

CREATING COMPETITIVE ADVANTAGE THROUGH EXCELLENCE IN ASSET MANAGEMENT

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درباره ما

شرکت PAMCo.

Physical Asset Management Company



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کارشناس مهندسی مکانیک

کارشناس ارشد مهندسی سیستم‌های انرژی

مدرس دوره‌های مدیریت دارایی در شرکت‌هایی مانند شرکت فولاد خوزستان، پتروشیمی فجر، پالایشگاه گاز بیدبلند، پالایشگاه شهید تندگویان، مجتمع گازی پارس جنوبی، پتروشیمی پارس، پتروشیمی بوعلی سینا، پتروشیمی رازی، پتروشیمی اروند، خطوط لوله و مخابرات نفت ایران، وزارت نفت ایران، گاز سمنان، شرکت توزیع نیروی برق شهرستان مشهد، توزیع برق اهواز، شرکت متانیر، شرکت موتورسازان تبریز، شرکت مگاموتور، شرکت ایران خودرو، شرکت تام ایران خودرو، شرکت کشت و صنعت نیشکر امیرکبیر، شرکت زیرساخت امن خدمات تراکنشی، شرکت پارس ایزوتوپ، شرکت پارس حیات، شرکت تعمیرات و بهره‌برداری مپنا، مپنا توگا و غیره.

درباره ما

پروژه های مشاوره:

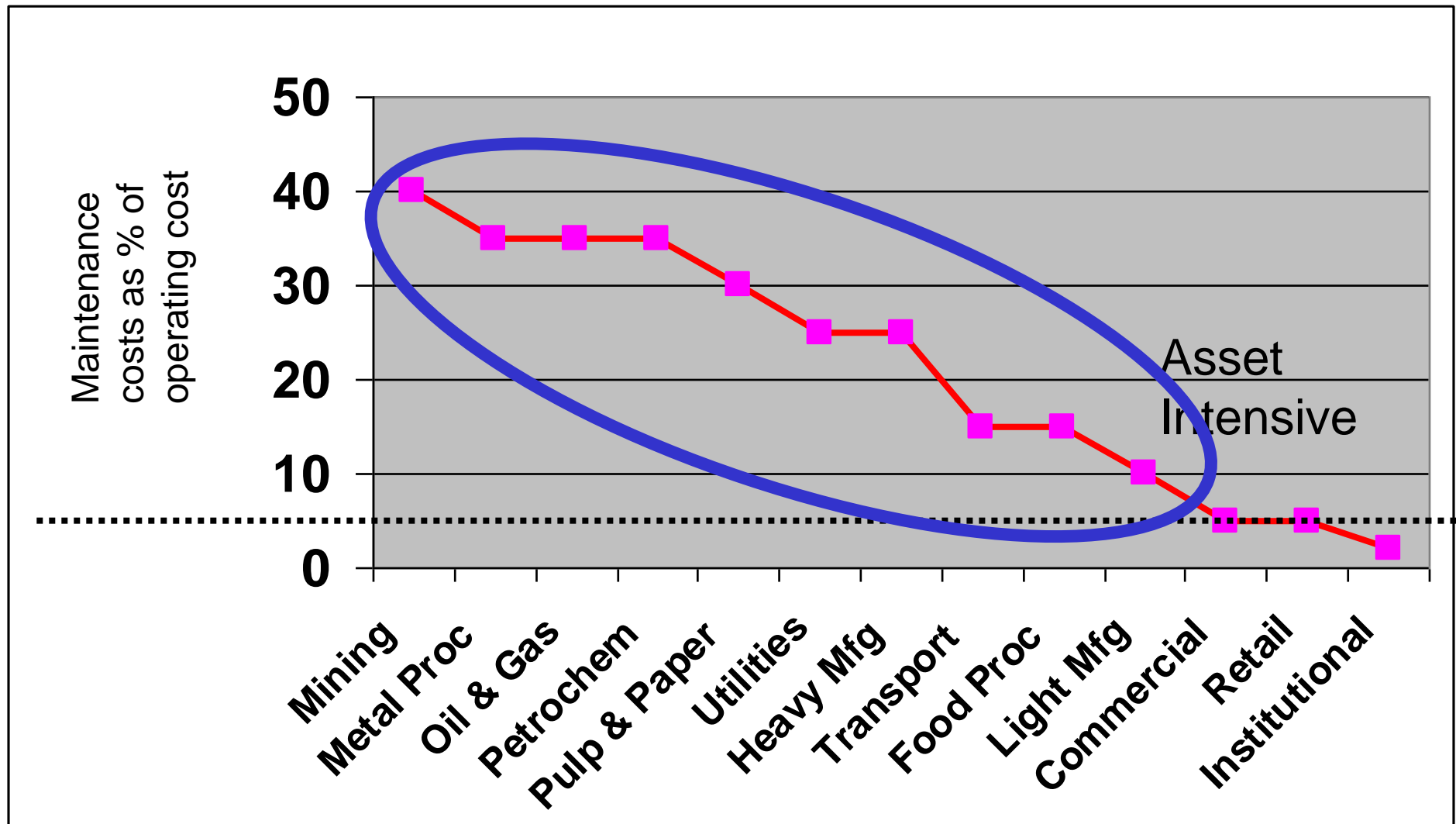
- پتروشیمی بندرامام
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- پتروشیمی فجر
- پتروشیمی نوری
- پتروشیمی آریاساسول
- پتروشیمی کرمانشاه
- پتروشیمی کارون
- پتروشیمی تندگویان
- پالایشگاه گاز پارسیان
- مجتمع گاز پارس جنوبی
- پالایشگاه گاز بیدبلند
- پالایشگاه گاز فجر جم
- شرکت خطوط لوله و مخابرات نفت
- شرکت پتروپارس
- شرکت توانیر
- شرکت توزیع برق مشهد
- شرکت توزیع برق اهواز
- شرکت کشت و صنعت نیشکر امیرکبیر
- شرکت زیرساخت خدمات امن تراکنشی
- شرکت پردازش الکترونیک راشد سامانه
- شرکت پارس ایزوتوپ
- شرکت چاه پیمای مهران
- شرکت ارتباطات سیار همراه اول
- شرکت گاز استان سمنان
- سد و نیروگاه کارون ۴
- پژوهشگاه نیرو (نیروگاه دماوند)
- نیروگاه قم
- نیروگاه منتظر قائم
- شرکت آب و فاضلاب تهران
- شرکت آب و فاضلاب مشهد
- شرکت ایران خودرو
- شرکت تام ایران خودرو
- راه آهن جمهوری اسلامی ایران
- معاونت مهندسی سپاه
- مجتمع مس سرچشمه
- فولاد هرمزگان

Physical Asset Management's Goal is: Capacity Assurance

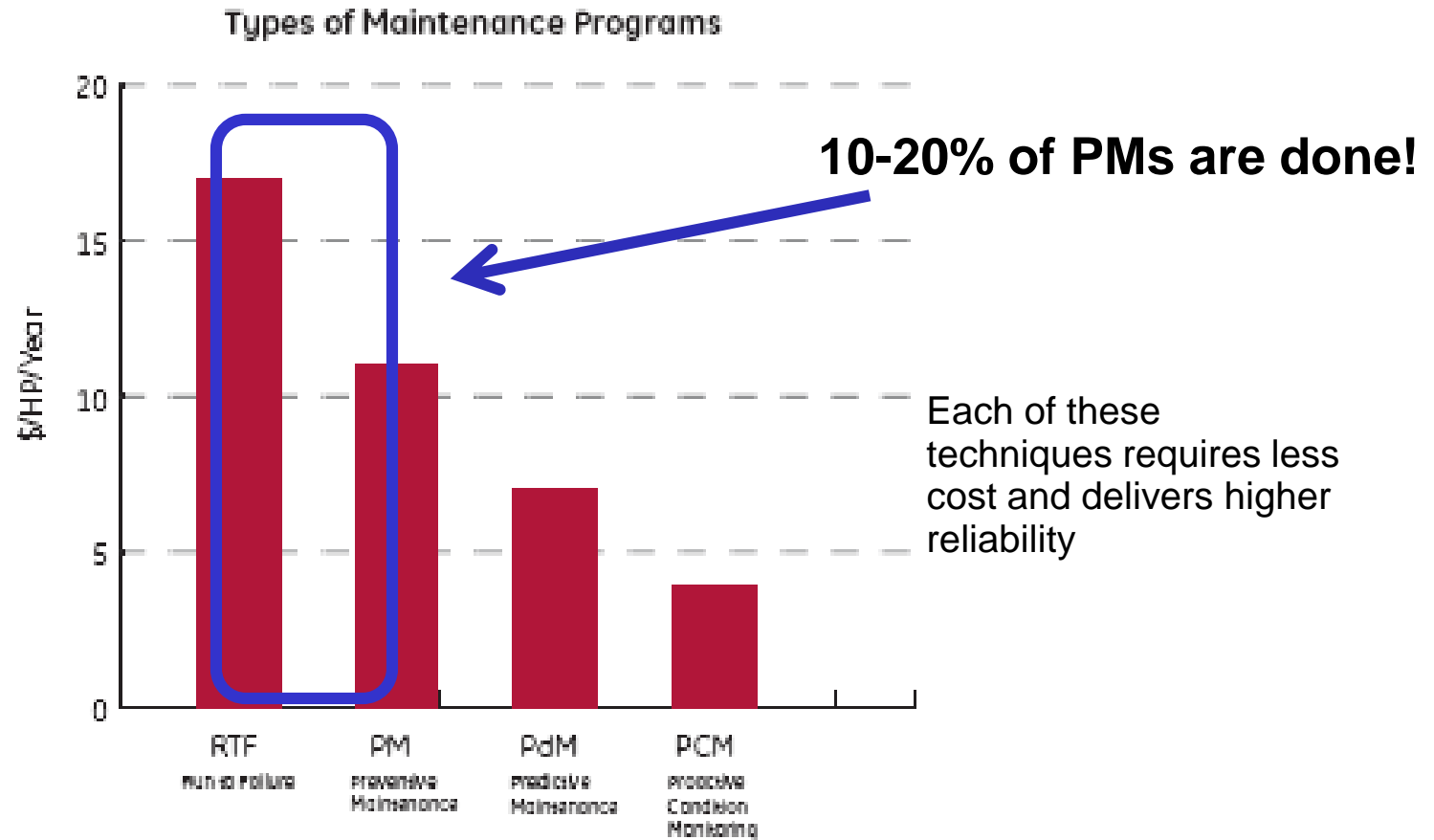
Ensuring that the asset base for Plant, Fleet and Facilities is optimized for:

- Availability
- Reliability
- Maintainability
- Productivity

Where should be the focus?

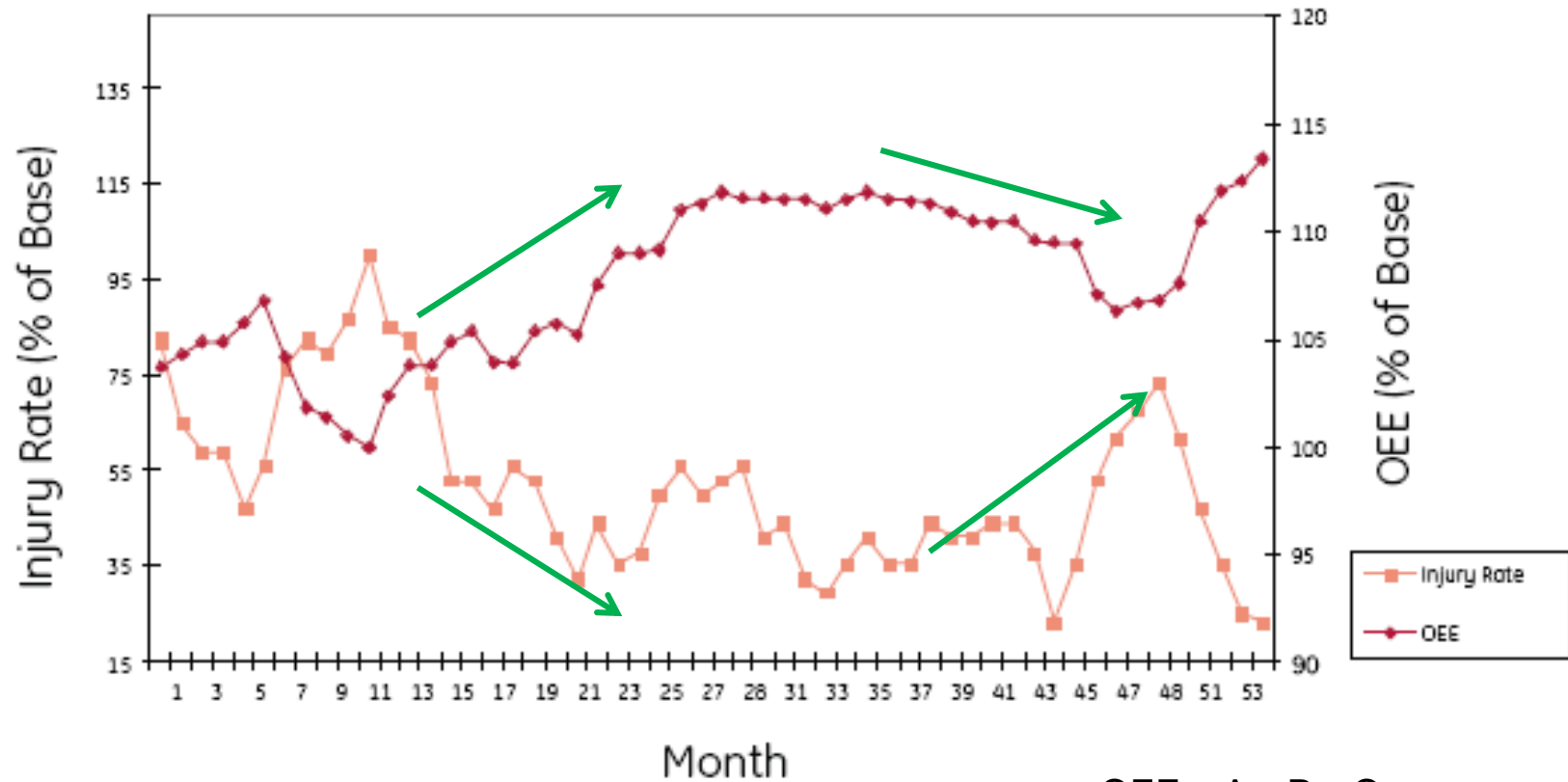


There are different ways to “save” in maintenance



Cost of maintenance versus maintenance practices employed, as summarized by an Electric Power Research Institute (EPRI) study.

Fewer failures = Safer



Injury Rate and Overall Equipment Effectiveness (OEE).

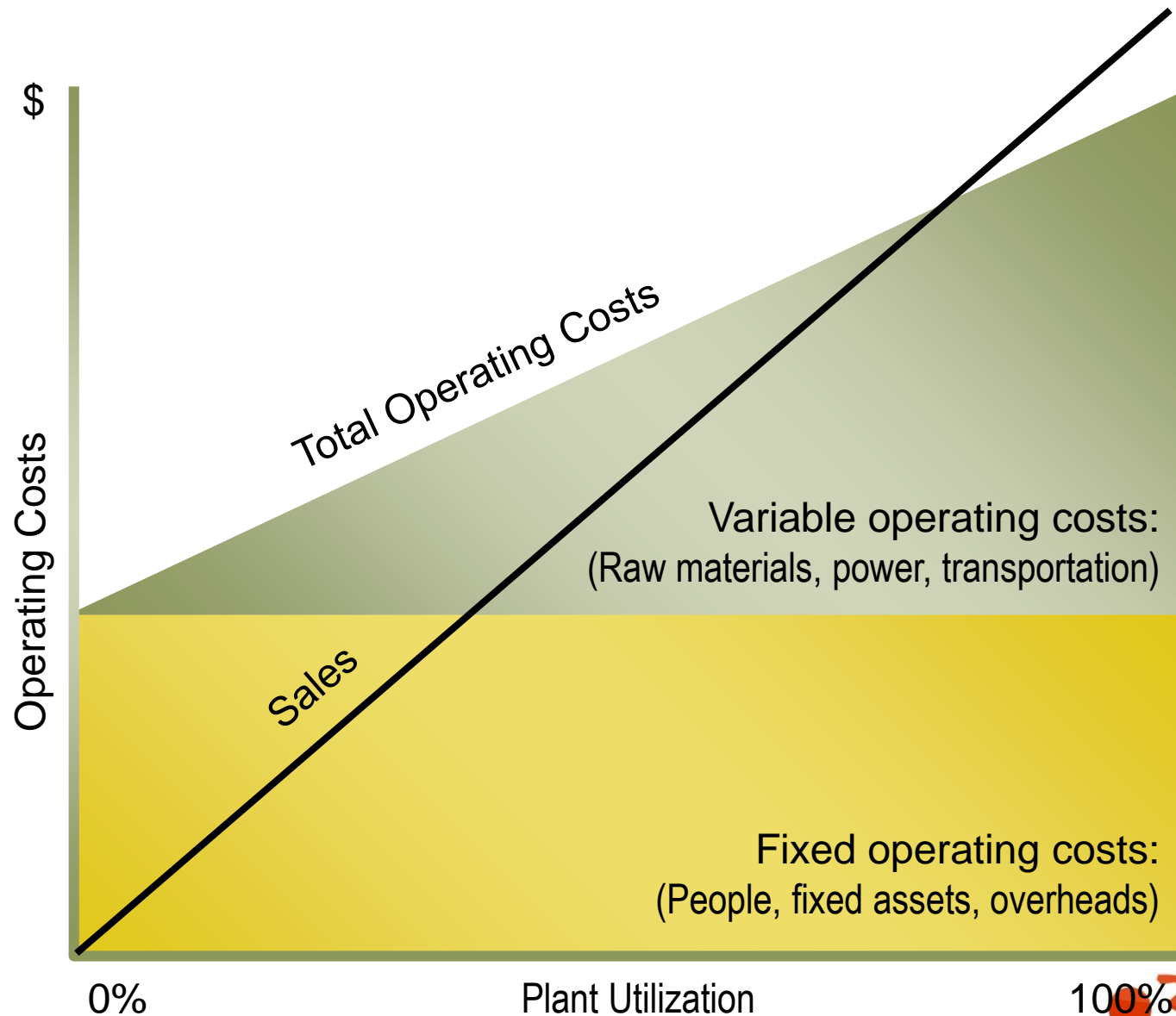
From: Ron Moore, "Making Common Sense, Common Practice"

$OEE = A \times P \times Q$
A = availability %
P = production rate % of maximum
Q = quality rate %
A, P and Q increase as R increases

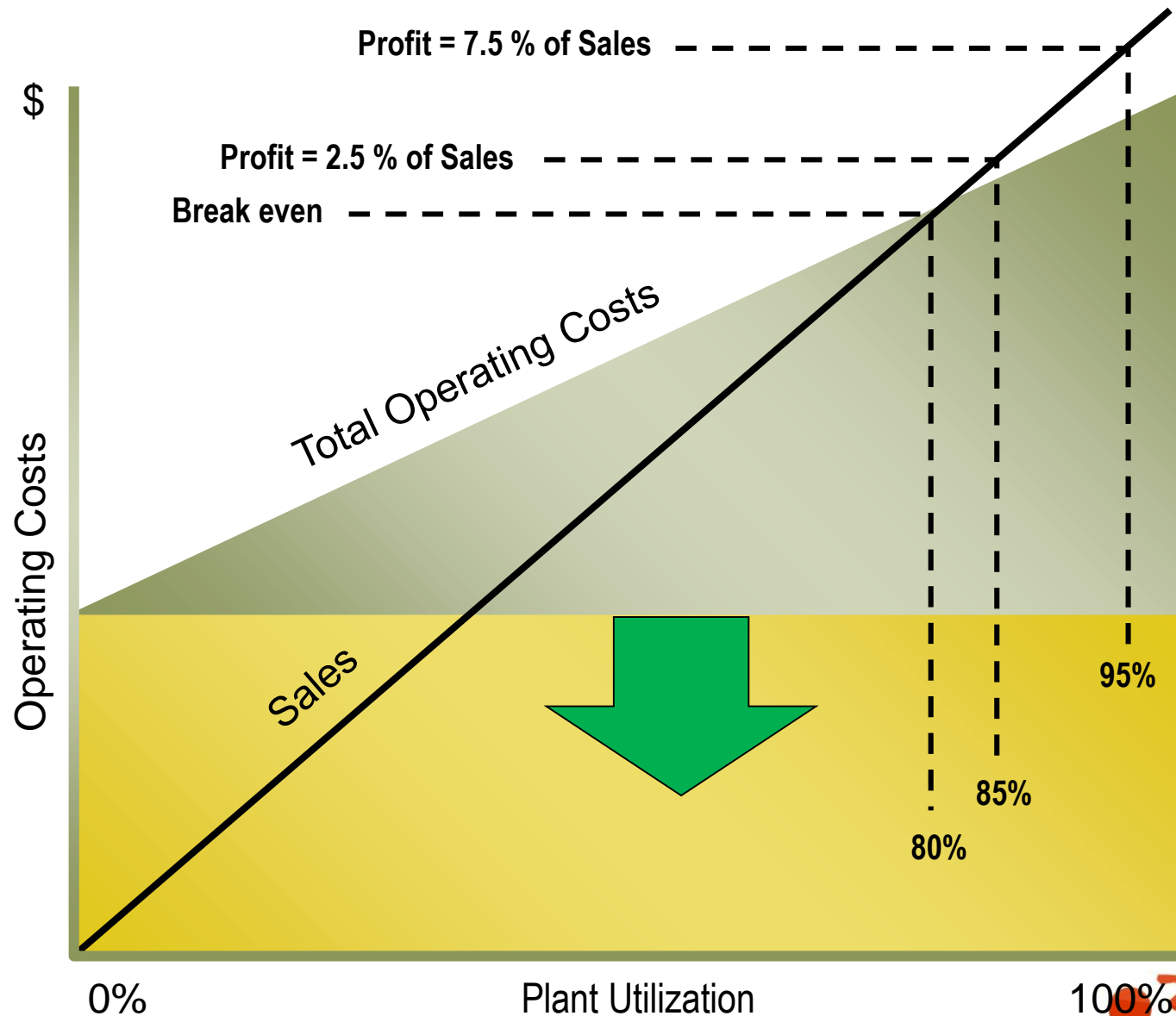
Fewer failures = cleaner



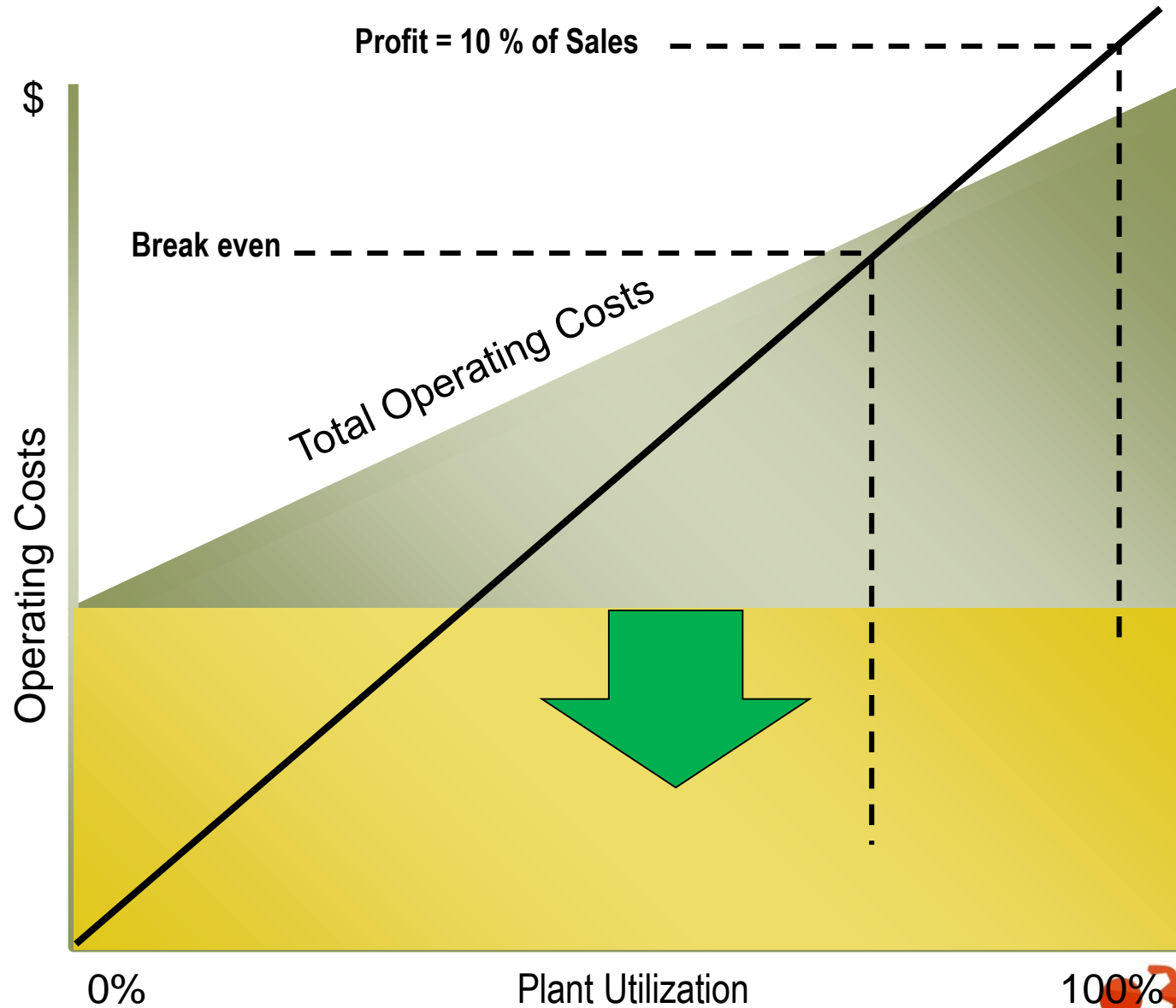
Return on Investment



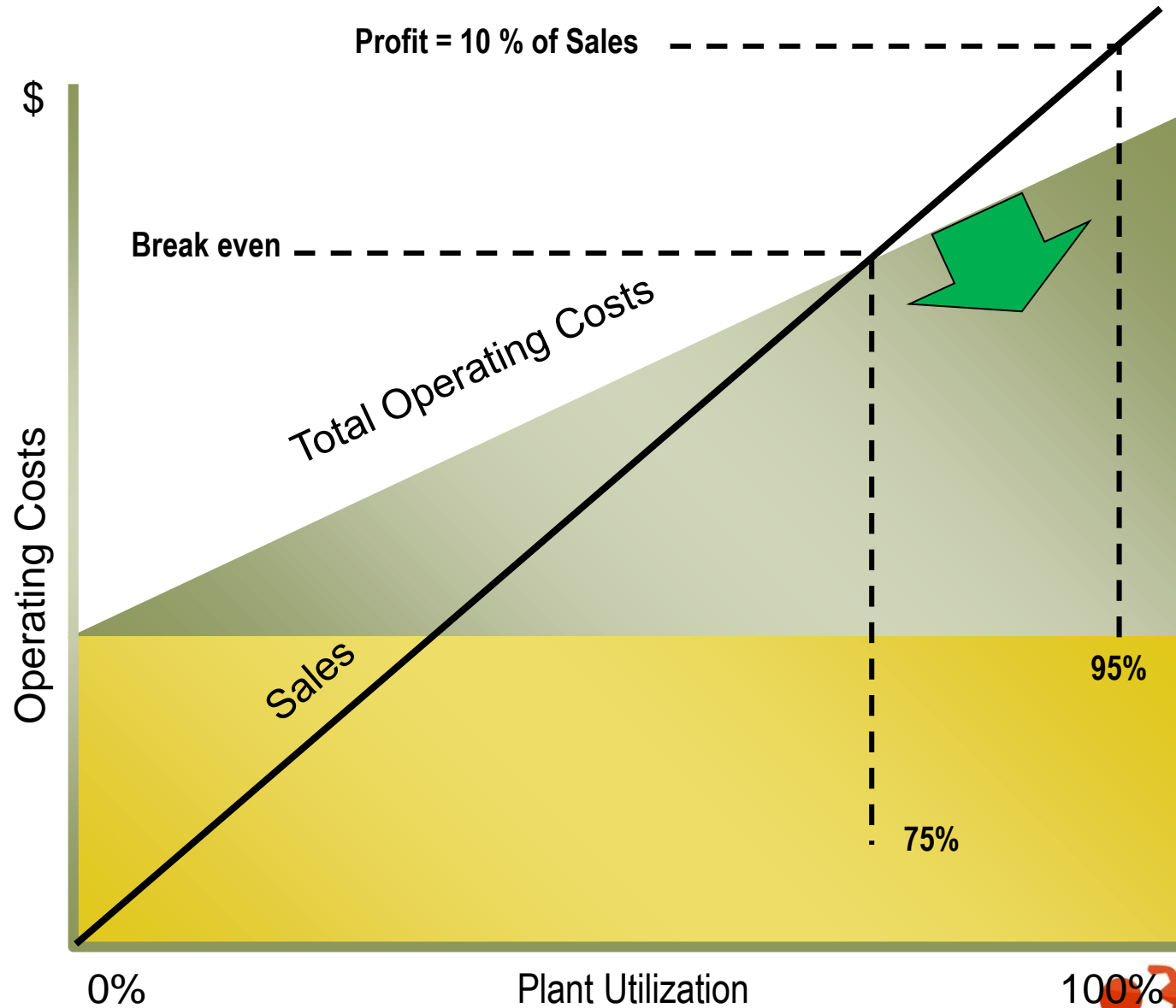
Return on Investment



Return on Investment

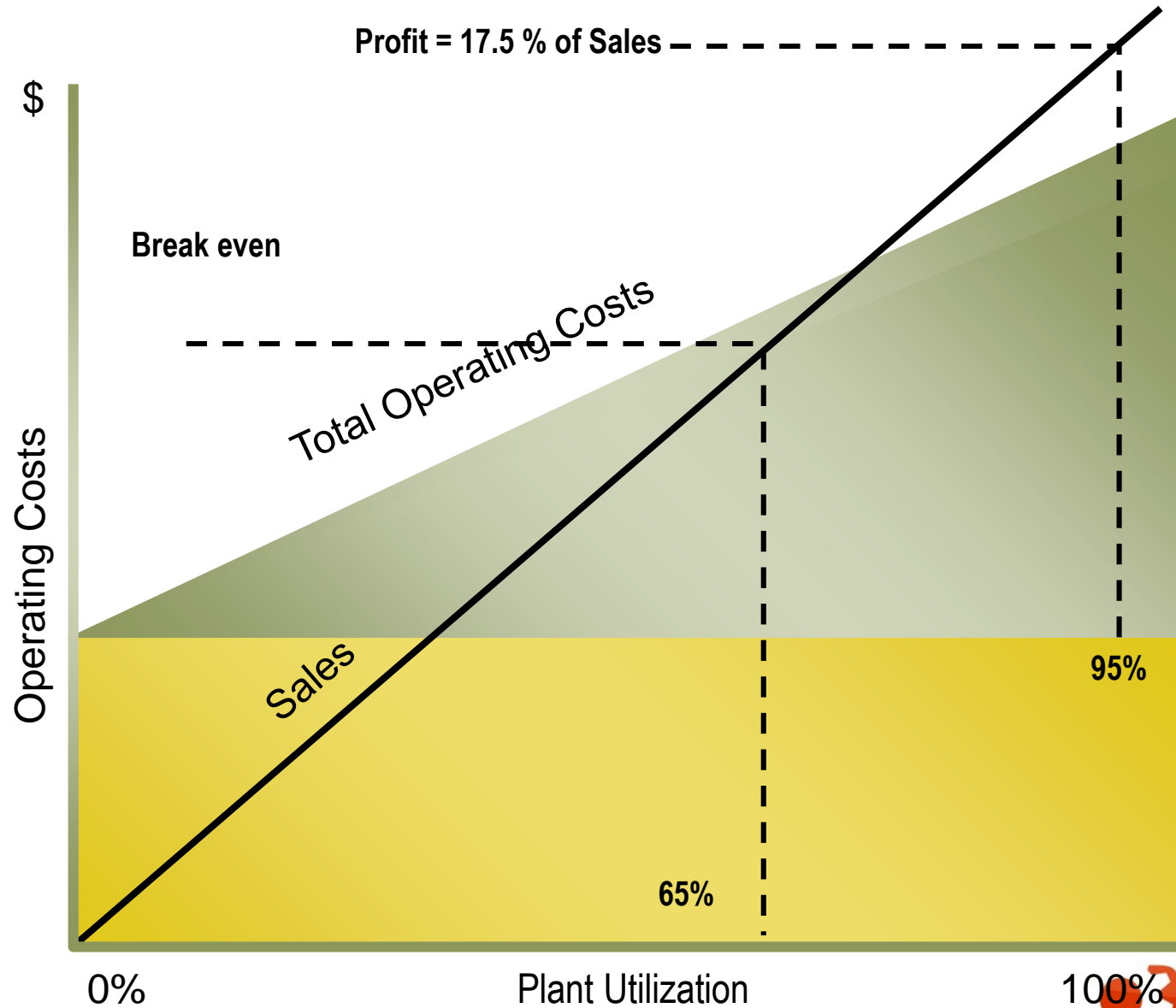


Return on Investment



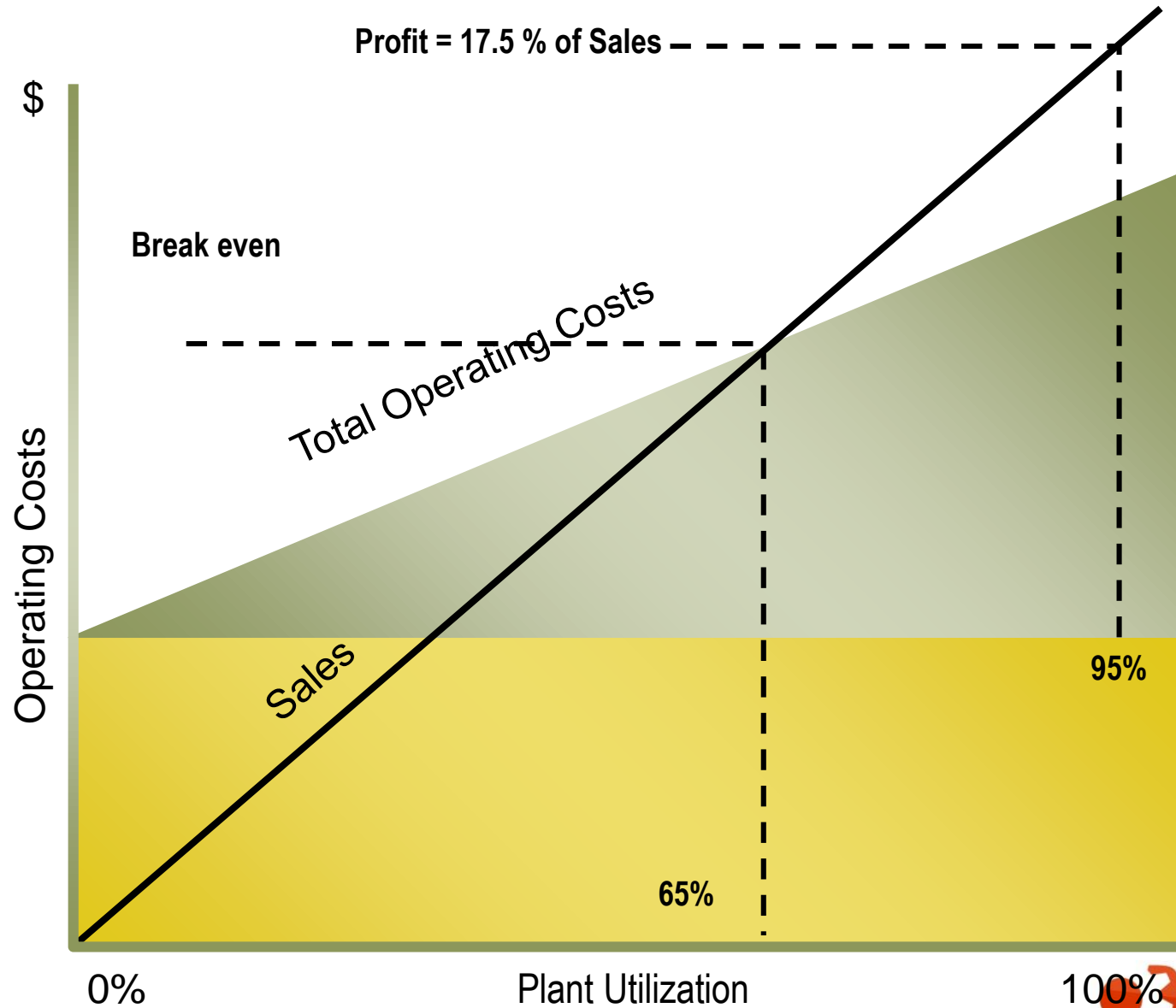
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Return on Investment

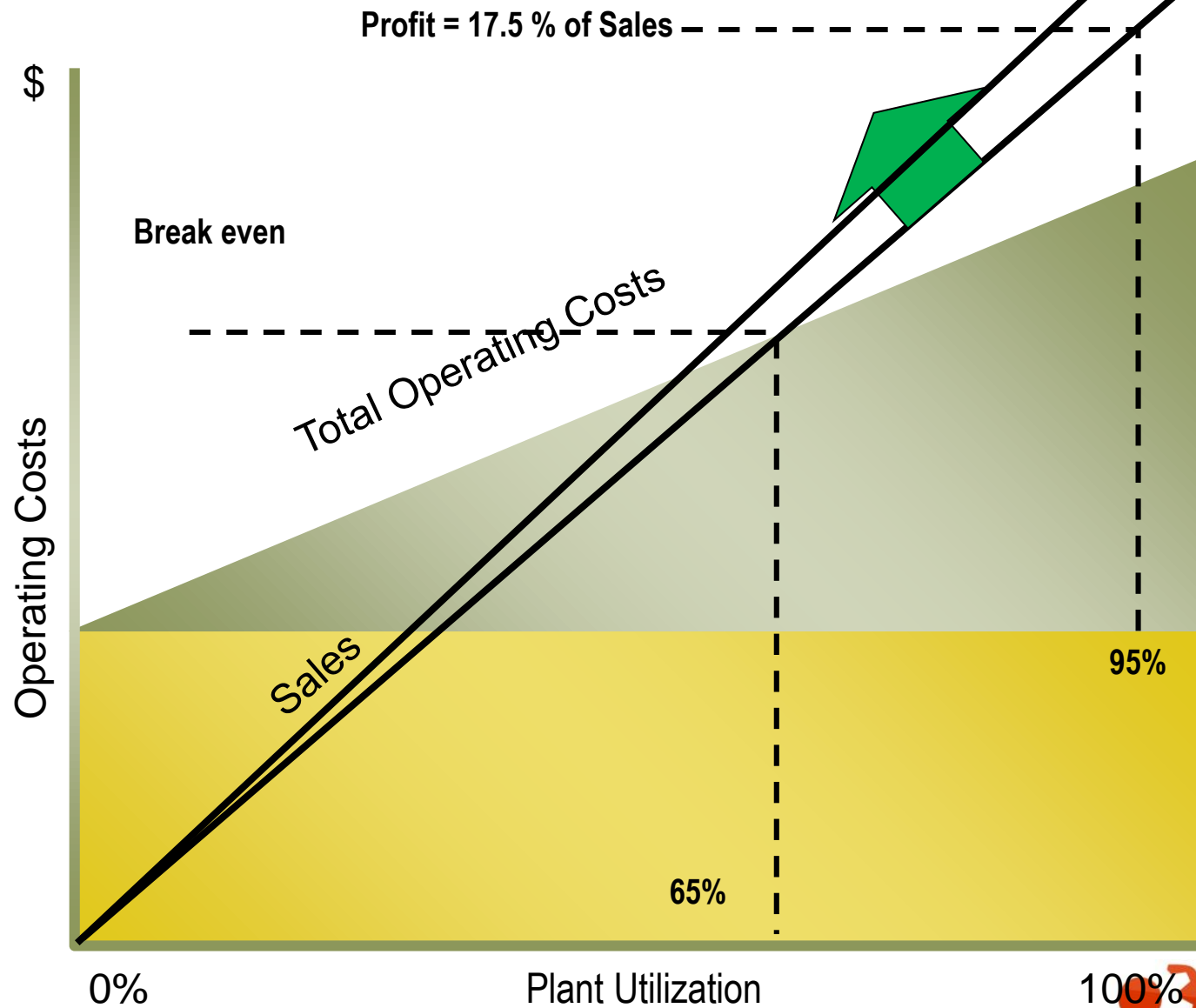


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Return on Investment

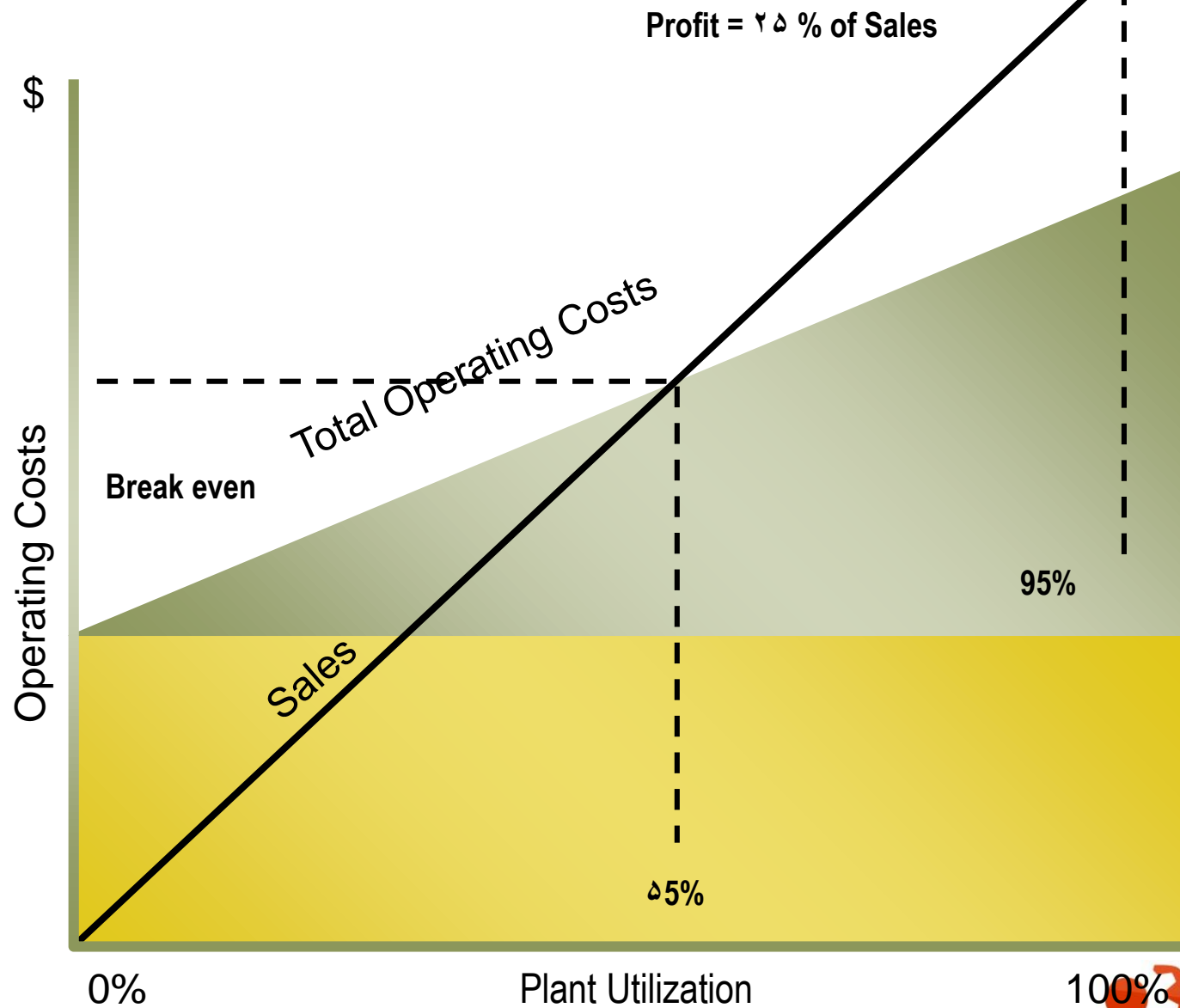


Return on Investment



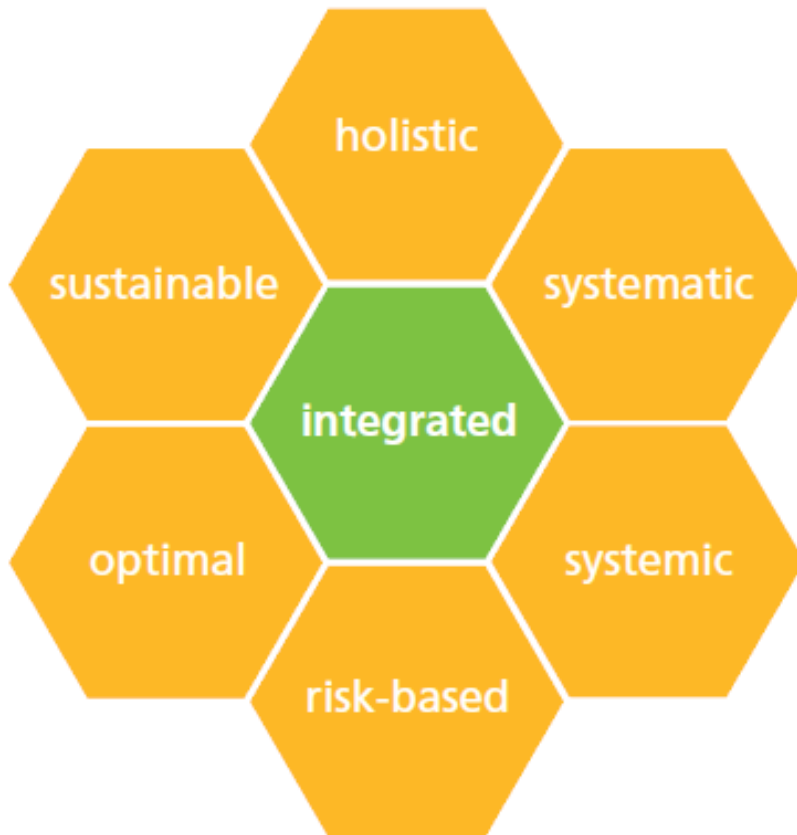
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Return on Investment



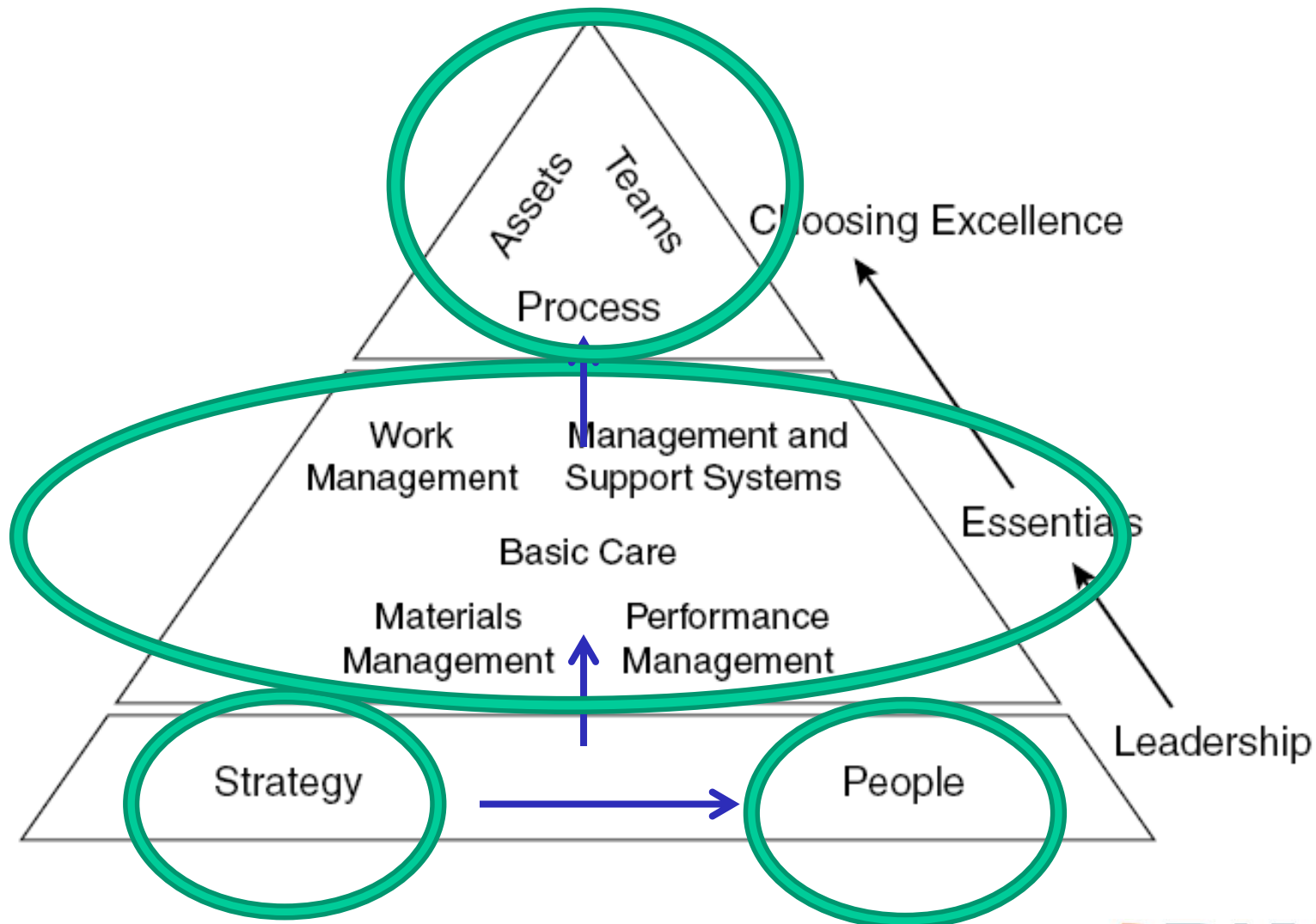
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مدیریت دارایی های چیست؟



شیوه ها و فعالیت هایی منظم و هماهنگ که سازمان از طریق آن دارایی ها و نیز هزینه ها و ریسک ها و عملکرد آن ها را در طی چرخه عمر دارایی ها، با هدف تحقق برنامه استراتژیک سازمانی، به طور بهینه و پایدار مدیریت می کند.

Asset Management Pyramid of Excellence



What is “world class”?

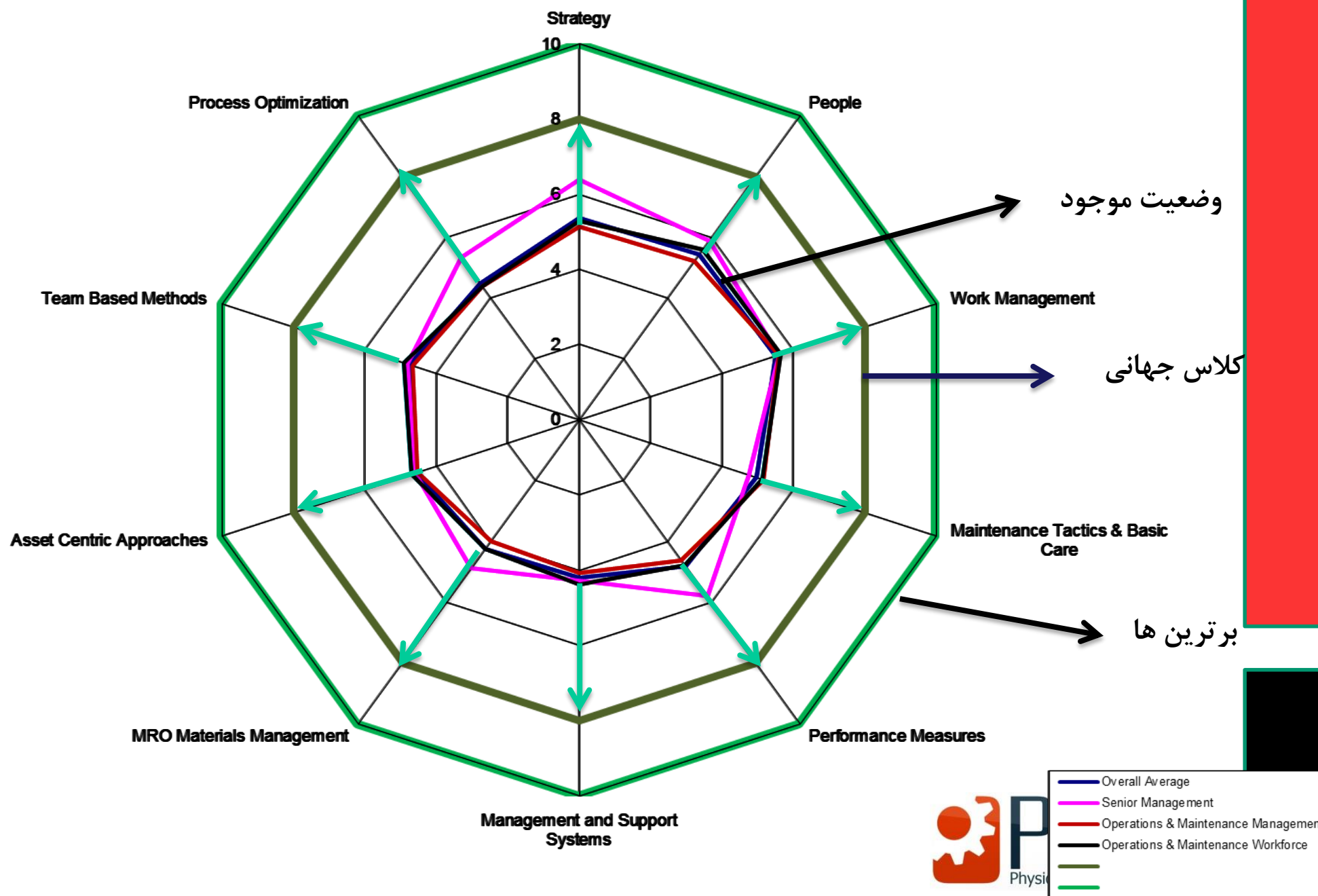
	Strategy	People	Work Management	Materials Management	Basic Care	Performance Management	Support Systems	Asset Reliability	Teamwork	Processes
Excellence	Complete strategy developed with full participation including plans	Fully developed multi-skilling, autonomous teams in place	Long term planning cycles and extensive use of standard job plans.	Stockouts rare. Service level 98% plus. Inventory turns > 2 times.	Full regulatory compliance. PM program features extensive CBM. Operators do some minor PM. Equipment condition good.	Fully balanced score cards for teams. Improvement results evident in performance trends.	Full user acceptance and widespread use of management systems. CBM, reliability analysis and decision support systems in use.	PM program fully developed using RCM. RCFA used but not needed very often. Mtc inputs to design of new assets.	Autonomous teams of maintainers and operators used extensively. Support by management and specialists. Consistent maintenance standards in use.	Processes are efficient and effective. No work arounds in use. Regular reviews carried out to keep processes fresh. Support systems automate parts of the processes.
Competence	Complete strategy developed by key personnel with plans	Multi-skilling and managed teams of maintainers and operators	Scheduling and planning well established for most work. Compliance high.	Inventory turns > 1. Service level 95% plus. Stockouts less than 5%.	Full regulatory compliance. PM program features some CBM. Operators help with PM. Equipment condition good.	Reliability measures in use and improvement programs monitored, trends being developed.	Extensive management systems used mostly by management. Some CBM.	RCM in use to define PM programs. RCFA in use.	Area or unit based teams of maintainers and operators with management. Maintenance standards applied in each area.	Processes are efficient and effective. Some work arounds may be in use. Reviews carried out infrequently.
Understanding	Management defined strategy & plans	Some multi-skilling. Mostly distributed maintenance teams with conventional supervision	Scheduling established, compliance good. Planning for major work and shutdowns as work arises.	Inventory turns > 0.7. Service level 90% plus. Inventory analysis being performed.	Partial regulatory compliance. PM program based on fixed interval tasks with little CBM. Equipment condition fair.	Basic maintenance performance measures in use.	Management systems in use. Some reporting is used. Some CBM support systems in use.	Reliability improvement program in place. RCFA and possibly PM Optimization in use.	Maintenance working in area teams under maintenance supervision. Operations separate.	Maintenance processes reviewed. Interfacing processes untouched. Work arounds in use.
Awareness	Documented goals but no plans	Partly de-centralized organization based on trades	Scheduling with about 50% compliance. Plans for shutdowns only	Inventory improvement plans in place. Measurement of stores performance started.	Poor regulatory compliance. PM program under development using traditional methods. Equipment condition fair.	Financial measures used to analyze spend patterns. Some downtime records.	Management systems use is spotty and providing little valuable output. Ad hoc systems still in use. CBM support being considered.	Downtime analysis is performed and some improvements are implemented.	Mix of centralized (shop) labor and individuals assigned to production areas. Conventional supervision.	Processes documented but not reviewed. Work arounds in use. Inefficiency evident particularly at functional hand offs.
Innocence	No documented strategy. Maintenance is largely reactive	Centralized organization based on trades demarcation	No planning, little scheduling and poor compliance to schedule	Frequent stockouts. Service level poor. Jobs frequently waiting for parts.	Poor regulatory compliance. Minimal or non-existent PM program. Equipment condition poor.	Only financial measures being watched but no analysis of costs performed.	Little to no use of management systems. May be using variety of ad hoc systems.	Plenty of downtime but no analysis of causes or attempts to improve.	No teamwork. Conventional supervision.	Processes not documented and inefficient. Plenty of work around. Plenty of complaining.

Benchmark Best

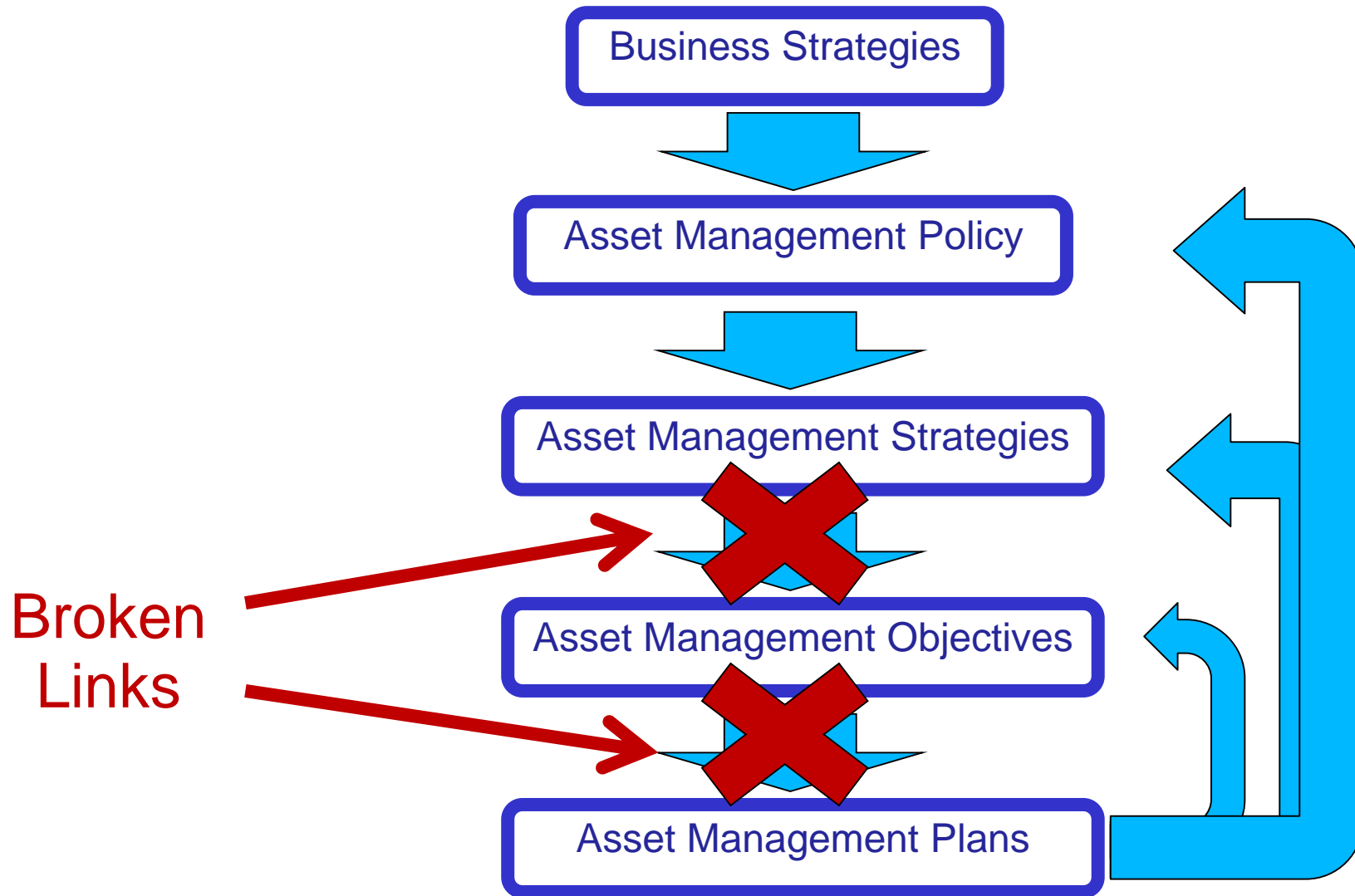
World Class

Typical

By Organizational Level

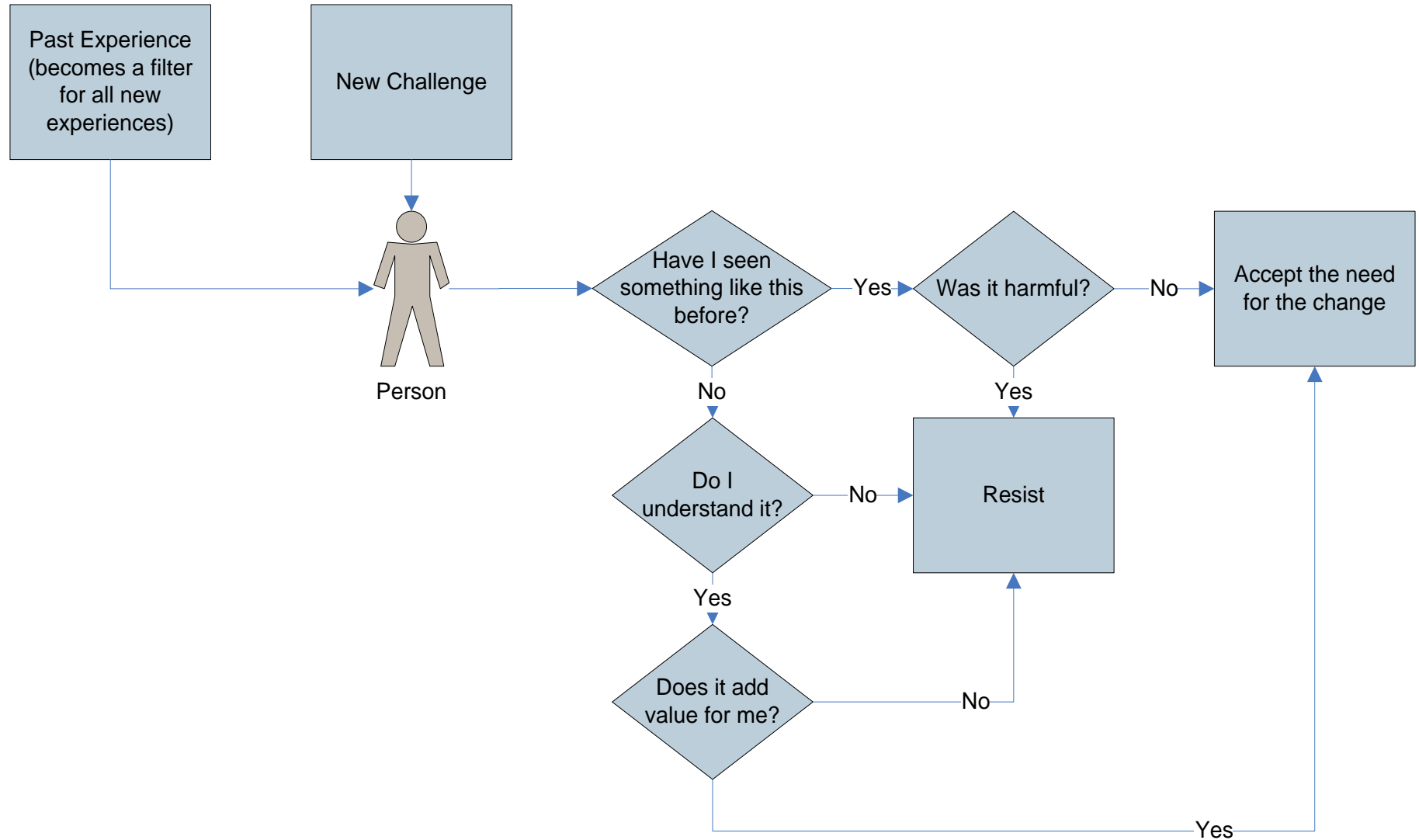


Strategy



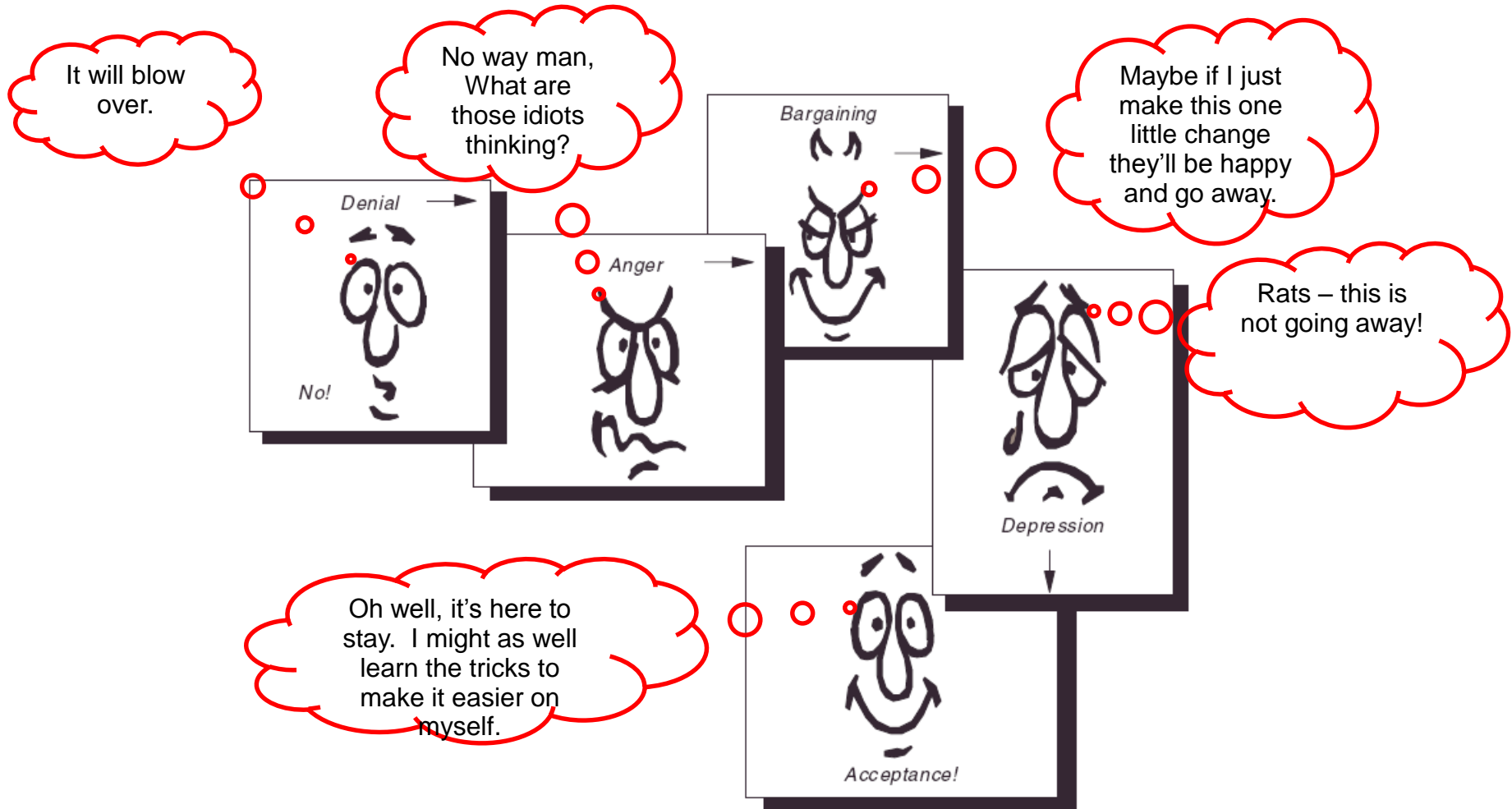
People

Fear blocks individual choices



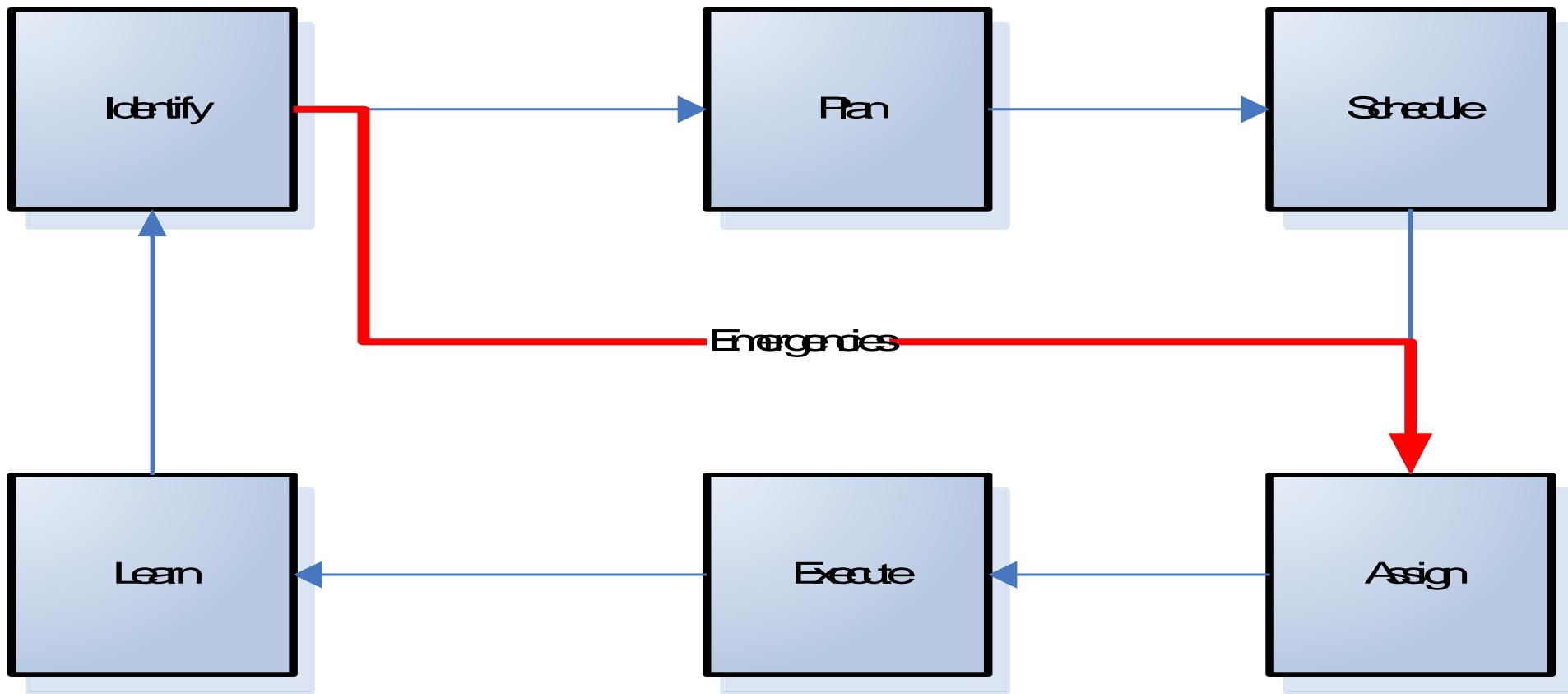
People

When confronted with change we “mourn” the loss of the old ways



Work Management

Basic Work Management
Cycle



Performance Management

Inputs:

- Labour
- Equipment
- Materials
- Outside services
- Technical overhead
- Management overhead
- Facilities
- Training

Process

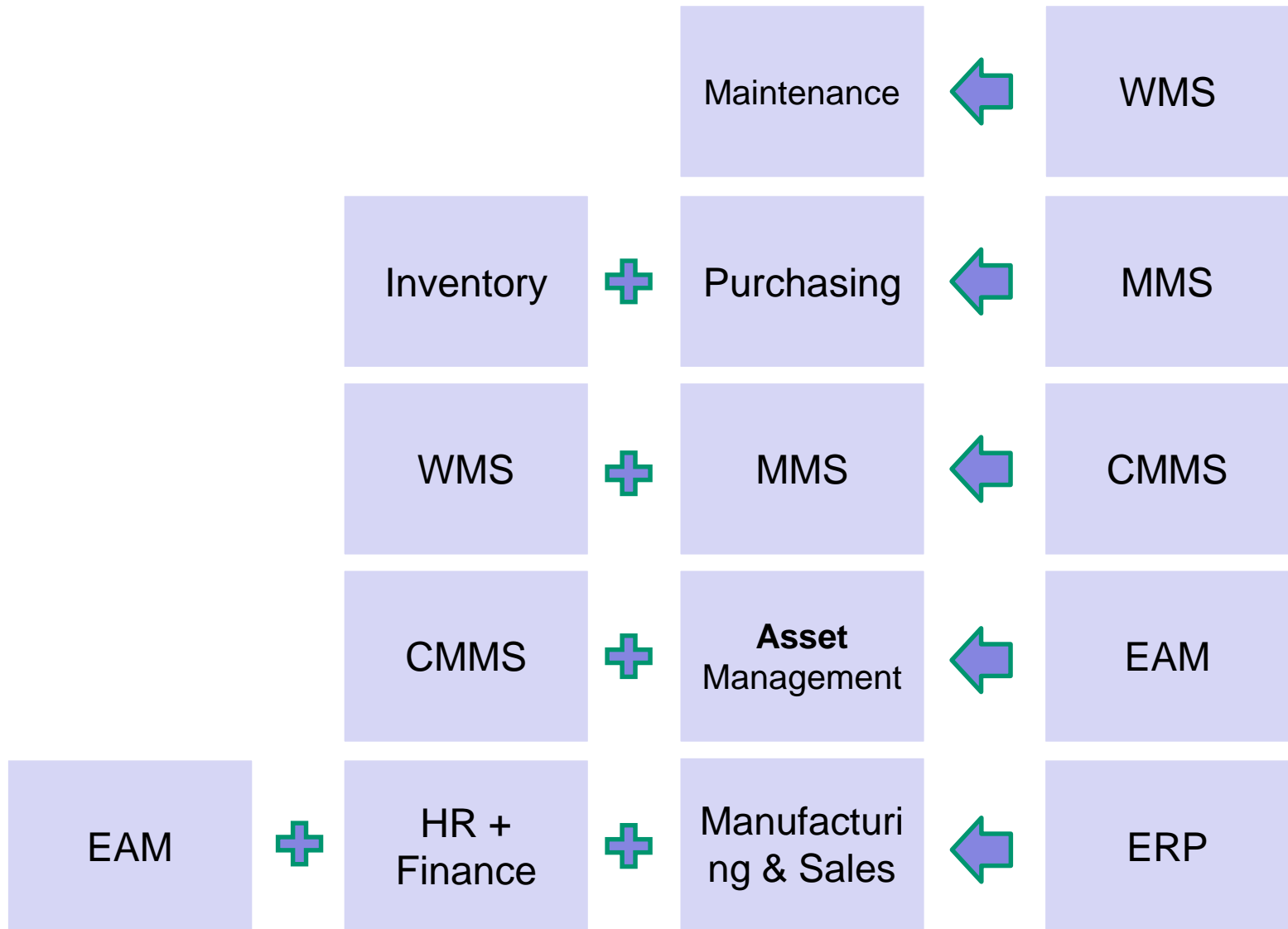
Outputs:

- Availability
- Process Rate
- Quality
- Maintainability
- Reliability
- Equipment effectiveness
- Utilization
- Life Cycle Cost
- Return on Investment

Measures of Process Effectiveness:

- Work Order Backlog; - Work Order Lead Time
- % of Preventive Maintenance work completed on schedule
- % of work that is Planned Work;
- number of Emergency Work Orders
- % of work that is Predictive Maintenance driven;
- % of Condition-based Monitoring
- Stores Turnover: - Stores Service Level
- Mean Time Between Failures; Mean Time To Repair
- Number of Accidents; - frequency of Absenteeism

Management & Support Systems



Management & Support Systems



Basic Care

Operators / production can do much of the Basic Care

▪ **Cleaning**

- Removing contaminants and dirt eliminates many failure causes



▪ **Lubricating**

- Keeping oils and greases topped up with the correct lubes and correct quantities



▪ **Adjustments**

- Minor adjustments (tightening)



▪ **Inspections**

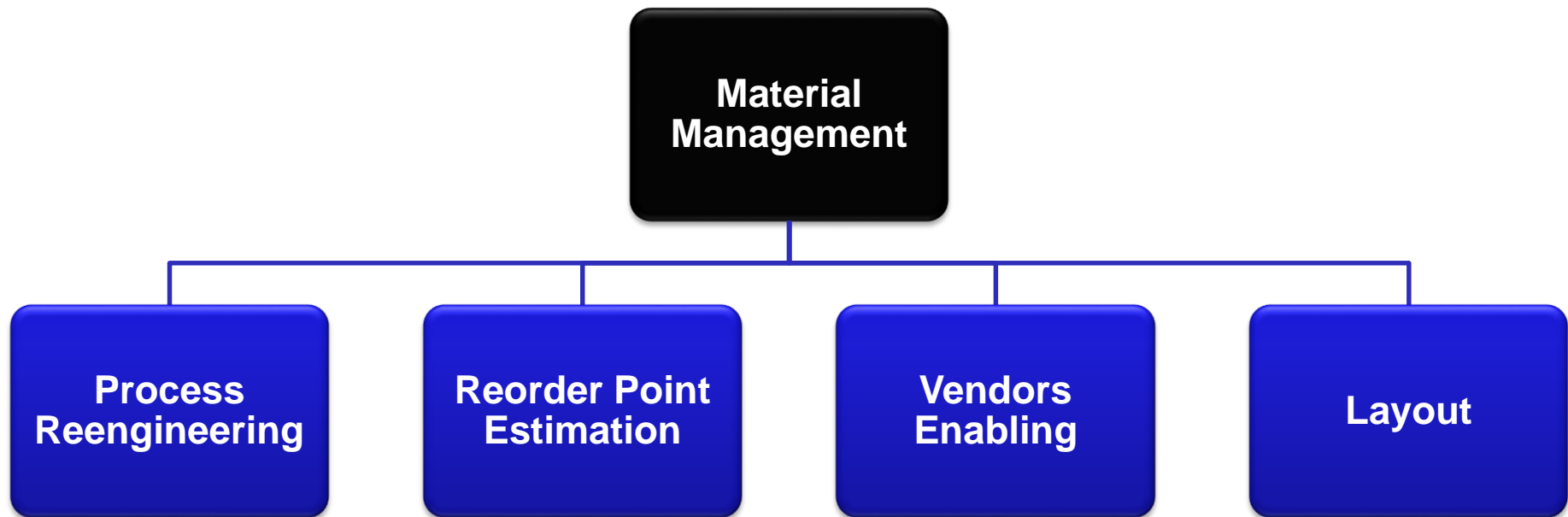
- Look for deviations in equipment condition and performance that indicate incipient failures



▪ **Minor repairs**

- Only if trained to do repairs correctly (workforce should be multi-skilled)

Material Management



Material Management

High Level of Inventory

High service Level



Low Level of Inventory

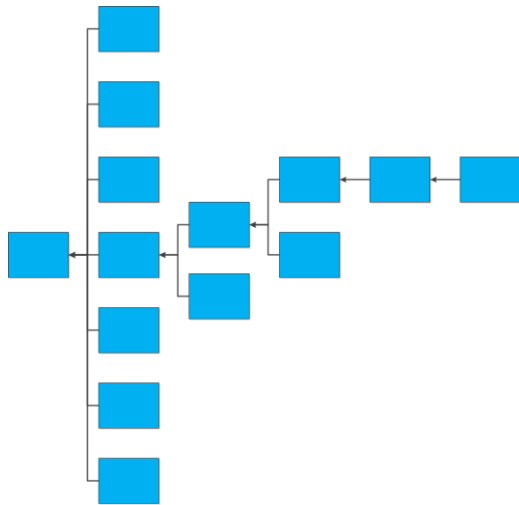
Low Service Level

Choosing Excellence

Future

Proactive

How will this equipment fail?



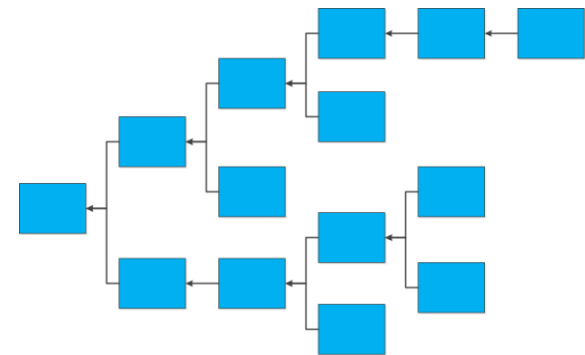
Reliability Centered Maintenance

RCA vs. RCM

Past

Reactive

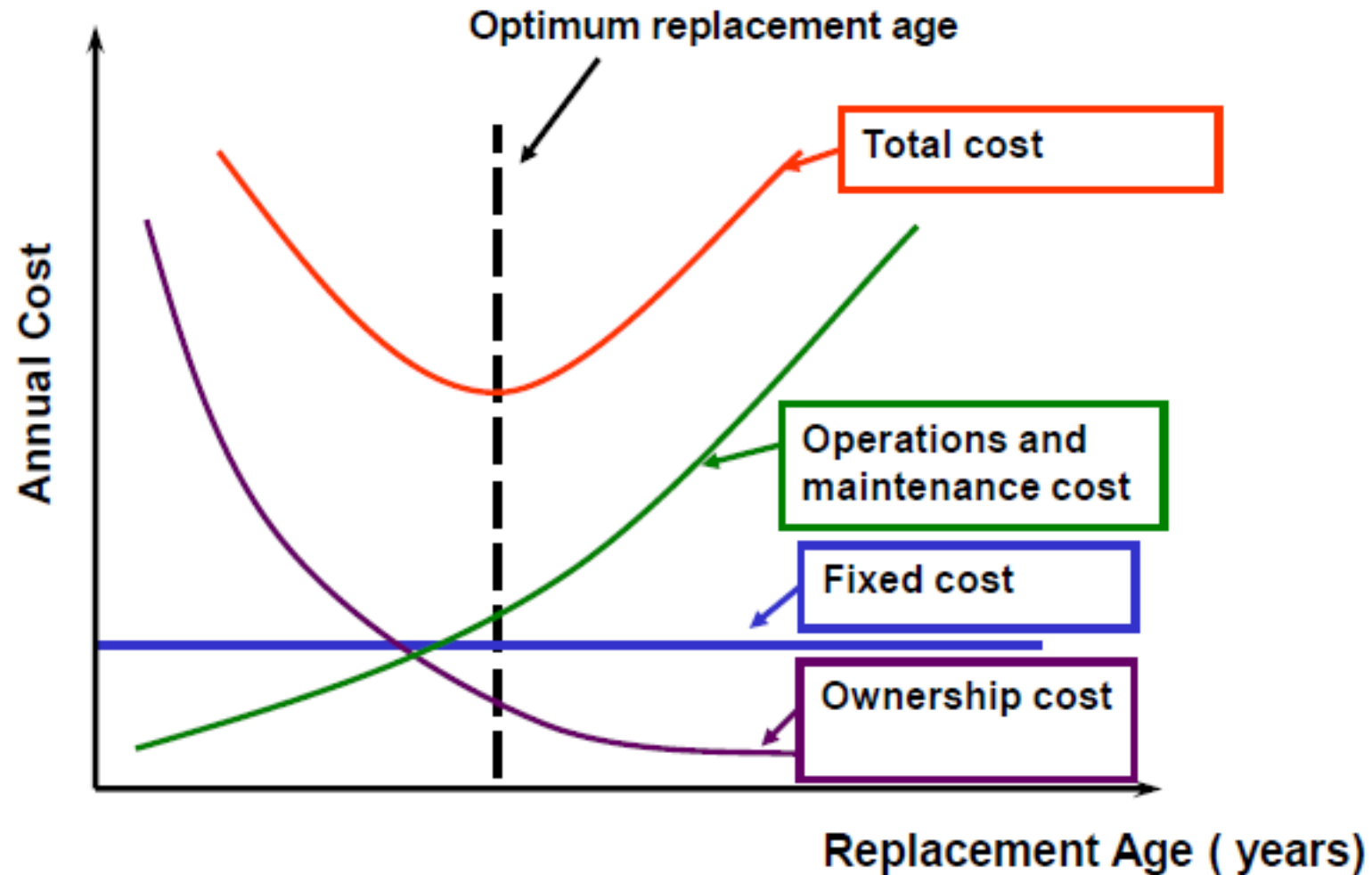
Why did this equipment fail?



Root Causes Analysis

Choosing Excellence

Life Cycle Costing





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