



Healthcare Virtual Symposium 2020: Foundational Changes to Shape our Future

# Moneyball for Healthcare:

## A Mission Toward Improving Margin

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Warren Beck  
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# Presenters



## Andy Suhy

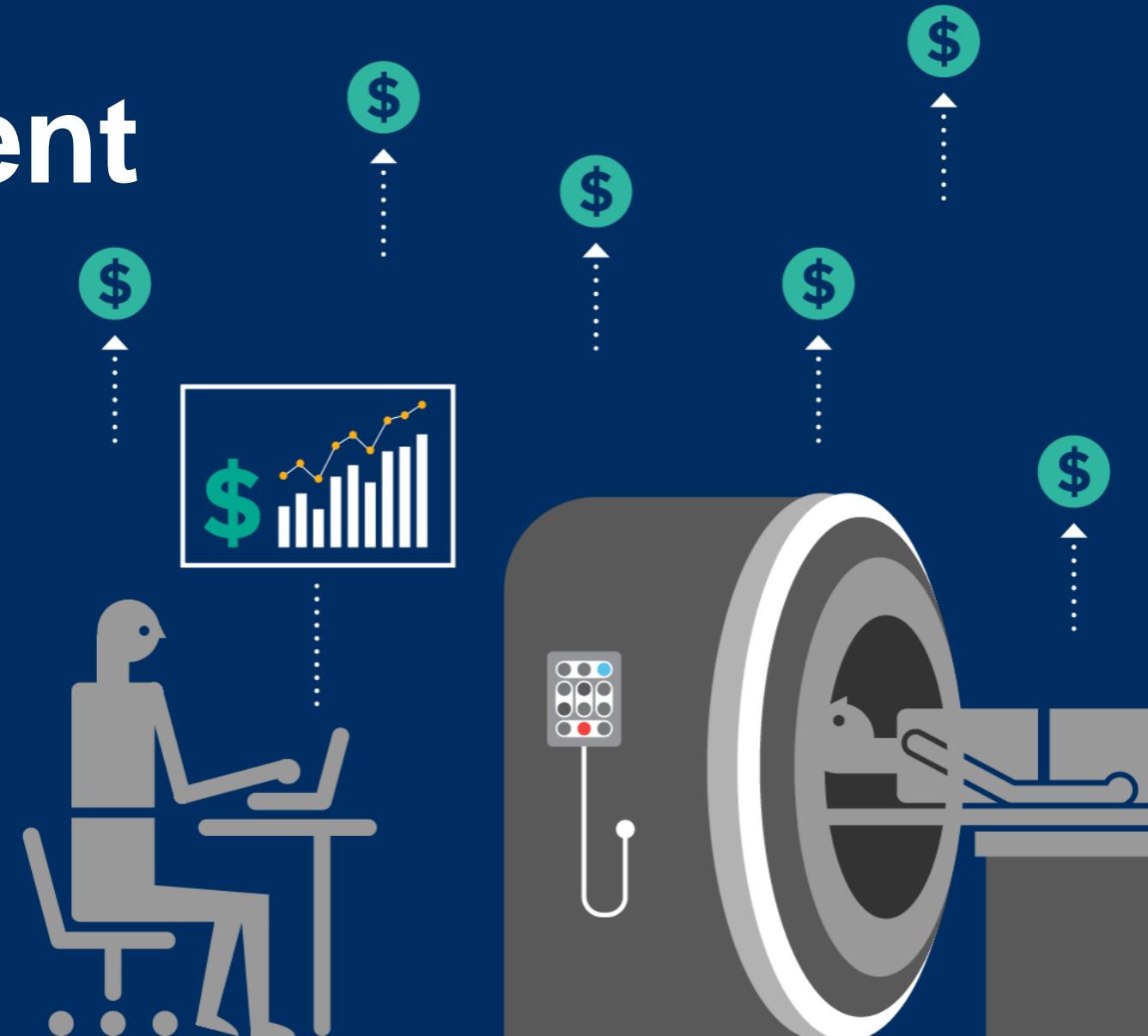
is a Principal at Crowe. Andy leads Crowe's Asset Optimization team within the Healthcare Consulting Practice. Andy is the inventor of the Crowe Asset Optimizer tool and has 25 years of data analytics structured finance and asset management experience. Andy holds five technology related patents.



## Warren E. Beck

is a National Leader in the Crowe Healthcare Performance Practice specializing in Financial Operations. He leads their business strategy for healthcare finance, strategy, mergers, acquisitions and integration. Warren's experience includes nearly 30 years as CFO of one the premier academic medical centers in United States.

# Cost Management via Asset Performance Analytics



# The Value of Data Analytics



“Like Major League Baseball in the 1990’s, we believe excess costs can be rooted out of healthcare with better data. We believe there is generally excess capacity of major medical equipment in healthcare and that it has a material impact on the cost of care. This situation exists for a number of reasons but the ultimate goal of Moneyball for Healthcare is to provide leadership with the data to effectively optimize asset base and in turn drive costs down. The ultimate goal is to improve operating margins without reducing the access or quality of care.”

# Agenda

Why Optimize Assets Using Data Analytics

Case Study – Robots

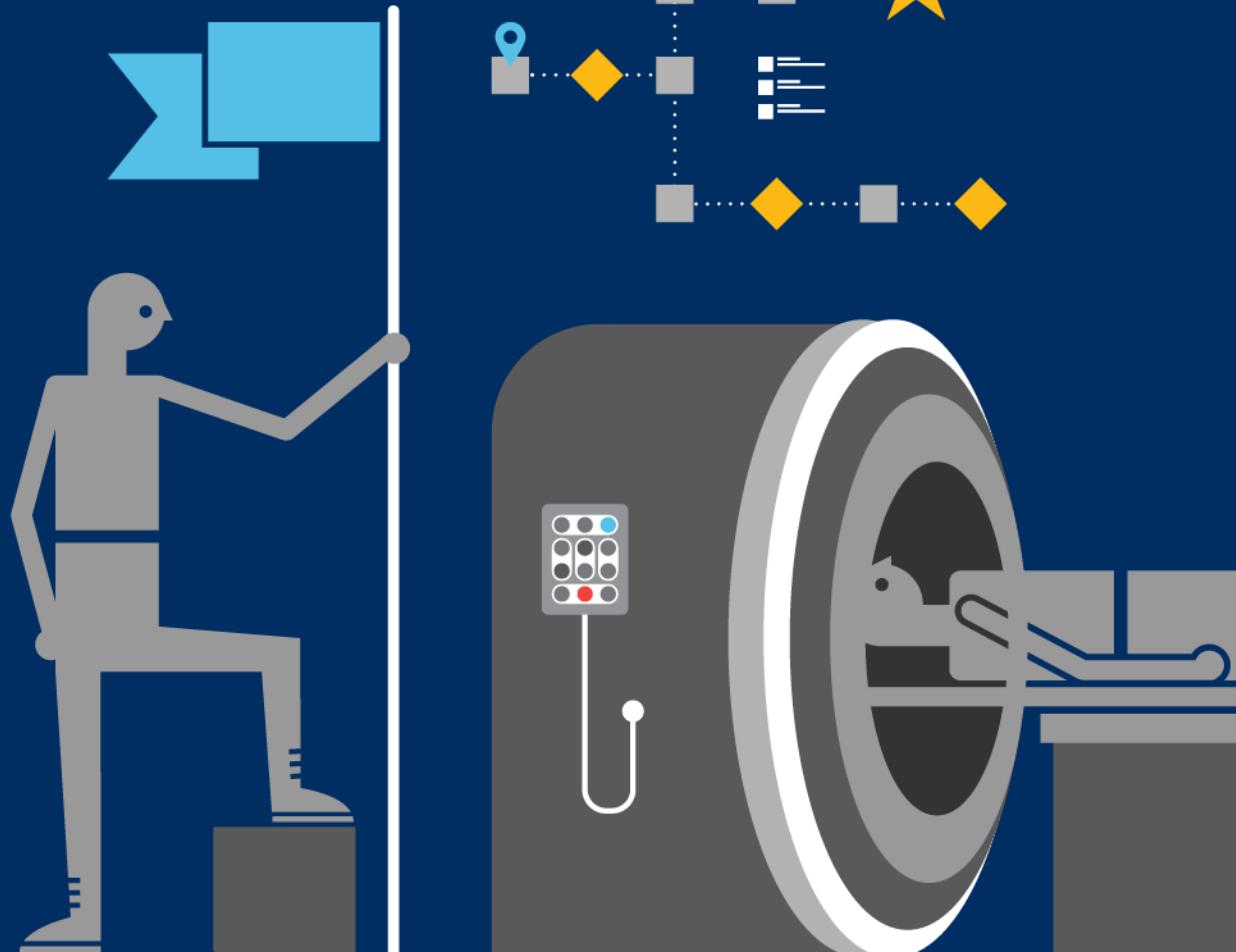
Case Study – Mammo

Fundamentals of a Data Driven Asset Optimization Program

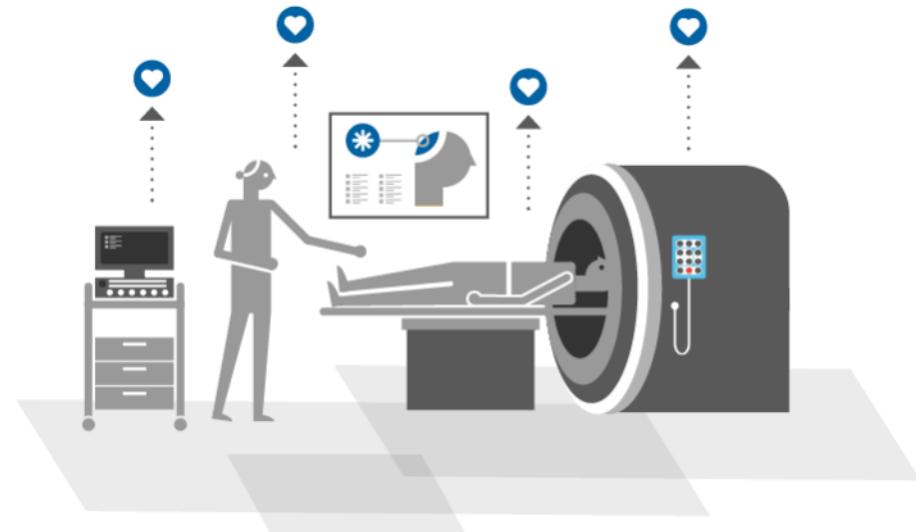


# Asset Optimization through Data Analytics

Challenging the status quo



# Using Data Analytics to simplify Capital Planning, Deployment and Capacity Analysis



## The Challenge

- Capital Prioritization without data
- Subjective versus objective capital decisions
- Physician pressure for newest technology
- Vendor Influenced commitments
- Unaligned staffing models
- Excess equipment maintenance costs

## The Solution

Discreet cost analysis of diagnostic and therapeutic assets matched with modality specific utilization and payment data.

## The Result

Available analytics to acquire and deploy the right equipment at the right time at the lowest cost and achieves goals for margin and patient access.

# Case Study: Adding 3 DaVinci Robots without Data!

The Department of Surgery of a large Academic Health Center was pressuring hospital leadership to acquire 3 DaVinci robot systems through an operating lease. The robots were to create improved quality for patients, serve as a teaching aid to residents and be a recruiting tool for physician recruitment.

The Department of surgery is applying a lot of pressure to acquire 3 additional robots for our specialists. We do not have capital to acquire but we have a good lease proposal. We really do not need them for care but if we fail to advocate for them it will create a lot of ill will.

Finance does not recommend we move forward with this to acquire the DaVinci robots, but they always say no to everything. They cannot provide any compelling data and we really want to ensure our good relationship with the Department Chairman. I am approving the request.

We have a \$4M capital request for 3 new DaVinci robots. This will add \$1.5M in additional annual operating expense through leases and labor and no additional volume or reimbursement. **We do not have historical performance asset data but we would not recommend purchase based on the surface economics.**

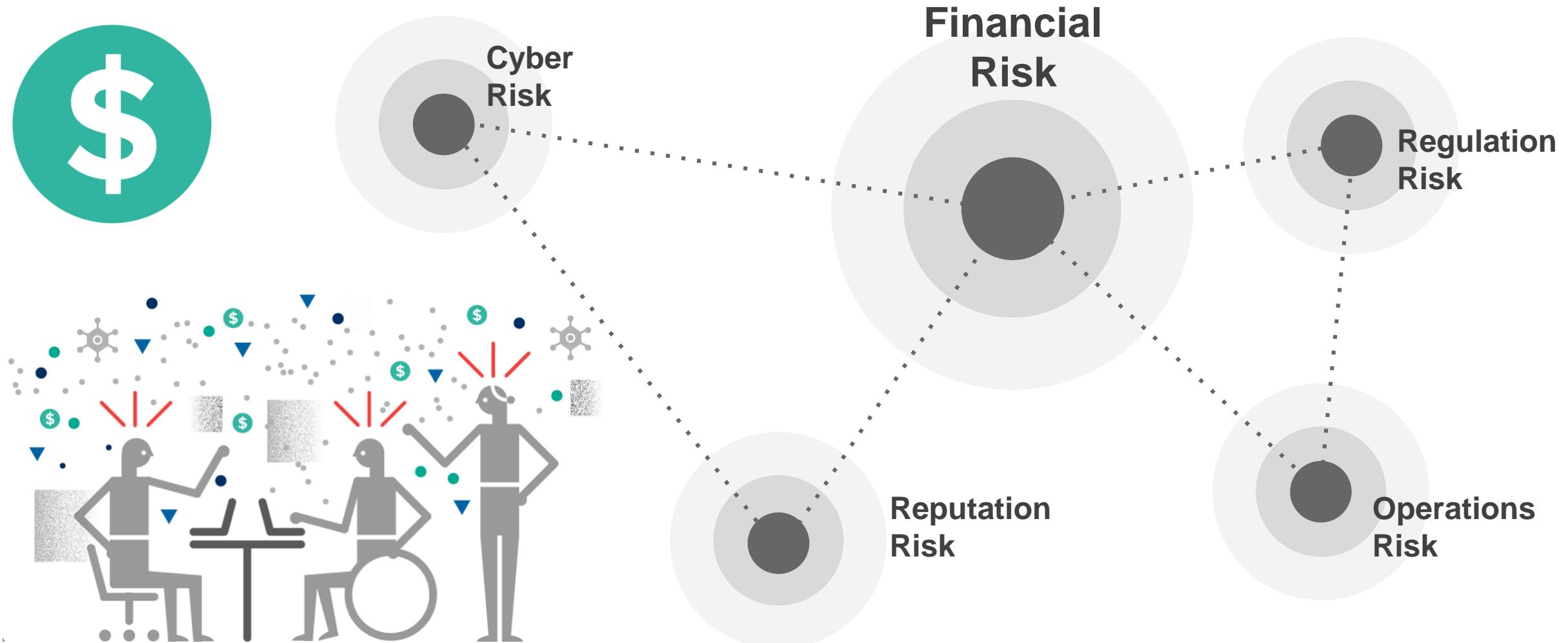


Operating Room Team

Hospital Administration

Finance Team

# Financial risk is top of mind for everyone





# Why Hospital Cost Structures are Growing

## **The causes:**

- Volumes and reimbursement rates historically good allowing for careless spending
- Mission Driven Not-for-profit Culture (no accountability to shareholders or EPS)
- Field of dreams (build it and they will come)
- Failure to apply process and utilize data analytics for decisions

## **The result:**

- Too many people
- Too many assets
- Too much capacity
- Too much technology

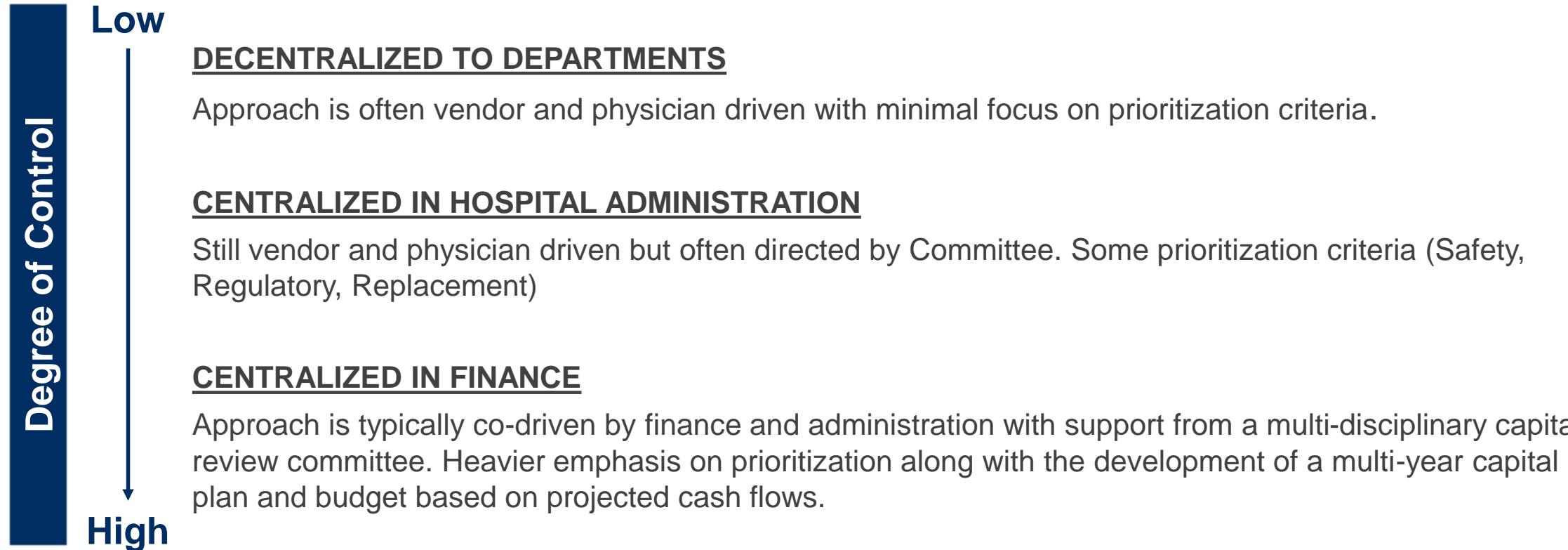


# Traditional Cost Management Methods

1. FTE reduction
2. Purchased services attacked
3. Fringe Benefit reductions
4. Minimal or deferred annual compensation increases
5. Capital freeze

Most health systems default to a combination of the above because they don't have easy access to the right data, so the result is often faster (but bad) decisions!

# Common Approaches to Capital Planning



# The balance between margin and care



## Care

- Increase access (capacity)
- Increase quality



*Improve margins without sacrificing quality and access*



## Margin

- Increase billable encounters
- Minimize delivery costs



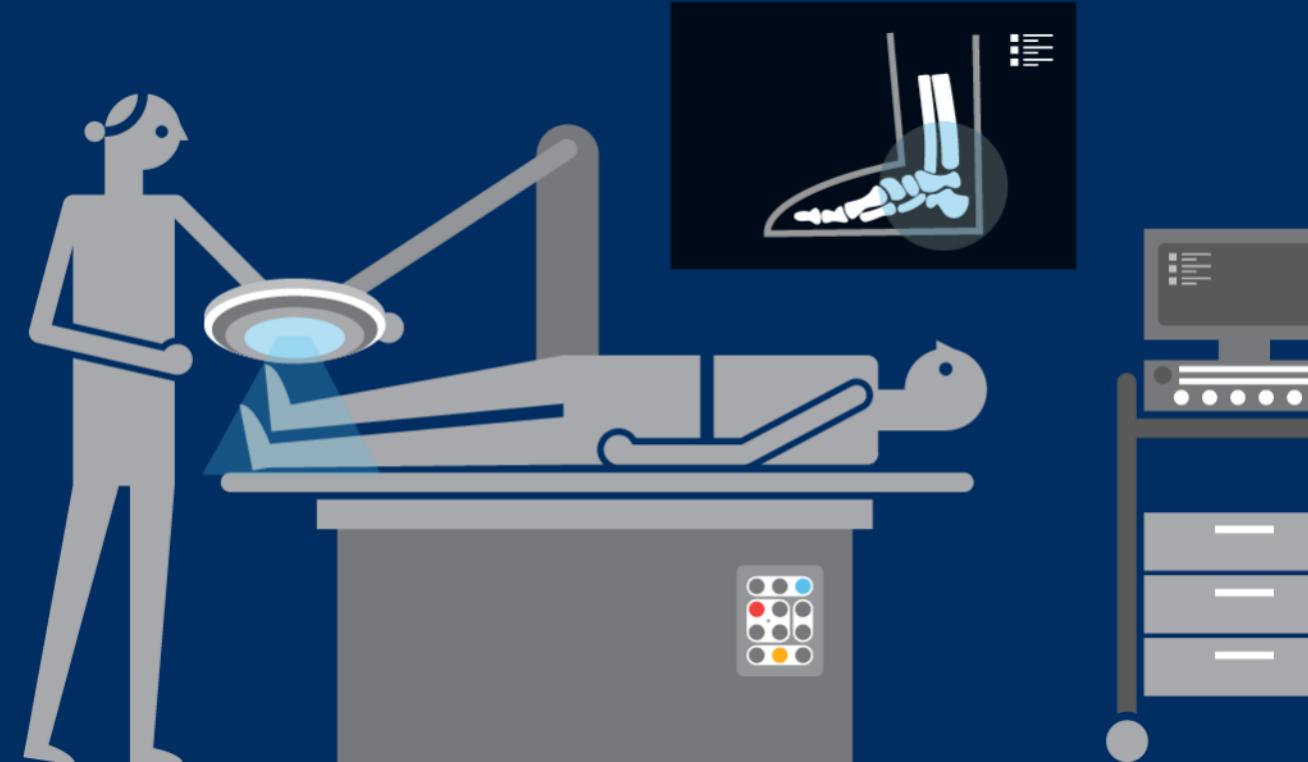
*Build consensus between financial and clinical leaders*

# Assets are the center of the cost universe



Overspend at the asset level is going to produce overspend in many other parts of the business

To meet the elusive balance  
between clinical and financial  
priorities, we need a new way  
to think about assets



# We call it Asset Optimization

Asset Optimization involves using asset-level data analytics to maintain a high level of patient care but also minimize the asset cost structure



**Imagine having asset-level performance analytics like this:**

- Utilization rate
- Financial contribution
- Volume Trend
- CPT/Payor composition
- Delivery Cost per billable encounter

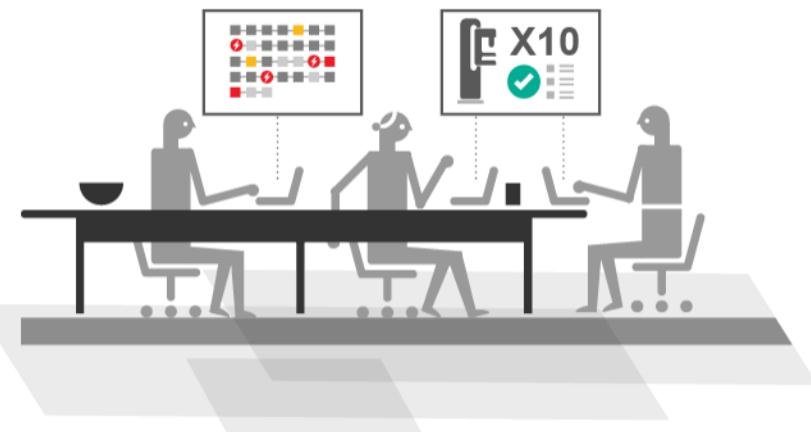
**When having to make decision on topics like these:**

- Capital deployment
- Adding/eliminating assets
- Determining levels of technology
- Structuring service agreements
- Assessing service lines
- Developing staffing levels



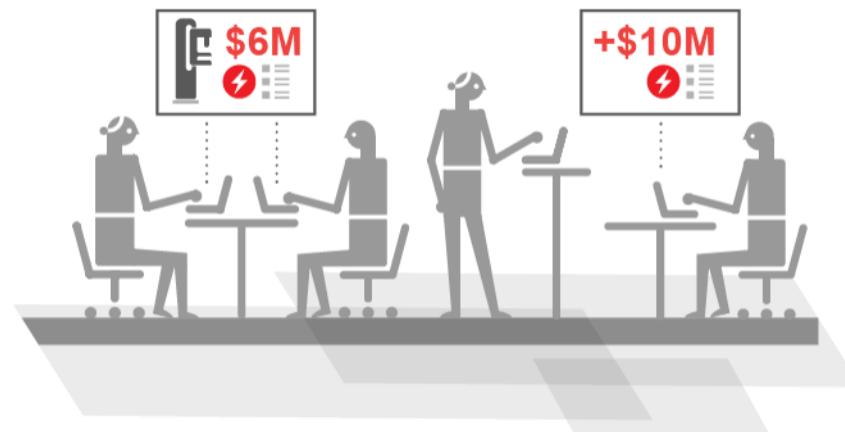
# Case Study: Adding \$6M of Capacity Without Investing \$6M

We have 3 months backlog on Mammo appointments. 10 new mammo systems would add the capacity we need to solve the backlog.



**Radiology Team**

We have a \$6M capital request for 10 new mammo assets. This will mean \$10M+ in additional annual operating expense. **What does the asset data show us?**



**Finance Team**

# Case Study: Adding \$6M of Capacity Without Investing \$6M (Continued)

We have 3 months backlog on Mammo appointments. 10 new mammo systems would add the capacity we need to solve the backlog.

Asset Utilization data shows us we have capacity with our existing assets and it's our scheduling habits that are impacting availability. We can increase billable encounters without an increase in capital and operating expenses.

We have a \$6M capital request for 10 new mammo assets. This will mean \$10M+ in additional annual operating expense. **What does the asset data show us?**



Radiology Team



Asset Optimization



Finance Team

# What it takes to do Asset Optimization

(and how Crowe can help)



# Asset optimization requires both the right data and the right methodology

1

## Data analytics at the asset level

- Relevant and actionable asset-level data analytics
- Centralized / single source of truth
- Comprehensive asset profiles (financial/clinical/operational)

2

## Methodology for optimization

- Data collection
- Independent, unbiased insights
- Standardize performance metrics void of legacy bias and subjectivity



# Building a Data-Driven Asset Optimization Platform

1. Prepare Comprehensive Asset Inventory
2. Develop Asset Cost Structure Profiles
3. Assign Asset Encounters
4. Create Standard Reporting to Convert Data to Actionable Business Intelligence



# Asset Optimization enables two behaviors that help improve both margin and care

1

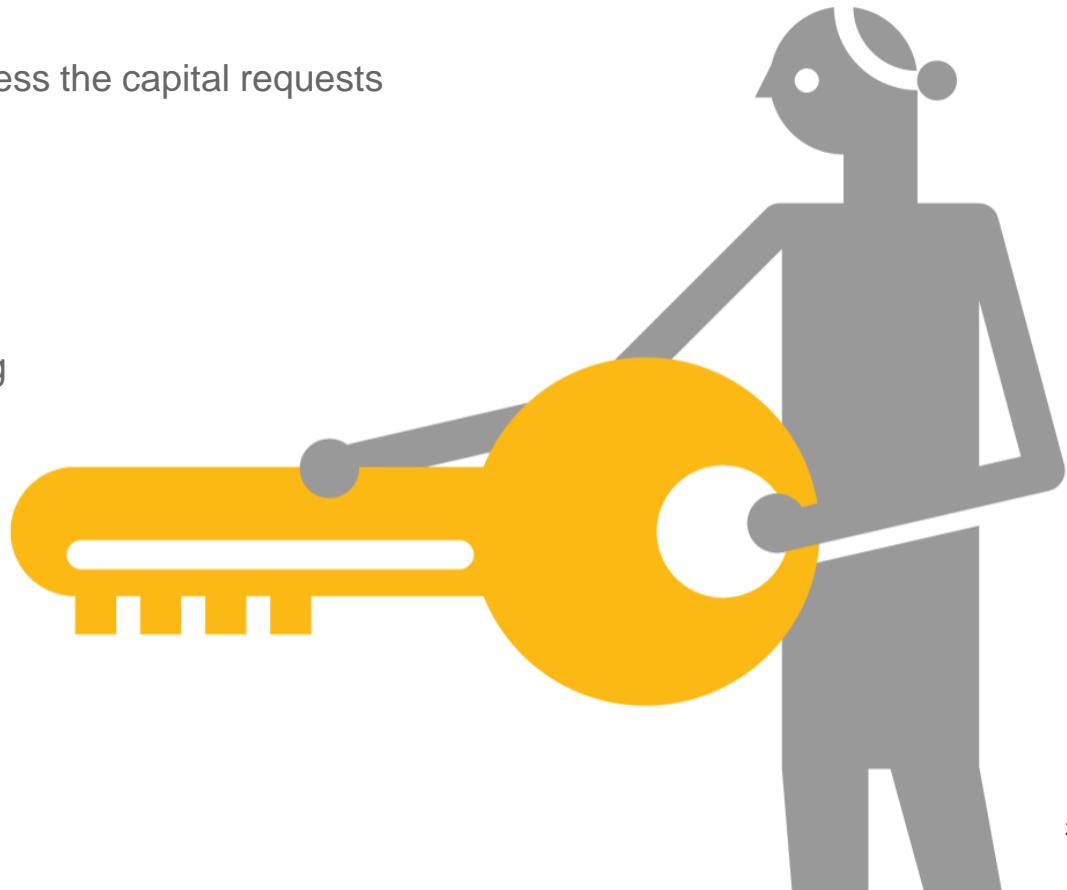
## Unlocking capacity before deploying capital

- Getting inundated with requests for equipment
- We want to understand our utilization and capacity
- We need insights in place and ready to go when starting to assess the capital requests

2

## Managing P&L at the asset level

- We have decent margins now, but the storm clouds are brewing
- We want to make sure our cost structure is aligned with each asset's productive output.

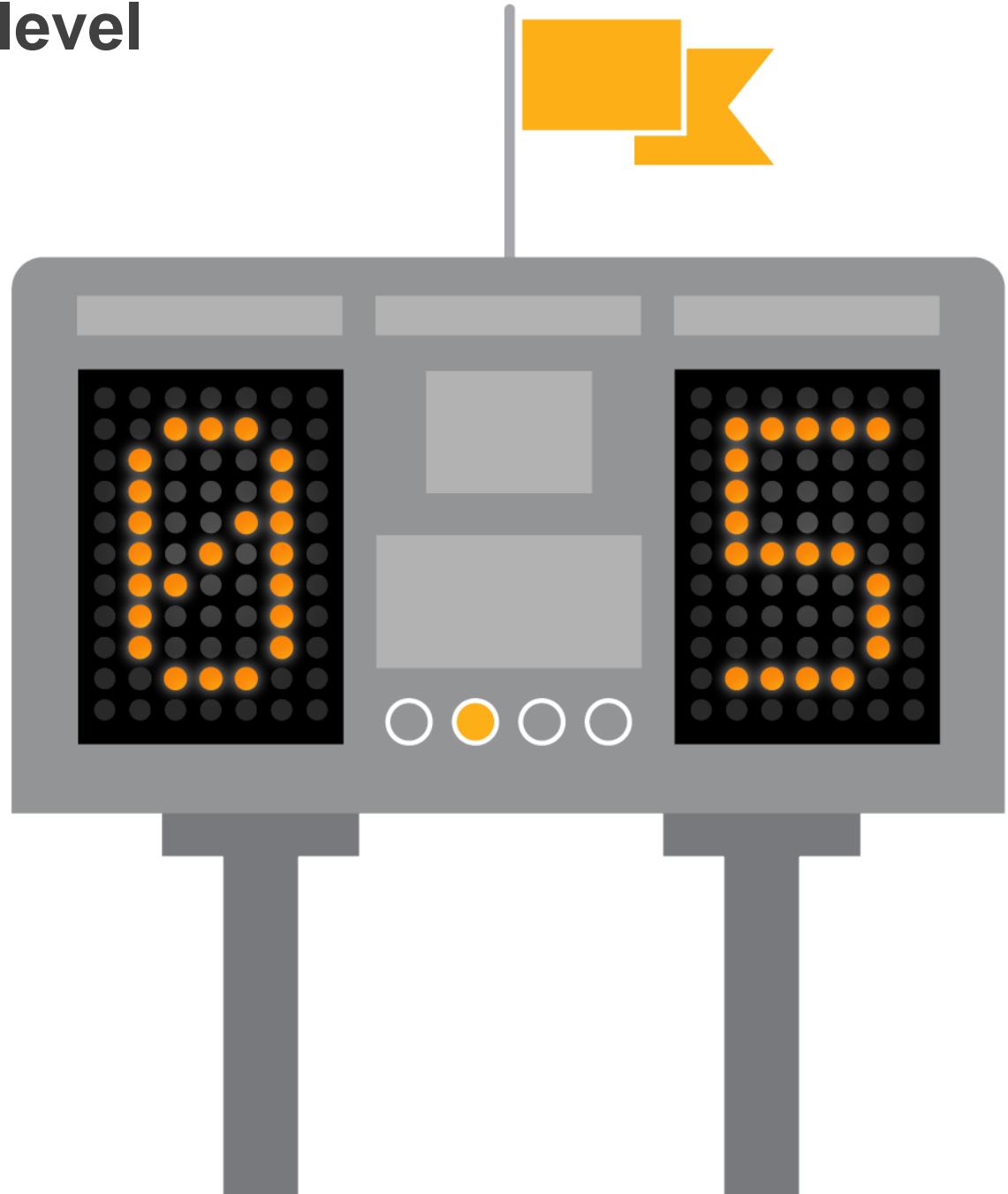


# 1. Unlocking capacity before deploying capital

Building	Department	Modality	Make	Model	In Svc Date	Age (yrs)	Vol/mo	Max Cap/mo	Util%
Platinum Hospital - Northeast	Radiation Oncology	CT-Simulator	Siemens	Somatom Senation Open	3/1/04	15.0	10	207	5%
Platinum Hospital - Main	South Tower Imaging	CT-Fixed	Siemens	Somatom Definition AS 128	6/4/06	12.7	202	2,311	9%
Platinum Hospital - Northwest	CT	CT-Fixed	GE	Lightspeed QXI 4	12/8/04	14.2	17	184	9%
Platinum Imaging Center - Westgate	Imaging	CT-Fixed	GE	Lightspeed 16	10/31/06	12.3	61	582	11%
Platinum Health Center - Westgate	Radiology	CT-Fixed	Toshiba	Aquilion 64	9/1/12	6.5	163	1,065	15%
Platinum Imaging Center - South	Imaging	CT-Fixed	Toshiba	Aquilion 32	8/1/05	13.6	99	438	23%
Platinum Northeast Cancer Center	Radiation Oncology	CT-Simulator	Philips	BRILLIANCE BIG BORE	6/1/12	6.7	49	207	24%
Platinum Hospital - Central	Radiology	CT-Fixed	Siemens	Somatom Definition AS 128	9/8/15	3.5	355	1,446	25%
Platinum Hospital - Southwest	Radiology	CT-Fixed	GE	Lightspeed VCT 64	2/27/07	12.0	571	2,160	26%
Platinum Hospital - Northeast	CT	CT-Fixed	Siemens	Somatom Definition Flash 320	10/15/12	6.3	956	2,880	33%
Platinum Hospital - Main	CT	CT-Fixed	Siemens	Somatom Definition AS 64	9/24/04	14.4	384	1,041	37%
Platinum Hospital - Main	EC	CT-Fixed	GE	Revolution EVO 128	8/28/17	1.5	1,102	2,880	38%
Platinum Imaging Center - West	Imaging	CT-Fixed	Toshiba	Aquilion Prime 160	1/7/10	9.1	233	588	40%
Platinum Hospital - Southwest	Radiology	CT-Fixed	Siemens	Somatom Definition AS 64	6/25/17	1.7	983	2,160	45%
Platinum Hospital - Main	EC	CT-Fixed	GE	Revolution EVO 128	7/1/17	1.6	1,411	2,880	49%
Platinum Medical Center - Comer	Imaging	CT-Fixed	Siemens	Somatom Definition AS 64	7/1/07	11.6	367	747	49%
Platinum Hospital - Central	Radiation Oncology	CT-Simulator	Philips	Brilliance 16	4/29/10	8.8	109	207	52%
Platinum Hospital - Northwest	CT	CT-Fixed	Siemens	Somatom Definition AS+ 128	4/1/10	8.9	534	987	54%
Platinum Medical Center - Bloomington	Imaging	CT-Fixed	Siemens	Somatom Definition AS 64	6/6/07	11.7	322	587	55%
Platinum Imaging Center - Central	Imaging	CT-Fixed	GE	Lightspeed VCT 64	7/1/05	13.6	613	1,077	57%
Platinum Outpatient Center - Northeast	Imaging	CT-Fixed	Siemens	Somatom Definition AS 64	8/19/05	13.5	593	1,035	57%
Platinum Cancer Center - Northeast	Radiation Oncology	CT-Fixed	GE	Lightspeed 16	3/1/08	11.0	151	260	58%
Platinum Hospital - Main	CT	CT-Fixed	Siemens	Somatom Sensation 10	5/1/04	14.8	385	656	59%
Platinum Hospital - East	CT	CT-Fixed	GE	Lightspeed VCT 64	1/8/07	12.1	370	621	60%
Platinum Hospital - South	EC	CT-Fixed	GE	Lightspeed VCT 64	10/4/10	8.4	1,287	2,160	60%
Platinum Hospital - South	Imaging	CT-Fixed	GE	Lightspeed VCT 64	10/25/06	12.3	683	1,080	63%
Platinum Hospital - Central	Radiology	CT-Fixed	GE	Lightspeed QXI 4	3/4/05	14.0	159	230	69%
Platinum Hospital - Central Imaging	Imaging	CT-Fixed	Siemens	Somatom Sensation 16	3/26/04	14.9	550	690	80%
Platinum Hospital - East	CT	CT-Fixed	Siemens	Somatom Definition Flash 320	11/19/09	9.3	1,820	2,160	84%
<b>Totals and Averages</b>						<b>9.7</b>	<b>14,539</b>	<b>33,526</b>	<b>43%</b>

## 2. Manage P&L at the asset level

Without asset data analytics, your P&L is more like a scoreboard—you know if you're losing but you don't know why.



## 2. Manage P&L at the asset level

With asset data analytics, you have a P&L at the asset level—which enables you to maximize productive output at the optimal cost structure.

Modality	Age (yrs)	Avg Vol/mo	Max Cap/mo	Util%	12mo Vol Trend	Acq Cost/mo	Svc Cost/mo	TCO/mo	Avg. Reimb	Rev/mo	Net Contr/mo	Rev/Exp
XR-General Rad	14.3	198	828	24%	0.3%	\$0	\$595	\$595	\$55	\$10,890	\$10,295	18.3
CT-Fixed	9.2	42	324	13%	-3.9%	\$0	\$9,800	\$9,800	\$363	\$15,246	\$5,446	1.6
XR-BMD	12.0	188	645	29%	-4.6%	\$0	\$150	\$150	\$52	\$9,776	\$9,626	65.2
MR-Mobile	3.2	134	241	56%	2.1%	\$55,000	\$0	\$55,000	\$336	\$45,024	-\$9,976	0.8
US-General	4.6	122	392	31%	-5.6%	\$250	\$650	\$900	\$127	\$15,494	\$14,594	17.2
PET-CT-Mobile	2.7	18	39	46%	-0.5%	\$23,500	\$0	\$23,500	\$2,009	\$36,162	\$12,662	1.5
XR-Mammo	4.9	112	690	16%	-2.8%	\$2,308	\$3,500	\$5,808	\$135	\$15,120	\$9,312	2.6
	7.3	814	3,159	26%	-0.7%	\$81,058	\$14,695	\$95,753	\$181	\$147,712	\$51,959	1.5

Modality	Age (yrs)	Avg Vol/mo	Max Cap/mo	Util%	12mo Vol Trend	Acq Cost/mo	Svc Cost/mo	TCO/mo	Avg. Reimb	Rev/mo	Net Contr/mo	Rev/Exp
US-General	8.4	222	392	57%	0.7%	\$0	\$737	\$737	\$140	\$31,080	\$30,343	42.2
XR-General Rad	5.6	618	920	67%	2.6%	\$0	\$606	\$606	\$48	\$29,648	\$29,042	48.9
US-General	2.0	178	392	45%	0.2%	\$1,978	\$460	\$2,438	\$140	\$24,967	\$22,529	10.2
CT-Fixed	11.3	232	588	39%	-1.3%	\$0	\$13,367	\$13,367	\$293	\$67,830	\$54,463	5.1
MR-Mobile	1.9	212	241	88%	7.5%	\$55,000	\$0	\$55,000	\$334	\$70,808	\$15,808	1.3
NM-Gamma	8.4	99	185	54%	3.3%	\$0	\$2,896	\$2,896	\$323	\$31,977	\$29,081	11.0
	6.3	1,560	2,718	57%	1.9%	\$56,978	\$18,066	\$75,044	\$164	\$256,309	\$181,265	3.4

# Final Thoughts

“Asset Optimization is not a ‘project’, it’s not a ‘program’, it is NOT a point in time consulting engagement. Asset Optimization is a cultural shift and new approach to managing costs and improving margin.”

-Brad Pitt

Okay not really but...



# Thank you.

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