Creating a Competitive Advantage with Asset Management

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CONGRESO DE MANTENIMIENTO & CONFIABILIDAD MÉXICO XII

ORGANIZADO POR: AMGA

Presentation Overview

- Comparing the EAM winners and losers.
- EAM and your bottom line – driving RONA
- EAM as a competitive advantage – the Hayes & Wheelwright model.
- Using EAM as a competitive advantage to manage up and down business cycles.
- Uncovering the “hidden” plant.
- Achieving EAM culture change to make it stick.

Operational Excellence Winners and Losers - Aberdeen Benchmarks

Criteria	Leaders	Average	Laggards
Frequently assess EAM risk to operational capability	41%	36%	17%
Standard process for prioritizing maintenance work	65%	54%	43%
Goals are aligned between maintenance and operations	57%	39%	30%
Historical and real time data is used as actionable intelligence	59%	52%	21%
Failure data is employed to perform root cause analysis (RCA)	69%	50%	45%
EAM technology is in place to manage asset performance	73%	62%	48%
Asset performance can be compared across plants	61%	36%	17%
Overall Equipment Effectiveness (OEE)	88%	81%	75%
Forced downtime	2%	11%	14%
EAM cost/Sales	17.2%	20.8%	23.5%
ROA/Plan	+25%	+7%	-10%

Plant Reliability in Dollars & $ense

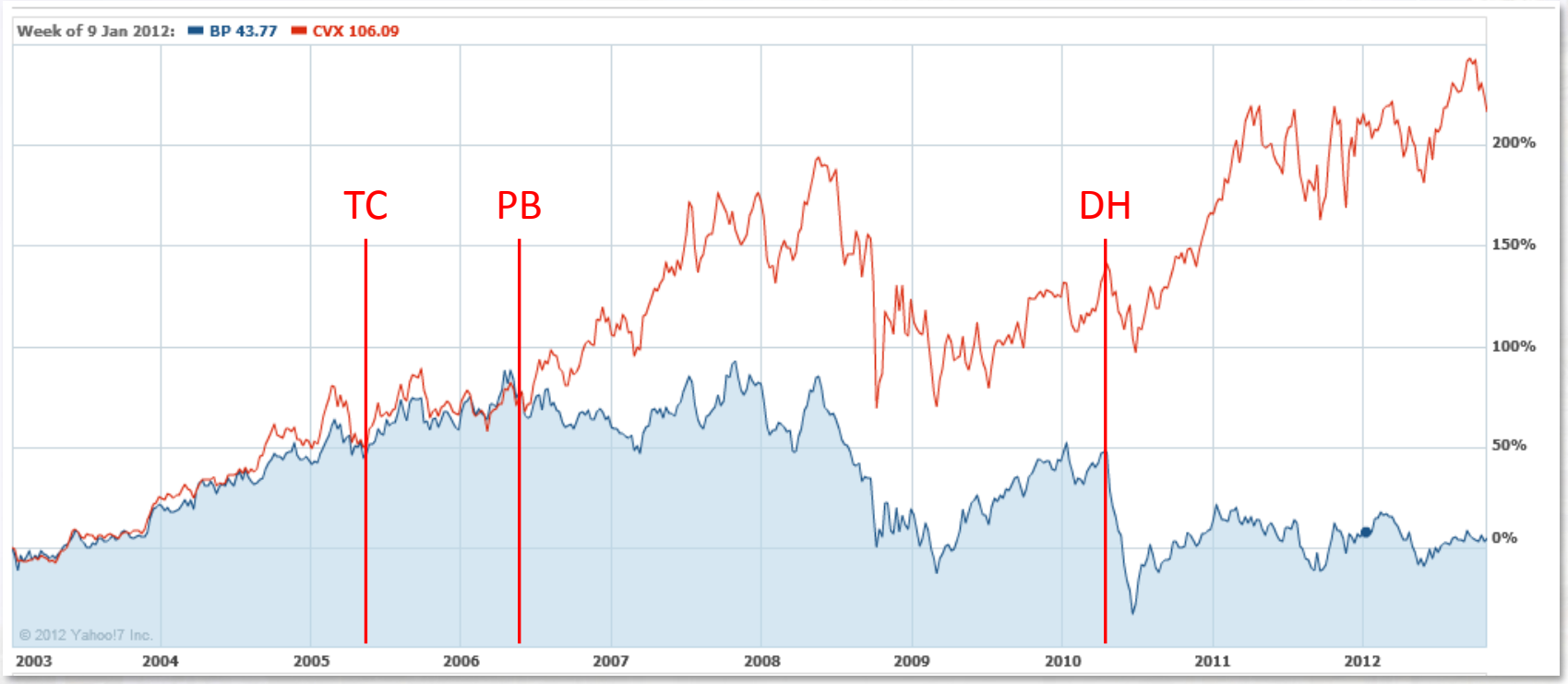
Data from Aberdeen Group Research

	Reactive Maintenance Scenario	Routine Preventive Maintenance Scenario	Managed Lean Plant Reliability Scenario
Asset Availability	81.80%	87.20%	88.80%
Asset Yield	79.20%	81.90%	84.20%
Maintenance Cost as a Percent of Sales	23.50%	20.80%	17.20%

"What if" Analysis...

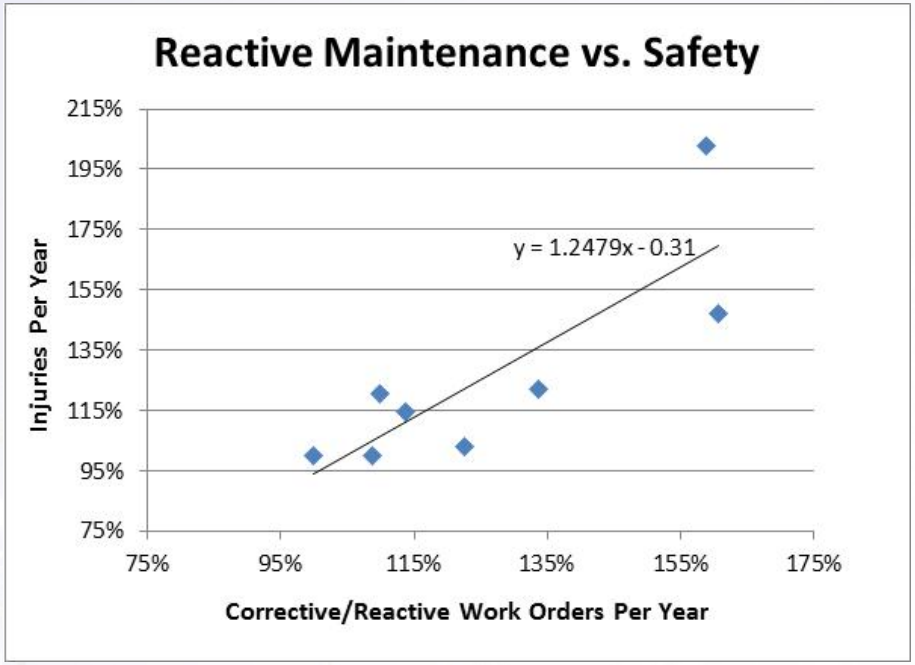
Sales	$1,000,000,000	$1,102,356,079	$1,154,108,320
COGS (Assume 60%)	$600,000,000	$661,413,647	$692,464,992
Maintenance Cost	$235,000,000	$229,290,064	$198,506,631
Overheads	$100,000,000	$100,000,000	$100,000,000
Total Costs	$935,000,000	$990,703,712	$990,971,623
EBIT	$65,000,000	$111,652,367	$163,136,697
EBIT as Percent of Reactive Scenario	100%	172%	251%
Tax Burden (Assume 30% Profit)	$19,500,000	$33,495,710	$48,941,009
Net Operating Profit After Taxes (NOPAT)	$45,500,000	$78,156,657	$114,195,688
Net Assets Employed	$600,000,000	$600,000,000	$600,000,000
Return on Net Assets (RONA)	7.6%	13.0%	19.0%
Weighted Average Cost of Capital (10% Rate)	$60,000,000	$60,000,000	$60,000,000
Economic Value Added (EVA)	-$14,500,000	$18,156,657	$54,195,688
Shares Outstanding	25,000,000	25,000,000	25,000,000
P/E Ratio	12	12	12
Share Price	$31	$54	$78
Market Capitalization	$780,000,000	$1,339,828,406	$1,957,640,365

EAM Winners and Losers - BP vs. Chevron Since 2003

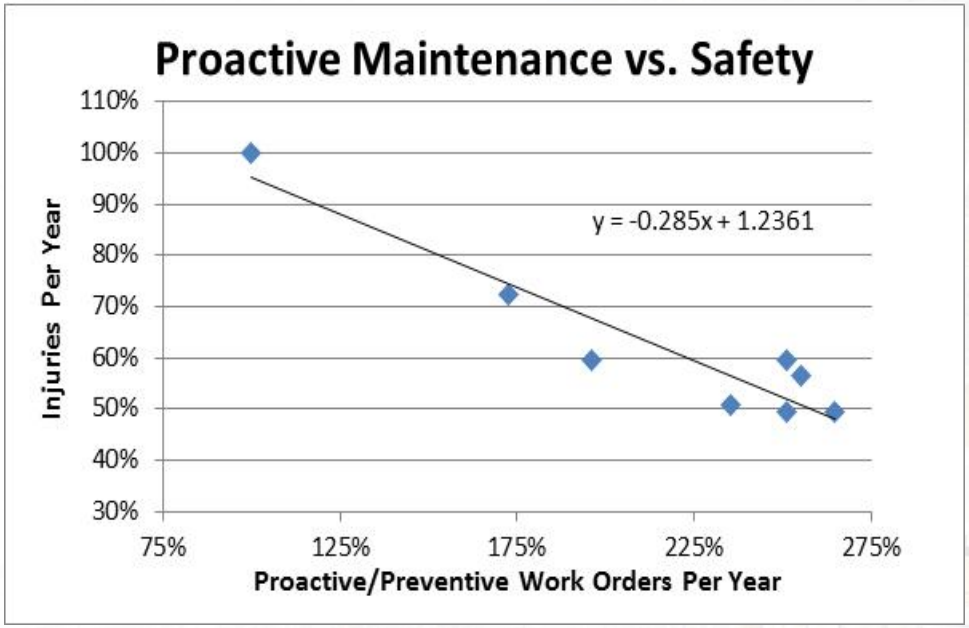


TC = Texas City Explosion
PB = Prudhoe Bay Leak
DH = Deepwater Horizon (Macondo) Disaster

EAM Excellence Also Drives Safety

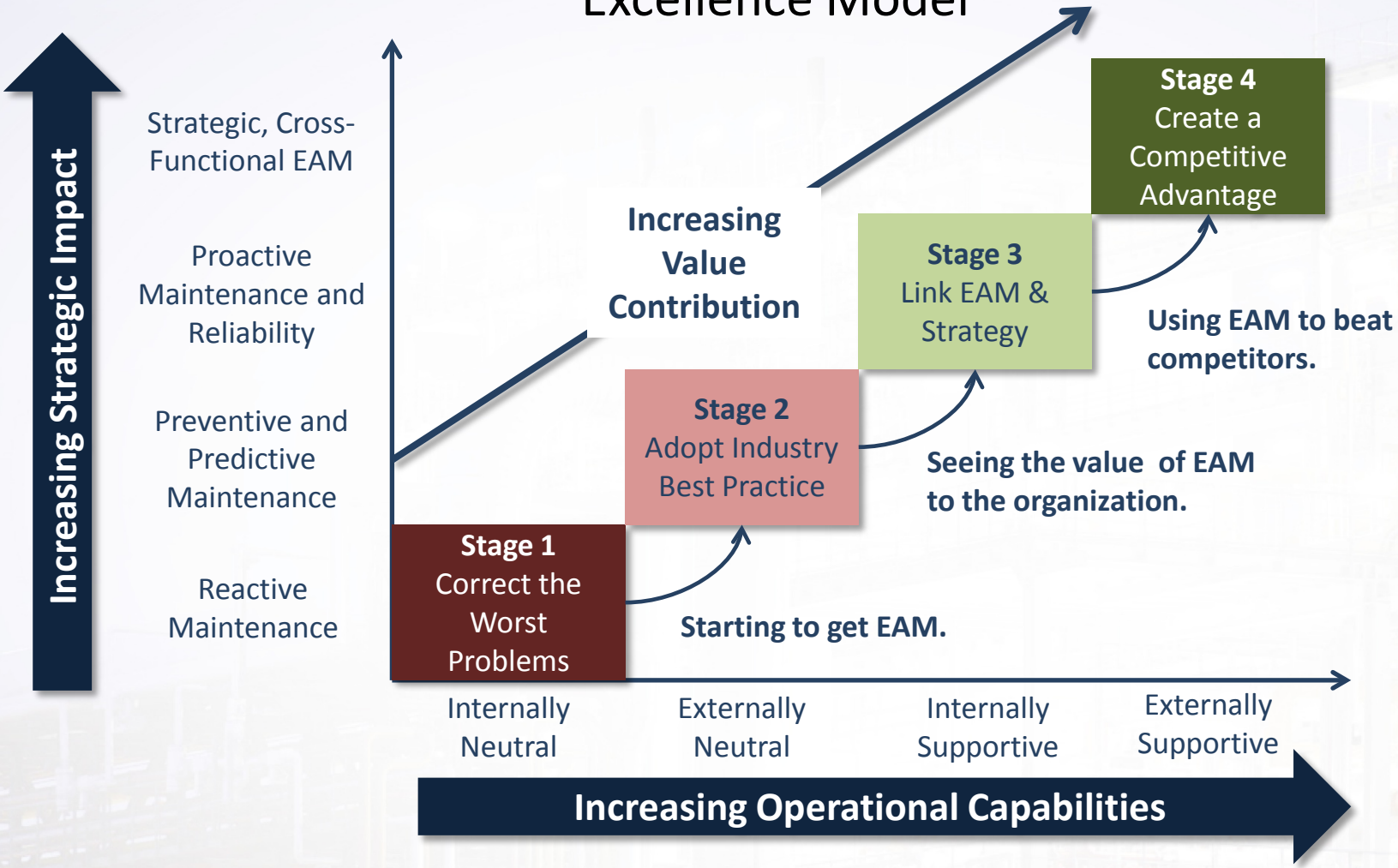


Make the Reactive to Proactive transformation!

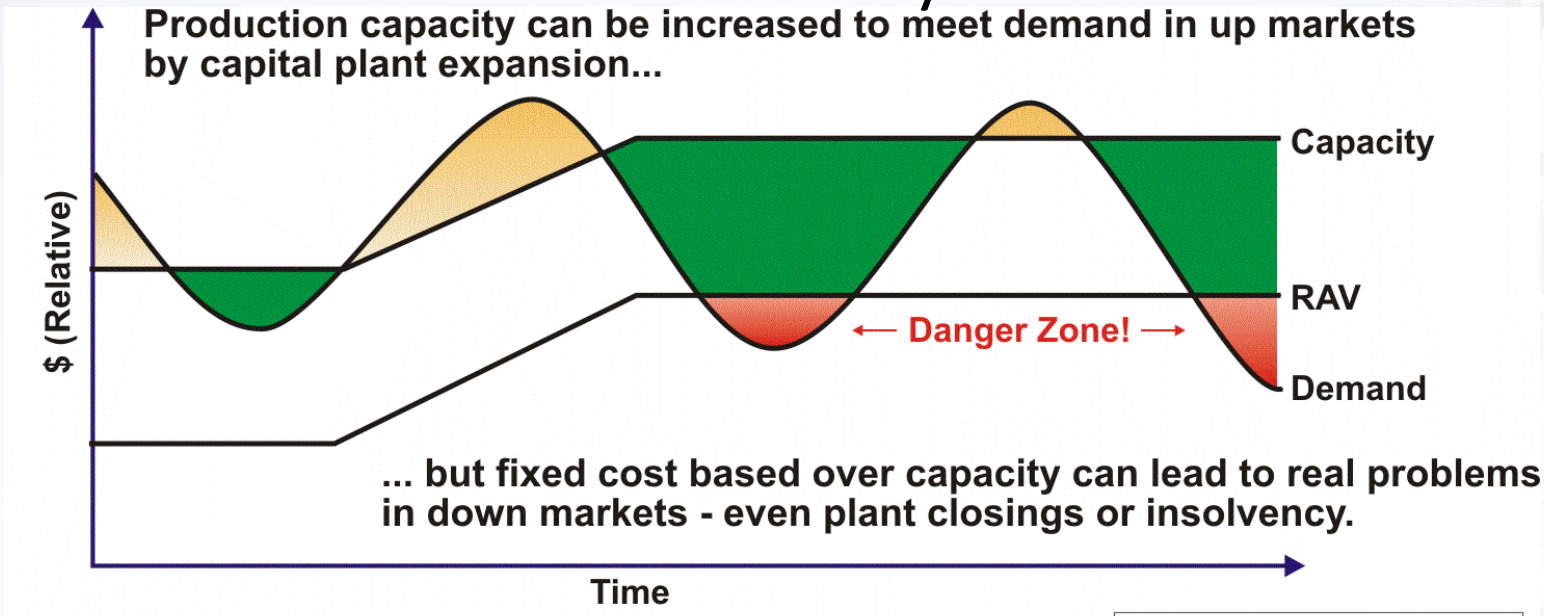


Doing more proactive work and less reactive work decreases injury risk. A planned job is a safe job.

EAM Adaption of the Hayes & Wheelwright Operations Excellence Model



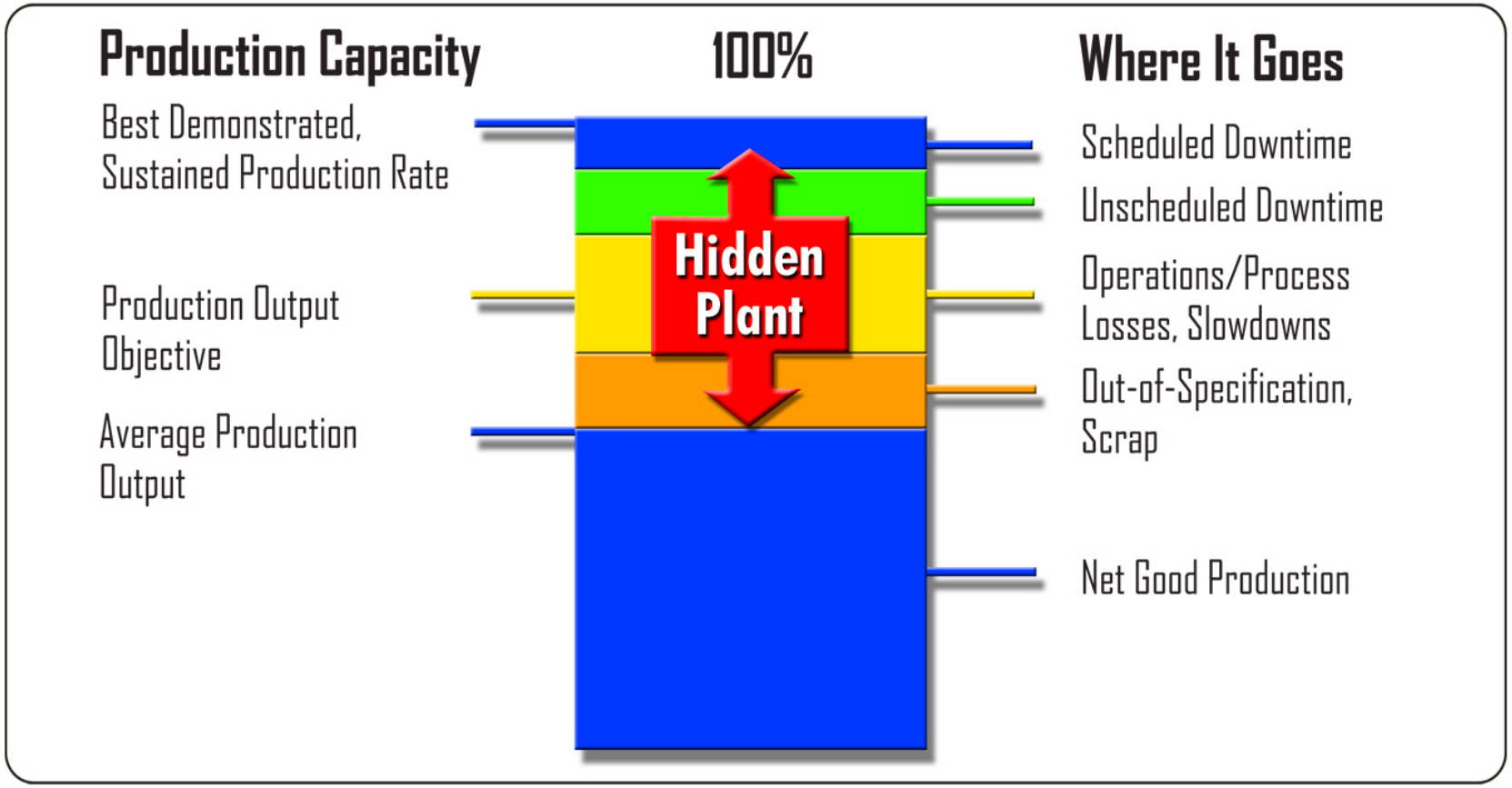
How Lower Quartile Performers Deal With Business Cycles



Option 1 - Plant Expansion

- Heavy front-end cost
- Long lag between decision and implementation
- Increases RAV - and overhead
- Reduces RONA during industry down-cycle
- Doesn't require business process/cultural change.

Hunt for Profit in Your Hidden Plant



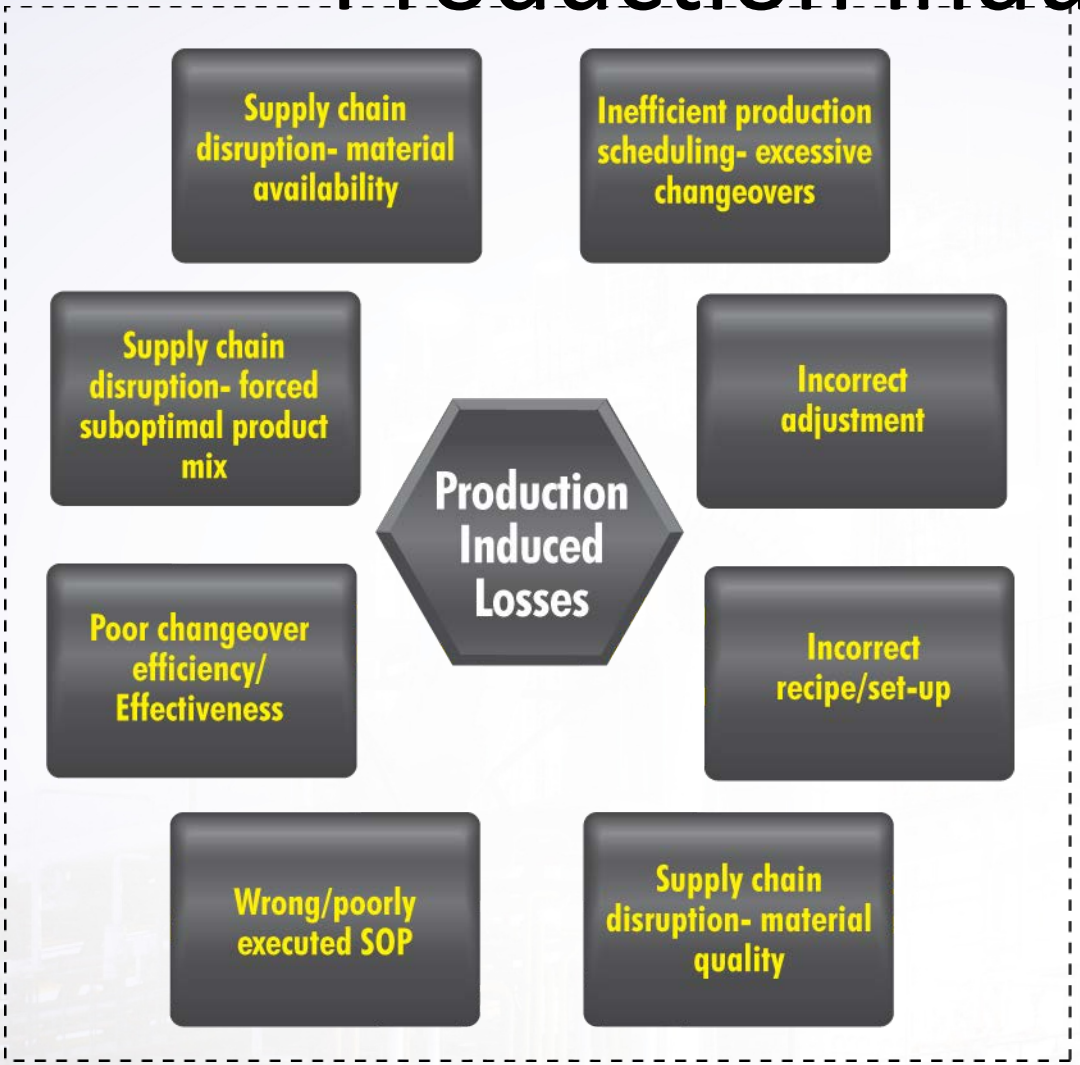
Ref: Mitchell, DT, JCF

Marketing Induced Losses

Generally Speaking:

- Failure to design for flexibility and capability
- Unsold capacity
- Selling beyond the capabilities of the manufacturing processes

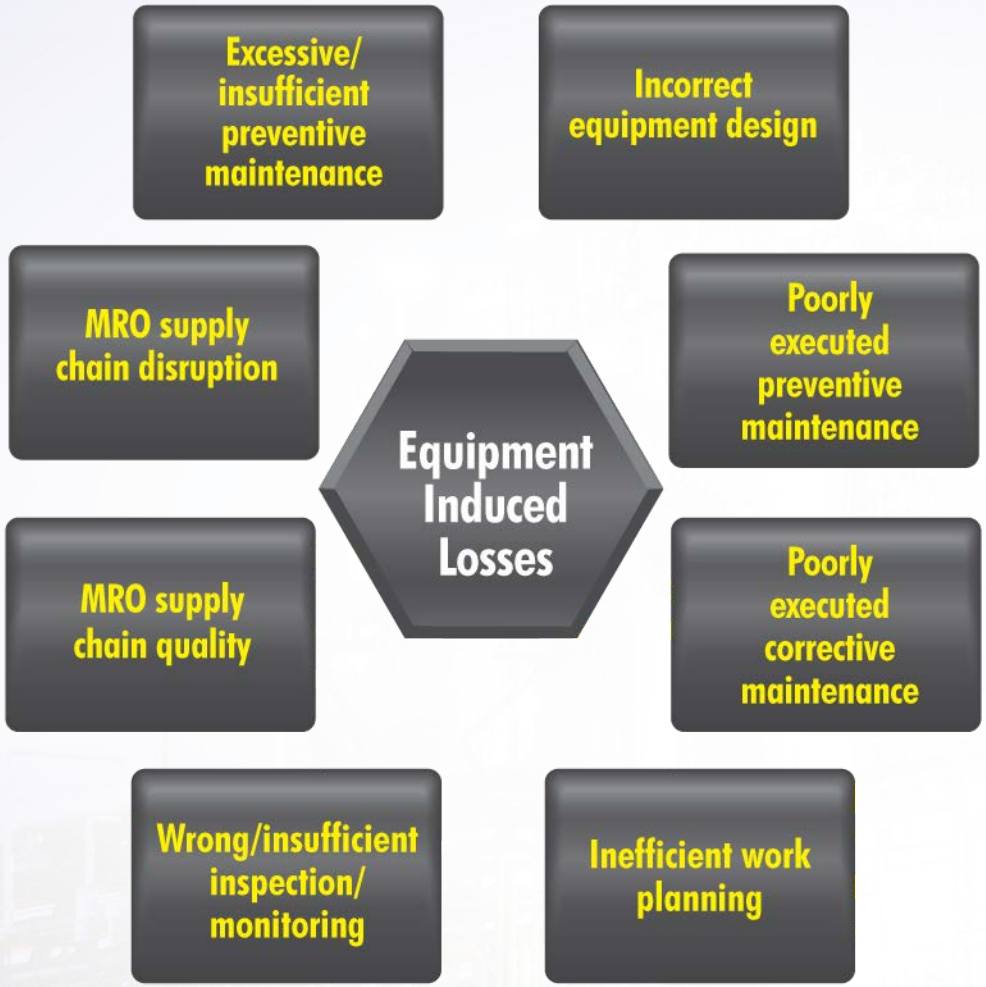
Production Induced Losses



Generally Speaking:

- Failure to design for flexibility, operability
- Poor control over standard operations
- Poor changeover control
- Poor supply chain dependability

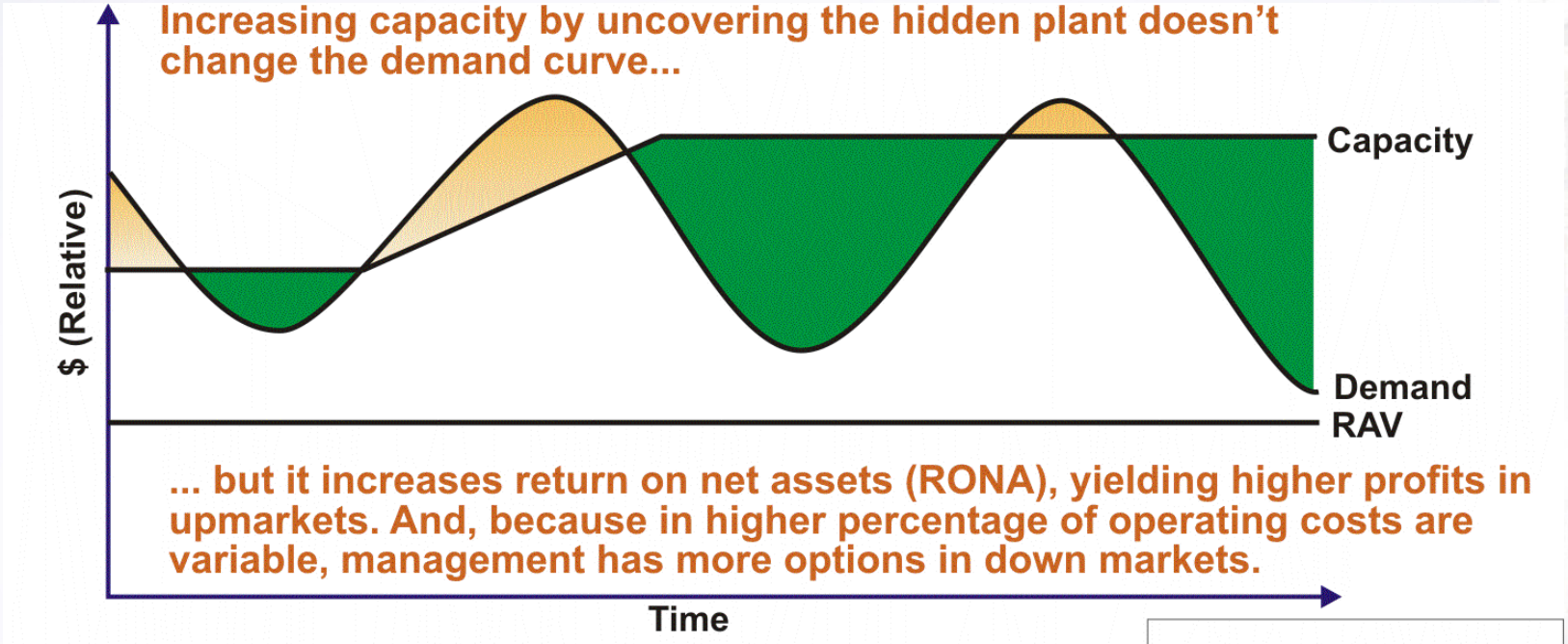
Equipment Induced Losses



Generally Speaking:

- Failure to design for reliability, maintainability and supportability
- Poor control over preventive maintenance
- Poor control over corrective maintenance
- Poor control over work management

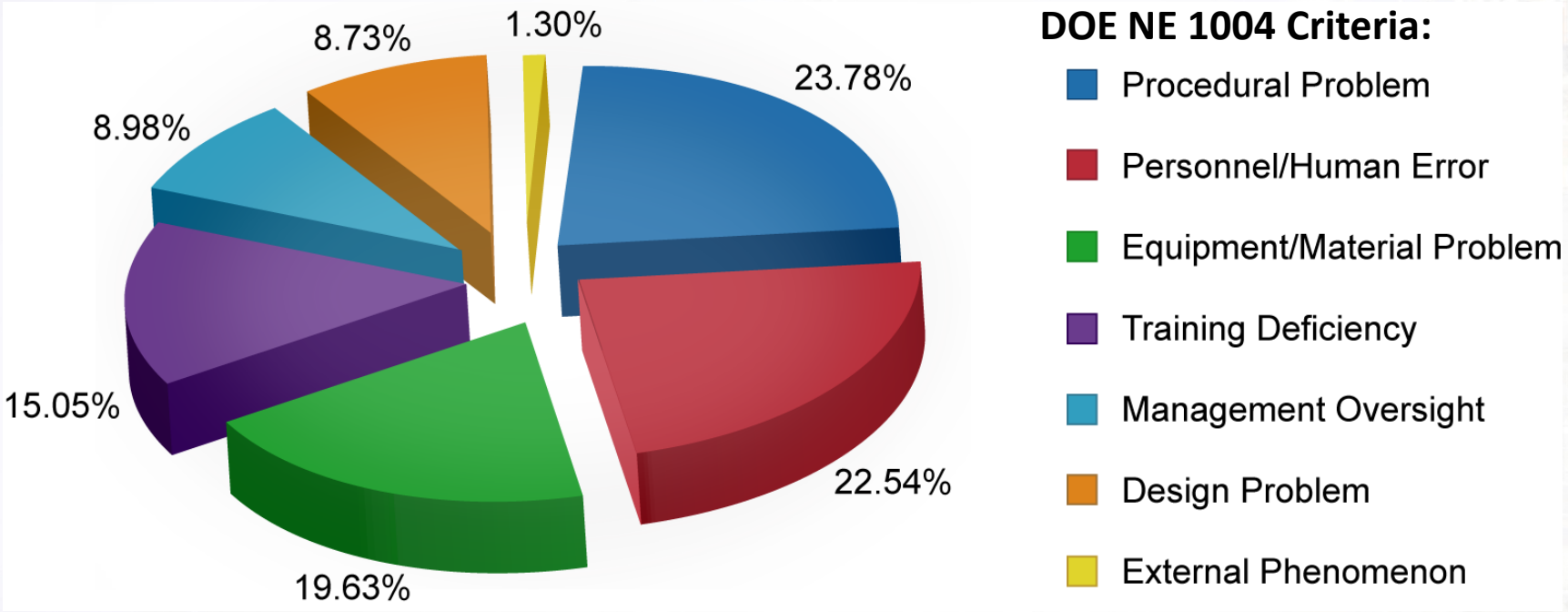
How Upper Quartile Performers Deal With Business Cycles



Option 2 - Uncover the hidden plant

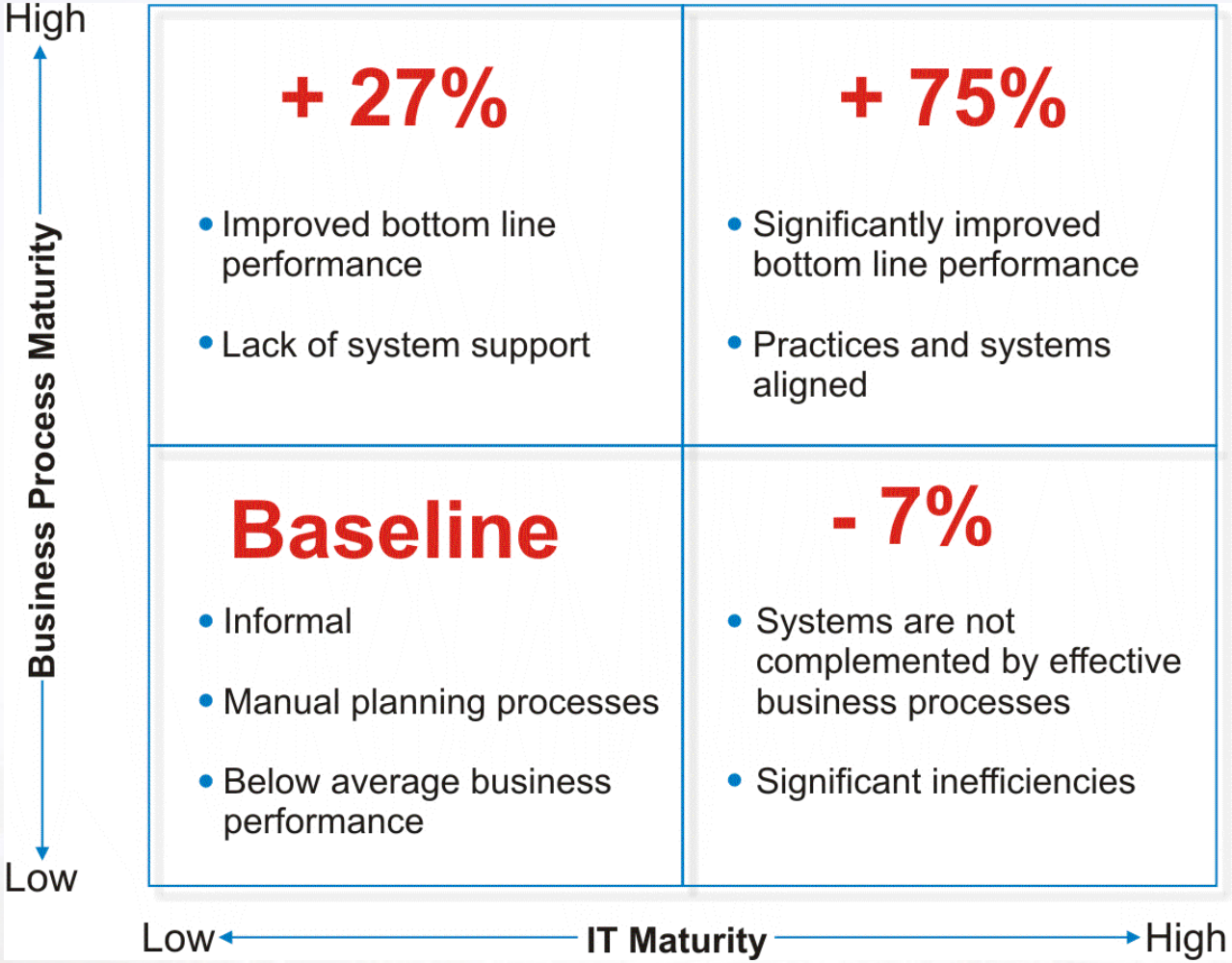
- Usually lower front end cost
- Often shorter lag between decision and implementation
- Minimizes overhead-lean operation
- Protects RONA during industry down-cycle
- Requires business process/ cultural change

My Own Research About What Goes Wrong in the Plant



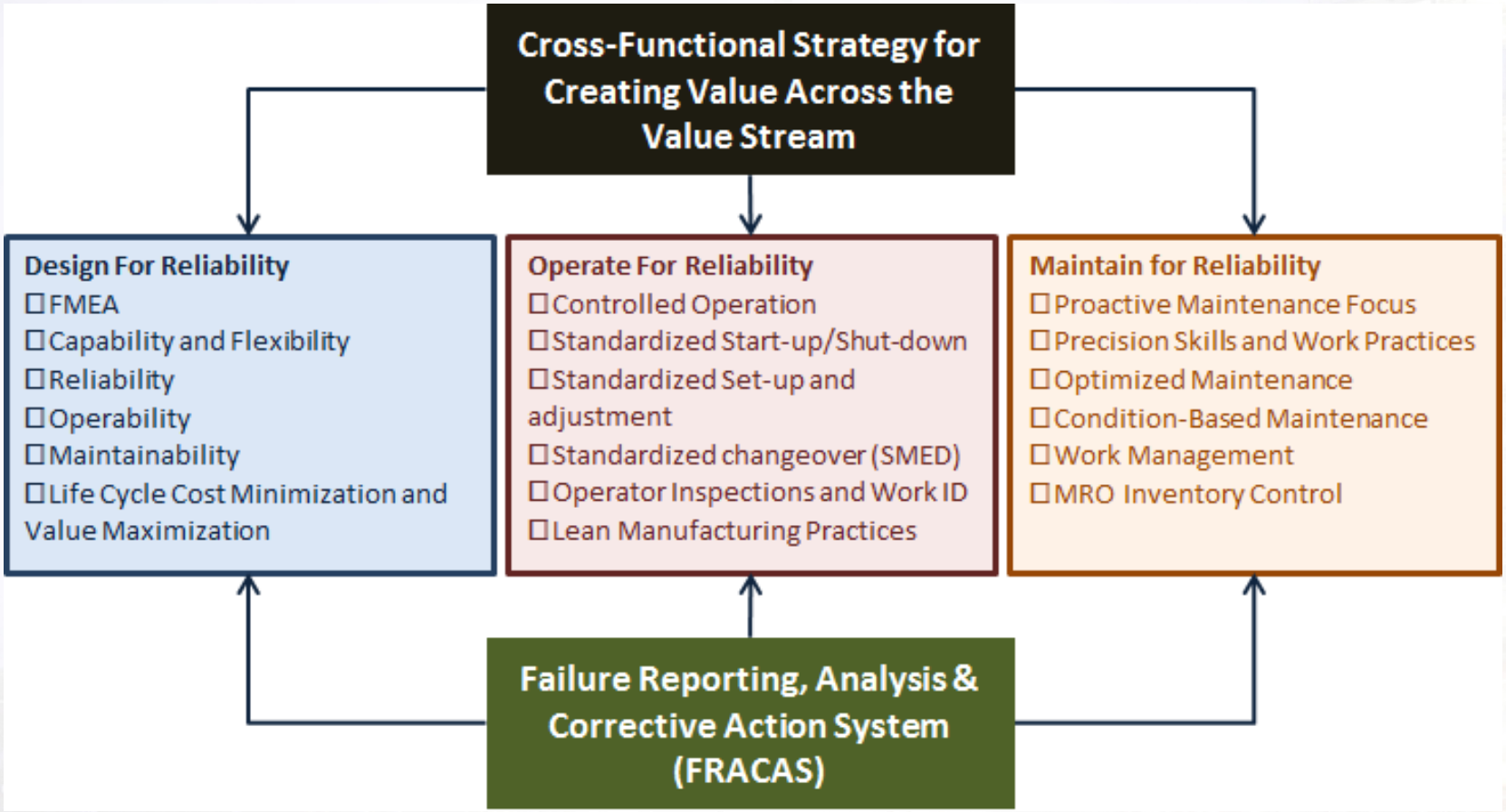
Ref: DT

You Can't Just Buy Reliability…
You Must Reengineer - Supply Chain Management Example

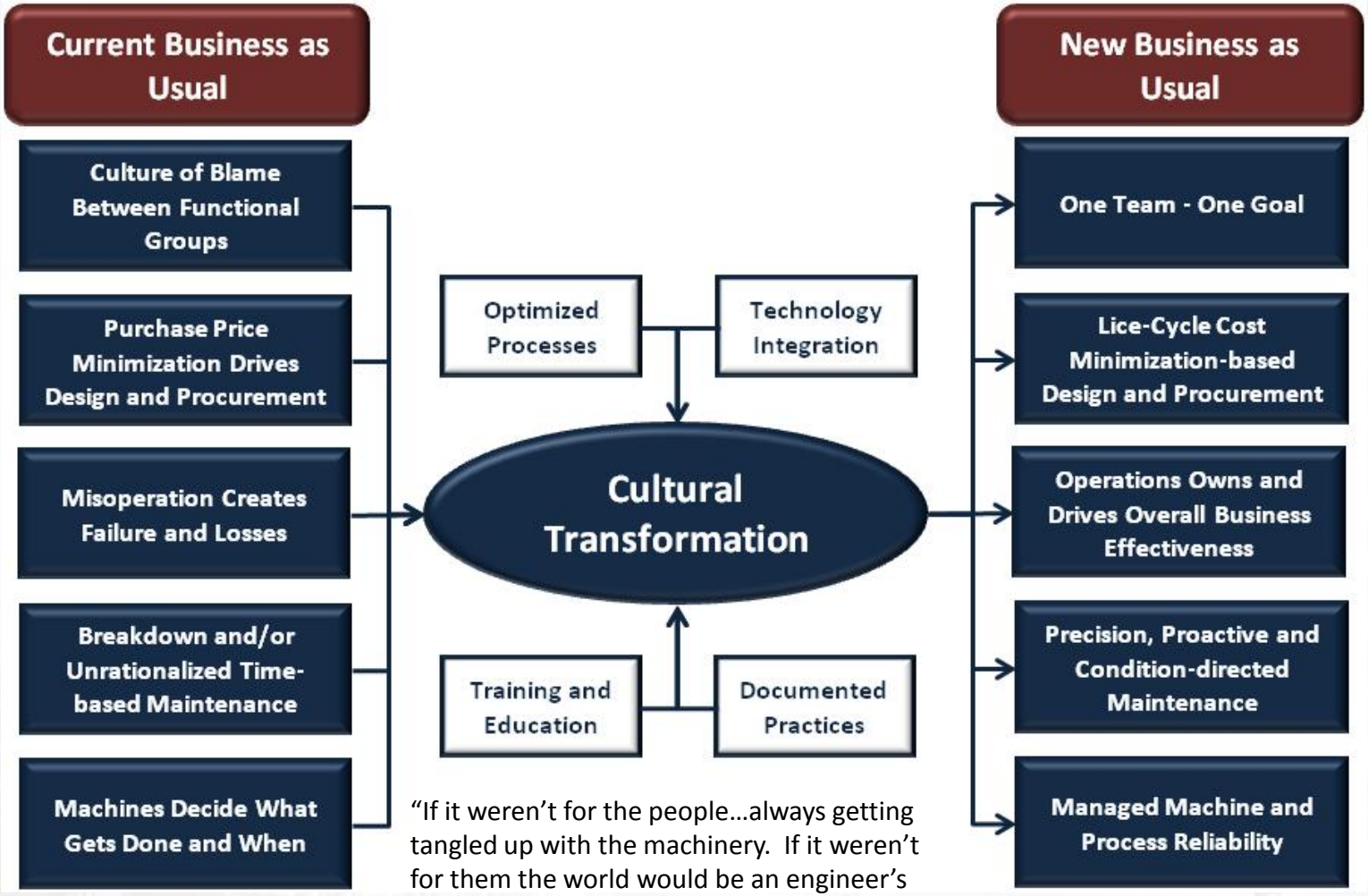


1965 Ref: Brynjolfsson (MIT), Wireman, DT

EAM Functional Activities



Creating a New Business as Usual



"If it weren't for the people…always getting tangled up with the machinery. If it weren't for them the world would be an engineer's paradise."

Kurt Vonnegut

Ref: DT

Conclusions

- There are measurable differences between upper and lower quartile equipment asset managers
- These differences translate into better P&L performance and a leaner balance sheet – both drive RONA
- When used as a competitive advantage, upper quartile performers can opportunistically manage down markets, while their competitors scramble and react.
- Leveraging equipment asset management as a competitive advantage requires a top to bottom organizational culture change.

Thank You!

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