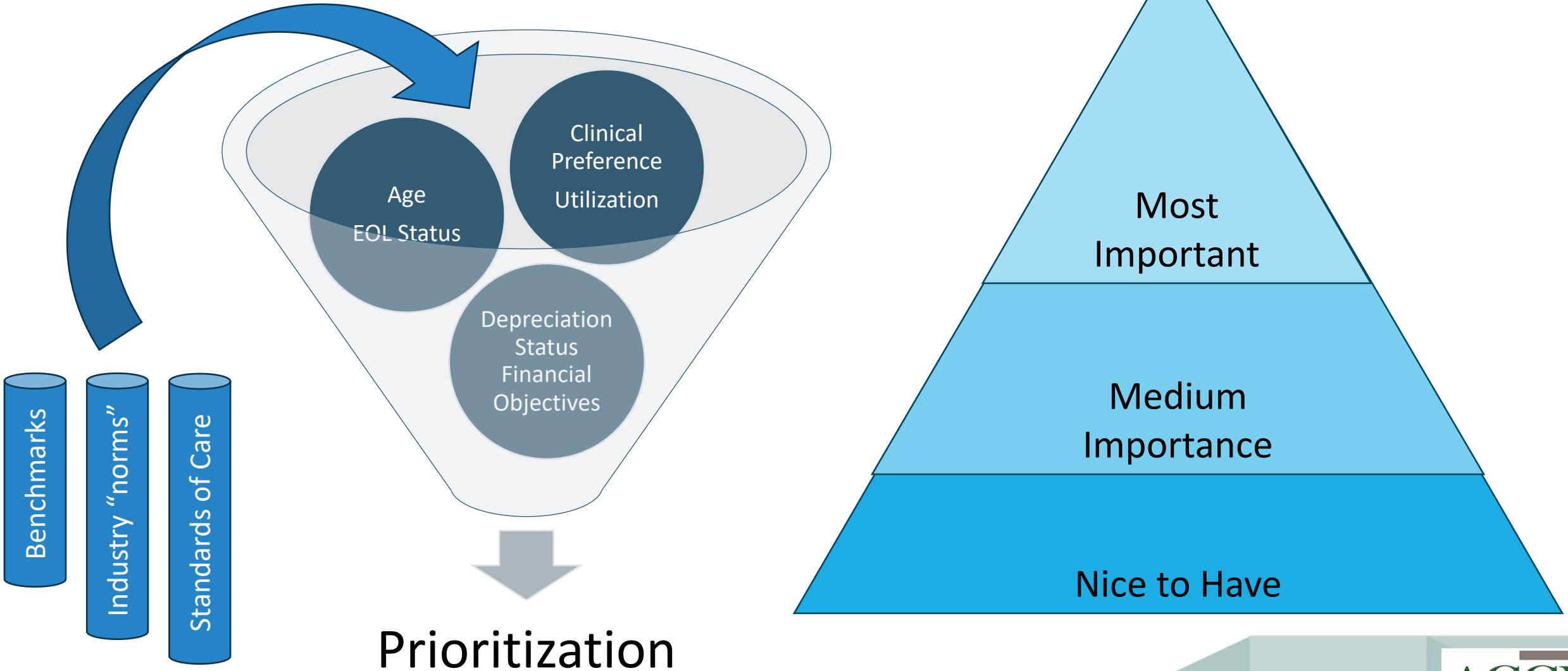
CMMS

- Manufacturer
- Model name/number
- Purchase date
- Installation (activation) date
- Cybersecurity attributes
- Maintenance history
- **Benchmarks**
 - Internal and/or external

Financial Systems

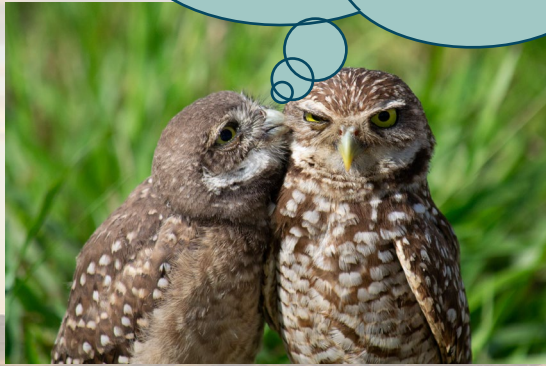
- Capital threshold(s)
- Depreciation status
- Capital funding processes and thresholds
 - Medical equipment and systems
 - IT equipment and systems
 - Construction and renovation
- **Benchmarks**
 - Internal and/or external

Tier 2 – Forecasting at the peak



Program Maturity – Where are you?

Pssst ... this is the part where we stop talking and the attendees share their stories ...



Questions & Discussions



Enter your questions
to the Zoom Q&A window

Thank You



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