



Linking Lean & Quality Systems With Business Strategies (via Hoshin Kanri)

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**FOUR (4) Time AME Manufacturing Excellence Site Winner
2018 Industry Week Manufacturing Plant of the Year**





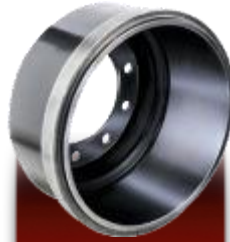
Accuride Wheel End Products



Steel
Wheels



Aluminum
Wheels



Brake
Drums



Disc
Wheel
Hubs



Slack
Adjusters



Rotors
& Spoke
Wheels

Heavy-Duty Truck
(Class 8)

Medium-Duty Truck
(Class 5-7)

Trailer

Light Truck
(Class 3-4)





Learning Objectives

Across this time we will...

- Tactically apply Define, Measure, Analyze, Improve and Control (DMAIC) to link Lean Management System (LMS) strategies to that of the organization via Hoshin Kanri
- See how this lean tool can be applied to any business
- Increase your understanding and ability to **create waves of excellence and engage** yourself in the development, management and execution of a strategic plan



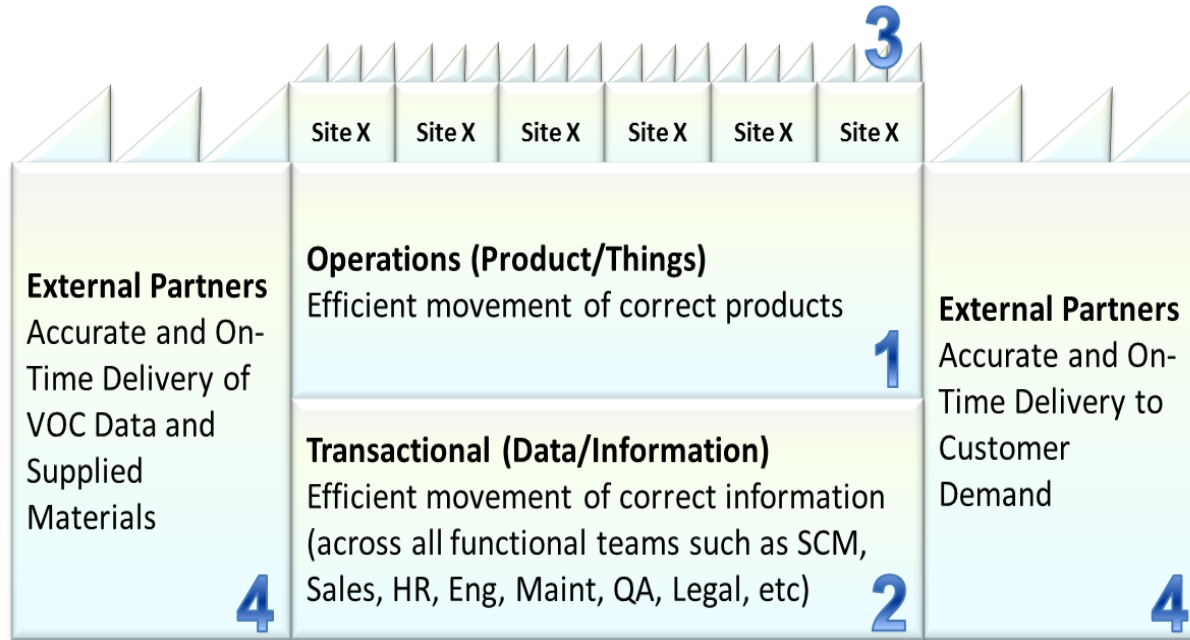
A Definition of Lean



Lean is *FLOW* through pull. It uses an enterprise-wide set of concepts and tools. Lean strengthens an organization's competitive advantage realized from operating its processes



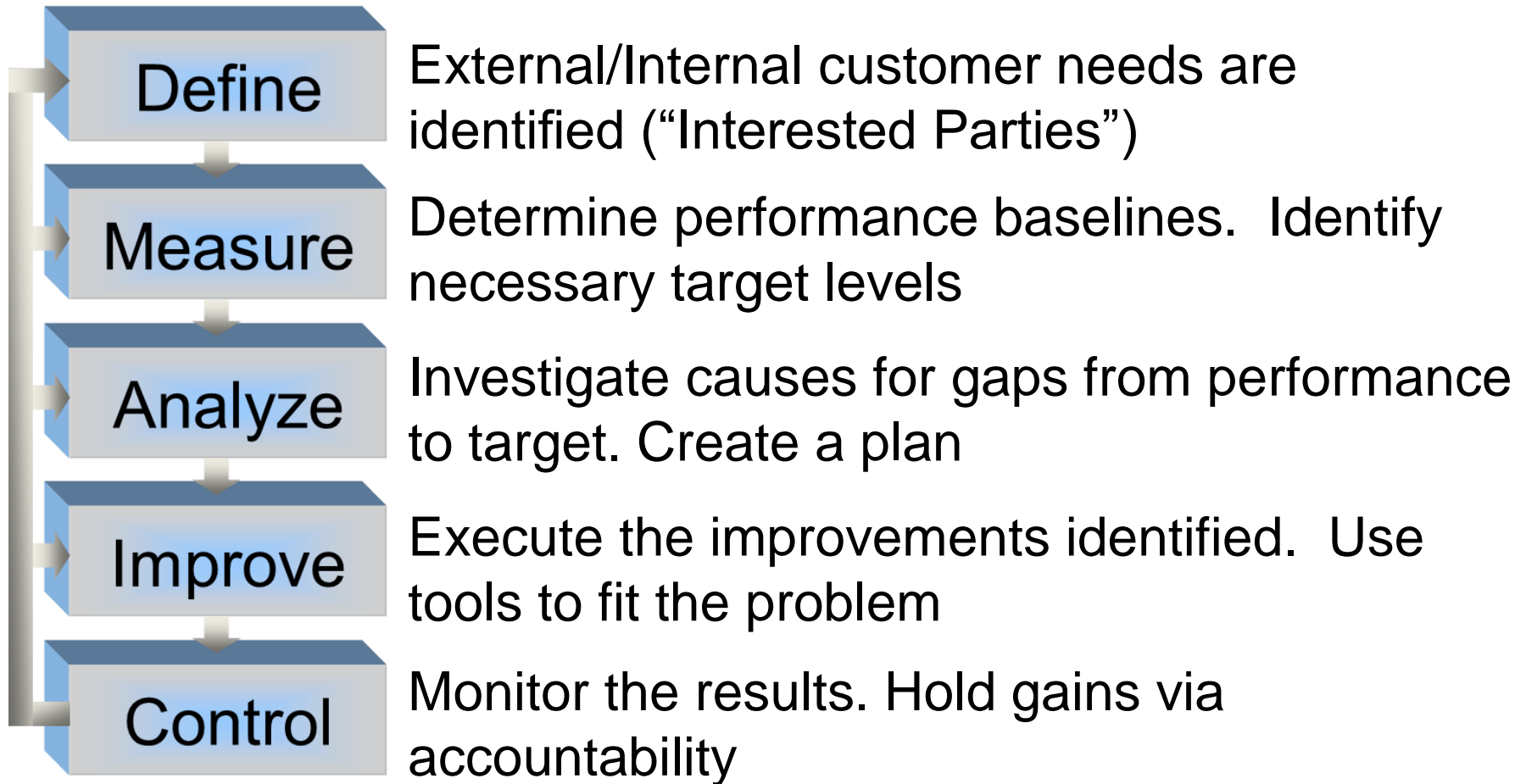
Elements for Lean Success



1. Lean “Operations”. Effective, Efficient flow of **Product**
2. Transactional systems: Effective, Efficient flow of **Data/Information**
3. Align Product & Transactional Value Streams across the **Enterprise**
4. Incorporate **External Partners**: Customers, Supply Chain, Contract Services, etc



Lean & DMAIC: *Strategically*





Define



The “X-Matrix”

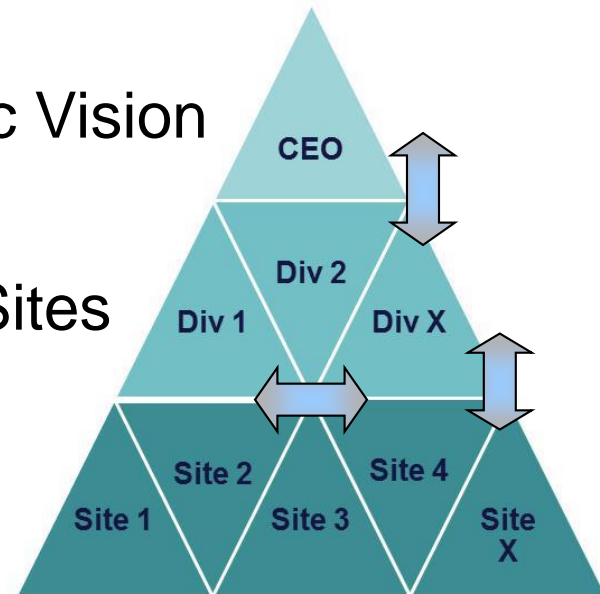
A Process to convert *Strategy* to *Reality* by using both horizontal and vertical alignment in the organization

CEO’s 3-5 year Strategic Vision

Planning across Division(s).

Vertically supports CEO and Sites

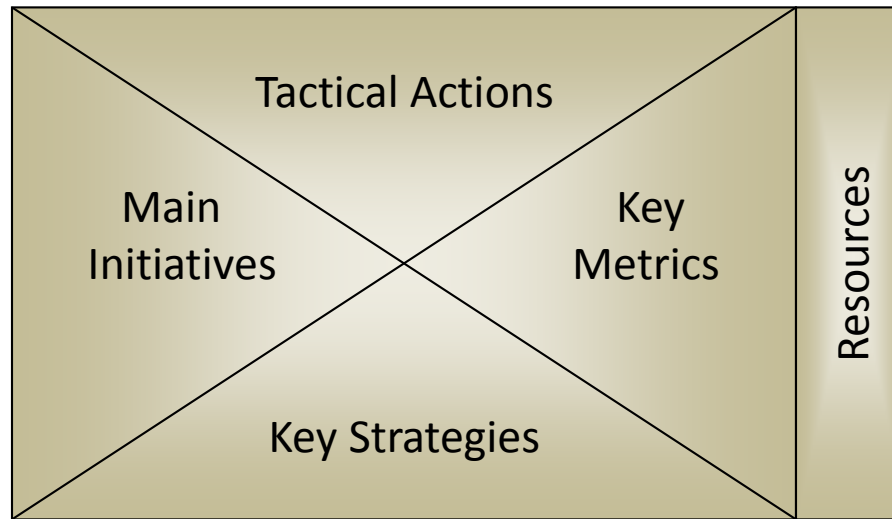
Site planning. One year tactics to support and execute the strategy



aka...Hoshin Kanri



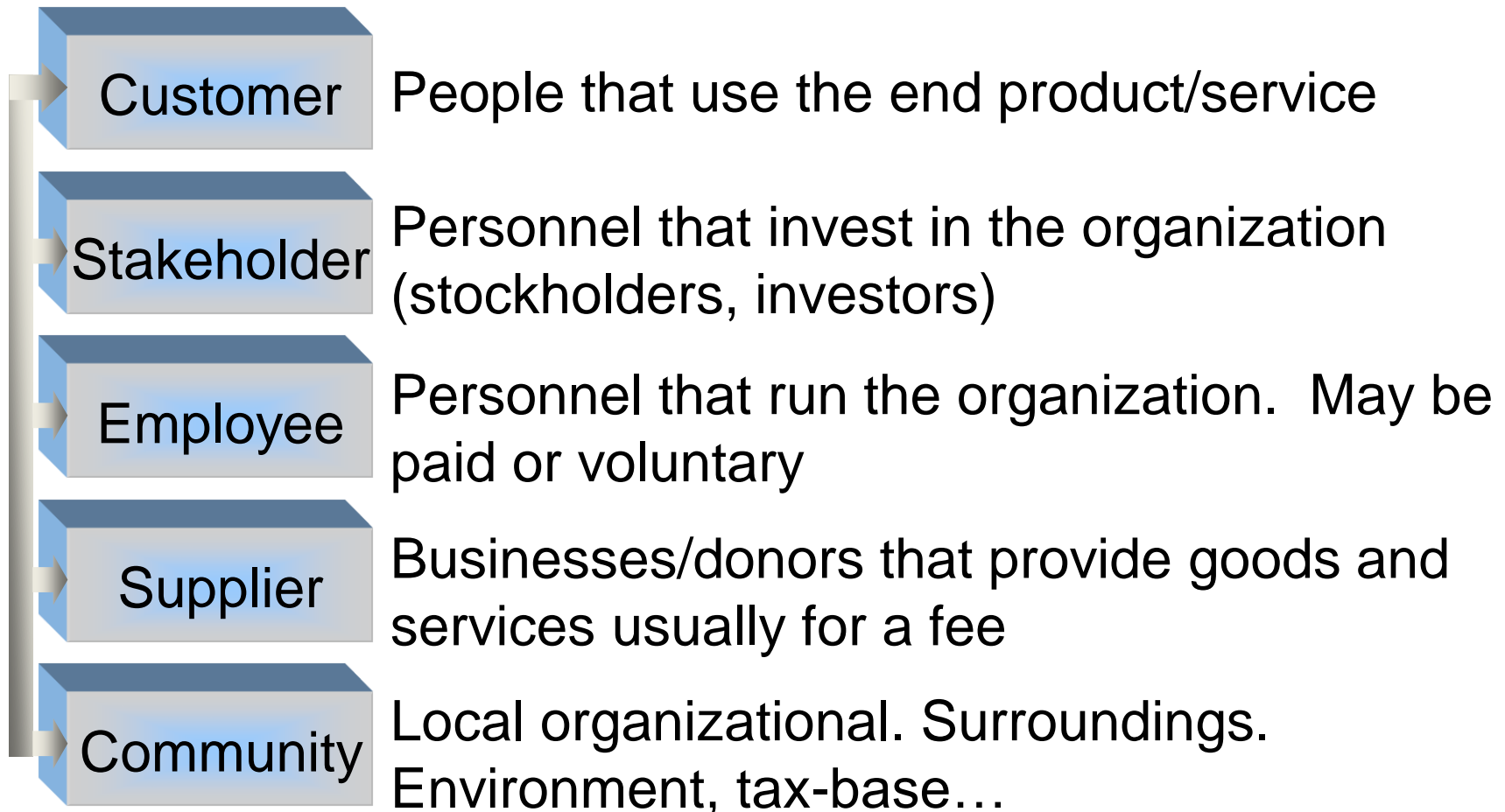
Sample “X-Matrix” Format



- Bottom: Key strategies. Use a “SMART” format
- Left: Initiatives on HOW to achieve the objectives
- Top: TACTICAL actions to execute the initiatives
- Right: Key METRICS used to monitor results
- Far Right: WHO has line item responsibility

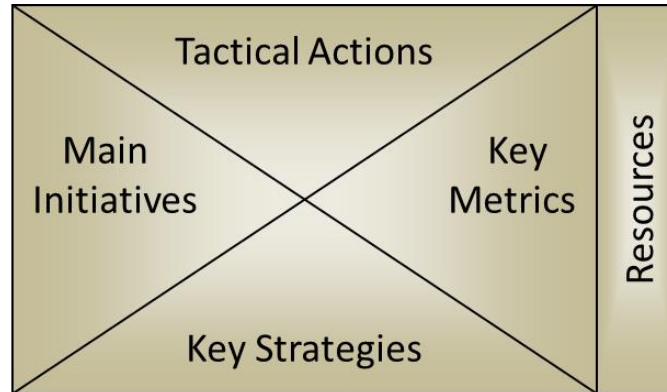


Strategies For “Interested Parties^{*}”





Sample Strategies



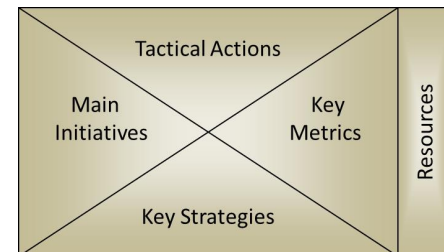
Customer	QCD: Quality (PPM), Cost (CI), Delivery (OTD)
Stakeholder	Margin, Revenue, Cash Conversion, Growth
Employee	Engagement, Turnover, Satisfaction, EHS
Supplier	QCD, Growth
Community	Social Responsibility, Compliance, EHS



X-Matrix Worksheet

Key Strategy Samples...

1. *Increase margin by 5% by 4Q*
2. Increase sales revenue by 10% by 4Q
3. Increase organic growth by 5% by 4Q (existing business)
4. Increase inorganic growth by 5% by 4Q (new products)
5. Increase New Produce Introduction (NPI) rate by 10% by 4Q
6. Grow market share from 15% to 20% by 4Q
7. Reduce warranty expenses by 25% by 4Q
8. Reduce internal rejects by 25% by 4Q
9. Reduce lead time from 7 days to 5 days by 4Q
10. Reduce supplier reject rate by 50% (20K DPPM to 10K)
11. Improve customer satisfaction score by 20% by 4Q
12. Reduce recordable safely incidents by 50% by 4Q
13. Increase employee morale by 10% by 4Q





X-Matrix Worksheet

Identify the top 1-3 ways of HOW you will attain the strategy

Identify the top 1-3 tactical plans to achieve the initiative

Main 1-3 Tactical Plans

1.1a _____

 1.1b _____

 1.1c _____

What are the key metrics?

Key Input Metrics

1.1a _____

 1.1b _____

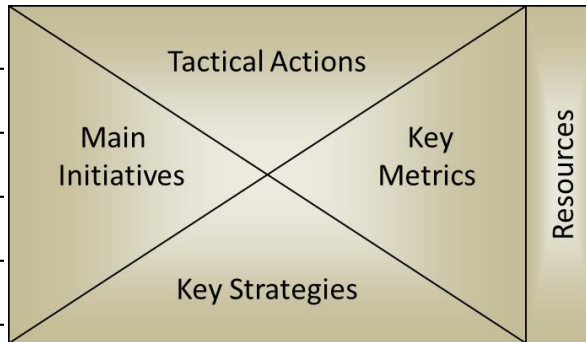
 1.1c _____

Main 1-3 Initiatives

1.1 _____

 1.2 _____

 1.3 _____



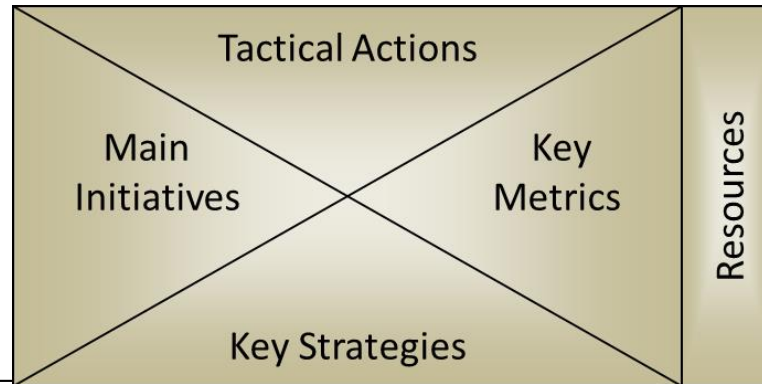
Key Strategy/Performance Goal (SMART)

1 _____

Write a sample Key Objective



Define “SMART” Strategies



Select your strategy

Key Strategy/Performance Goal (SMART)

1 _____

~6-8 Key Strategies

- Improve Margin by 5% points by 4Q. Increase of \$250K

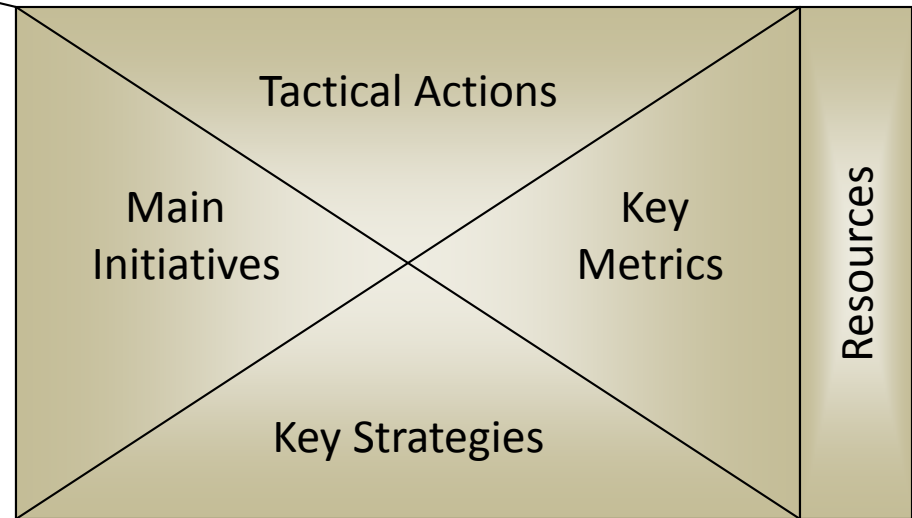
While developing the Key Strategies, multiple tools may be used such as SWOT, VOC, etc. Consider a “multi-customer” approach to support organizational robustness



Develop Initiatives

~1-3 Main Initiatives per Strategy

- Reduce Warranty losses. \$150K
- Reorganize Product Portfolios \$100K



Identify 2-3 Initiatives

Main 1-3 Initiatives	
1.1	_____
1.2	_____
1.3	_____

Improve Margin by 5% points by 4Q. Increase of \$250K

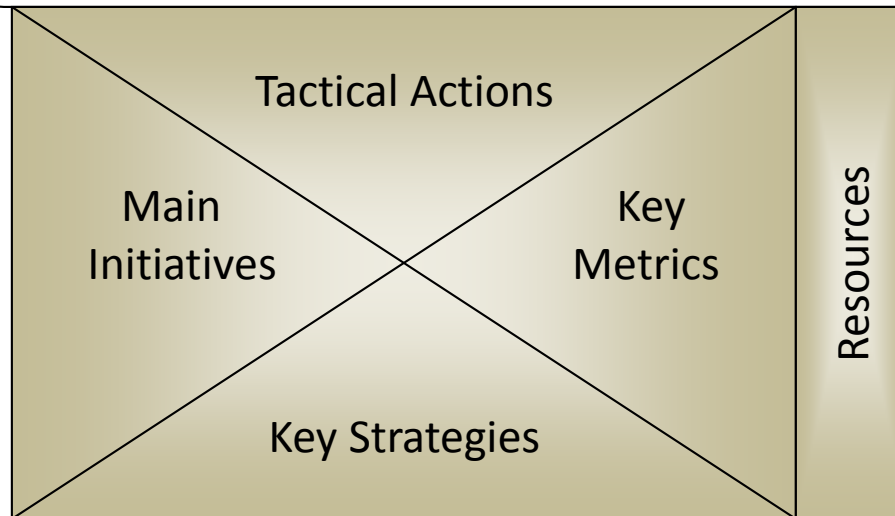


Develop Tactics

~1-3 Tactical Plans per Initiative

- Implement Warranty Team. Conduct CA/PA.
- Conduct FMEA/CP Reviews on loss leaders
- Conduct VSM on Portfolio. Rationalize

- Reorganize Product Portfolios \$100K
- Reduce Warranty losses. \$150K



Create 1-3 Tactics

Main 1-3 Tactical Plans	
1.1a	_____
1.1b	_____
1.1c	_____

Improve Margin by 5% points by 4Q: Increase of \$250K



Leading & Lagging KPIs

Lagging KPIs are usually results to upper management. Work to identify and manage leading KPIs that will affect these results



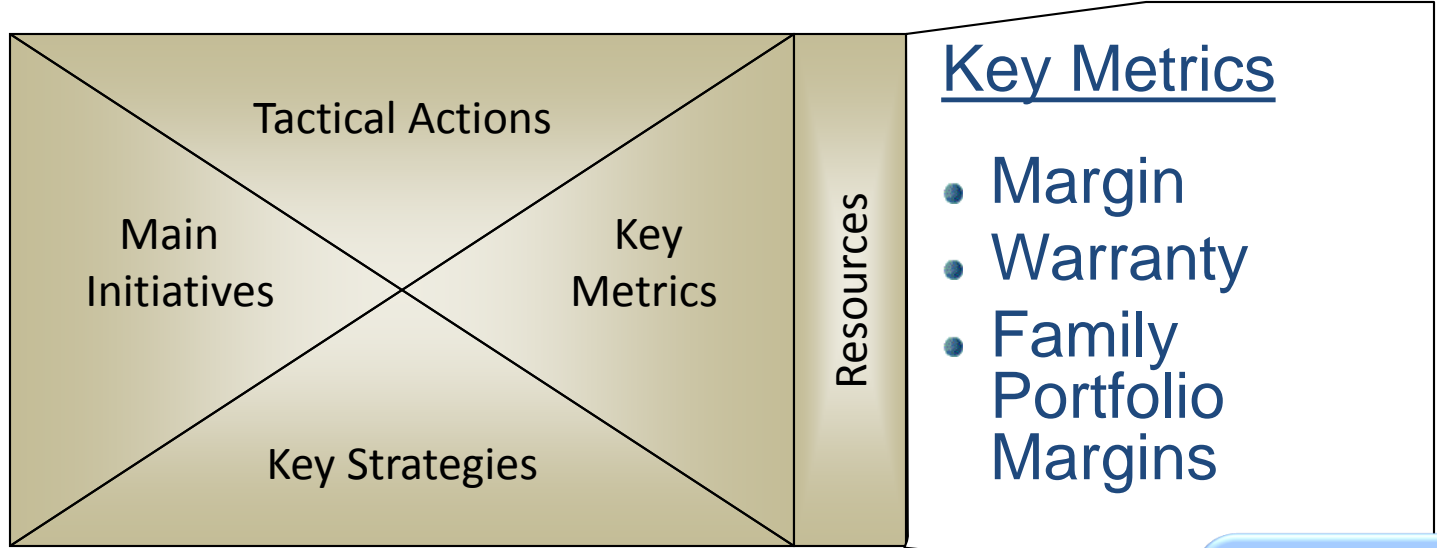
Sample Leading KPIs	Sample Lagging KPIs			
	OTD	PPM	COPQ	\$Conversion
OEE: Operational Equipment Effectiveness	+	+	+	+
RTY: Rolled Throughput Yield	+	+	+	+
%Cpk: Processes Capable of Meeting ≥ 1.33	+	+	+	+
MTBF: Mean Time Between Failure	+		+	+
C/A %Repeat: Repeating Complaints		+	+	
Training Depth: Personnel Skill Levels		+	+	
Linearity: Production Schedule Attainment	+		+	+
C/A TTC: Time to Close Corrective Actions		+	+	+



Develop Metrics

- Implement Warranty Team. Conduct CA/PA Who: Joe
- Conduct FMEA/CP Reviews on loss leaders Who: Tom
- Conduct VSM on Portfolio. Rationalize Who: Sue

- Reduce Warranty losses. \$150K
- Reorganize Product Portfolios \$100K



Improve Margin by 5% points by 4Q: Increase of \$250K

Identify KPIs

Key Input Metrics	
1.1a	_____
1.1b	_____
1.1c	_____



“X-Matrix” How It Looks

X-Matrix: Organization, Year

	●		1.2a Conduct Portfolio Analysis. Rationalize			●		●				●
		●	1.1b Conduct FMEA/CP Reviews on loss leaders			●	●	●		●		
		●	1.1a Implement Warranty Team. Conduct CA/PA			●	●	●	●			
	1.2 Reorganize Product Portfolios. \$100K	1.1 Reduce Warranty Losses. \$150K	<p style="text-align: center;">Key Tactics "HOW 2"</p> <p style="text-align: center;">Main Initiatives "HOW 1"</p> <p style="text-align: center;">Key Objectives "WHAT"</p> <p style="text-align: center;">Key Metrics "BSC"</p>	Margin	Warranty	Portfolio Margin	Joe	Tom	Sue			
	●	●	1 Improve Margin by 5% Points			●	●	●				Resources
	←		2 xxx									● Primary ○ Support



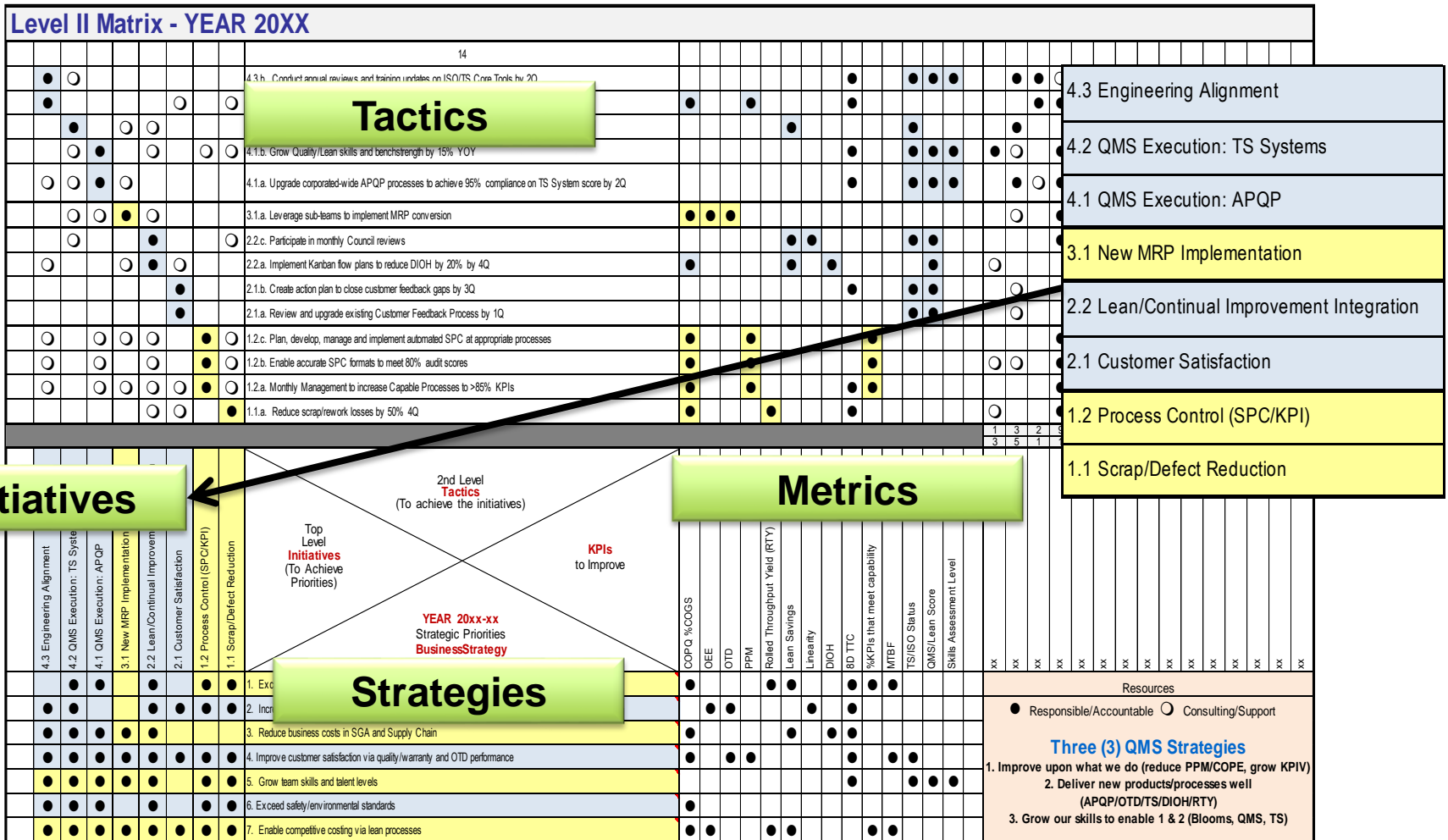
ASQ QMD Result

- Largest quality professional organization in the world at > 21,000 global members
- Largest division in ASQ of >70,000 global members
- Most touch points (member-valued interactions) of any division at >30/year

A Non-Profit Organization

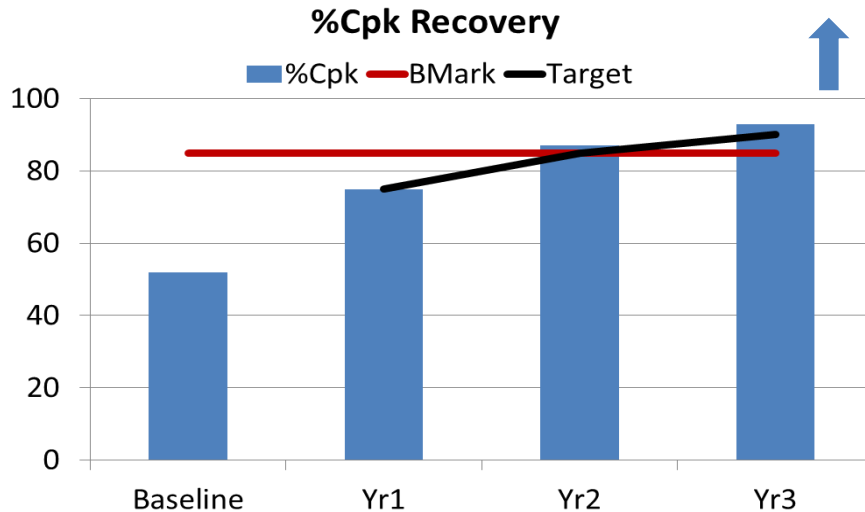


A For-Profit X-Matrix Sample

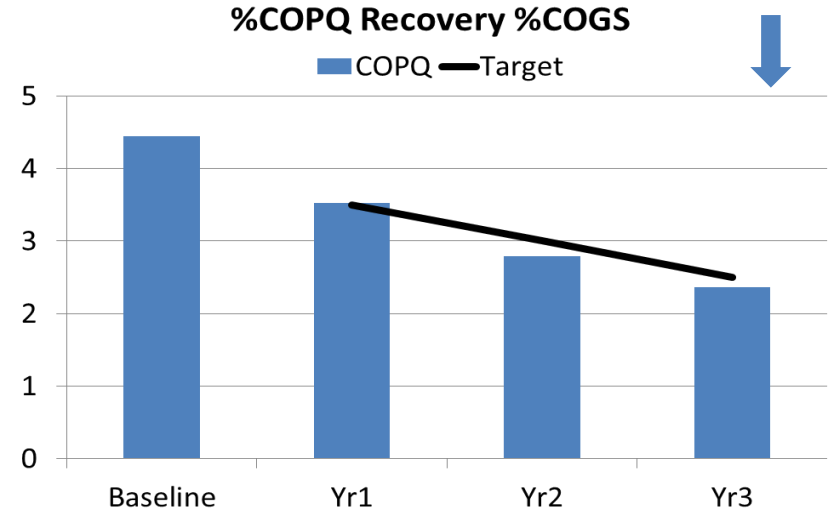




It Must Be Right For It To Flow



Worldclass Cpk Performance



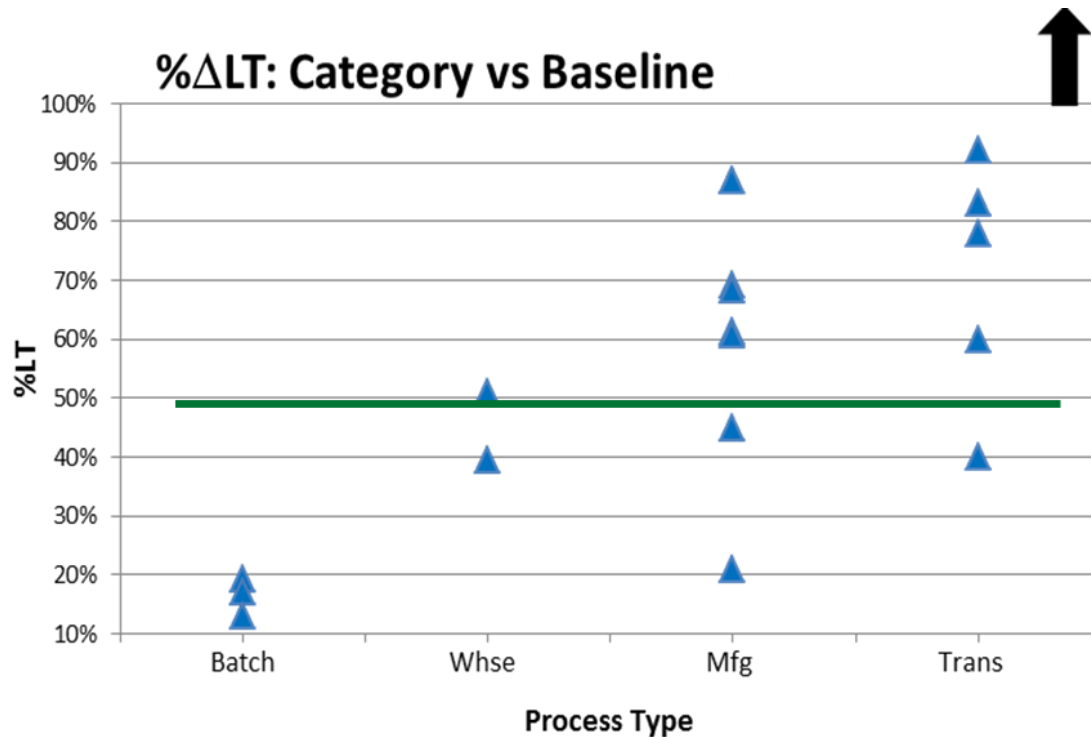
Continued YOY COPQ Reduction

Leverage a three-point QLMS strategy:

1. Correct issues that are causing losses. %Cpk/COPQ focus
2. Design/Develop new products (NPI) and processes so that new issues are not “released” causing business losses. DFSS
3. Effectively train personnel in two skill sets: A. Corrective Action and B. Preventive, Risk-Based Thinking (RBT)



Flow Means “Go” 50-50-20



Observation:
The more complex the process, the more LT was reduced

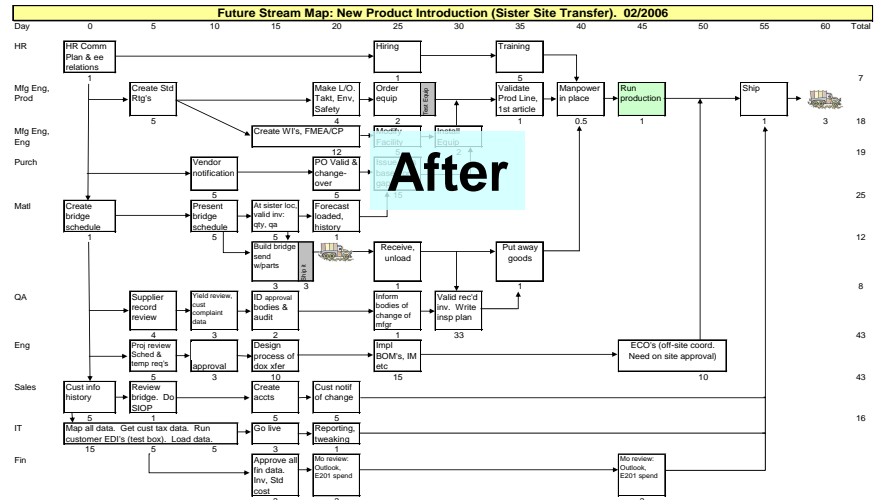
- An average reduction of **50% LT** had much less working capital
- Enabling the average **Productivity** to increase by **50%**
- And the average **CPU** to be lowered by more than **20%**



Sample VSM: NPI



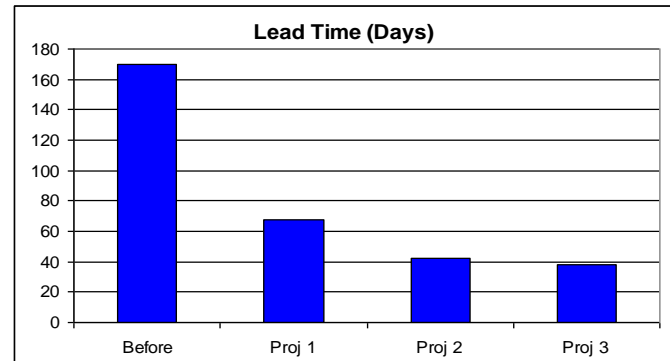
← 170 Days →



Initiative: Reduce New Product Introduction Lead Time

Action: Conduct value stream map review. Implement fixes

Results: 70% Lead time reduction.
Team able to increase NPI output





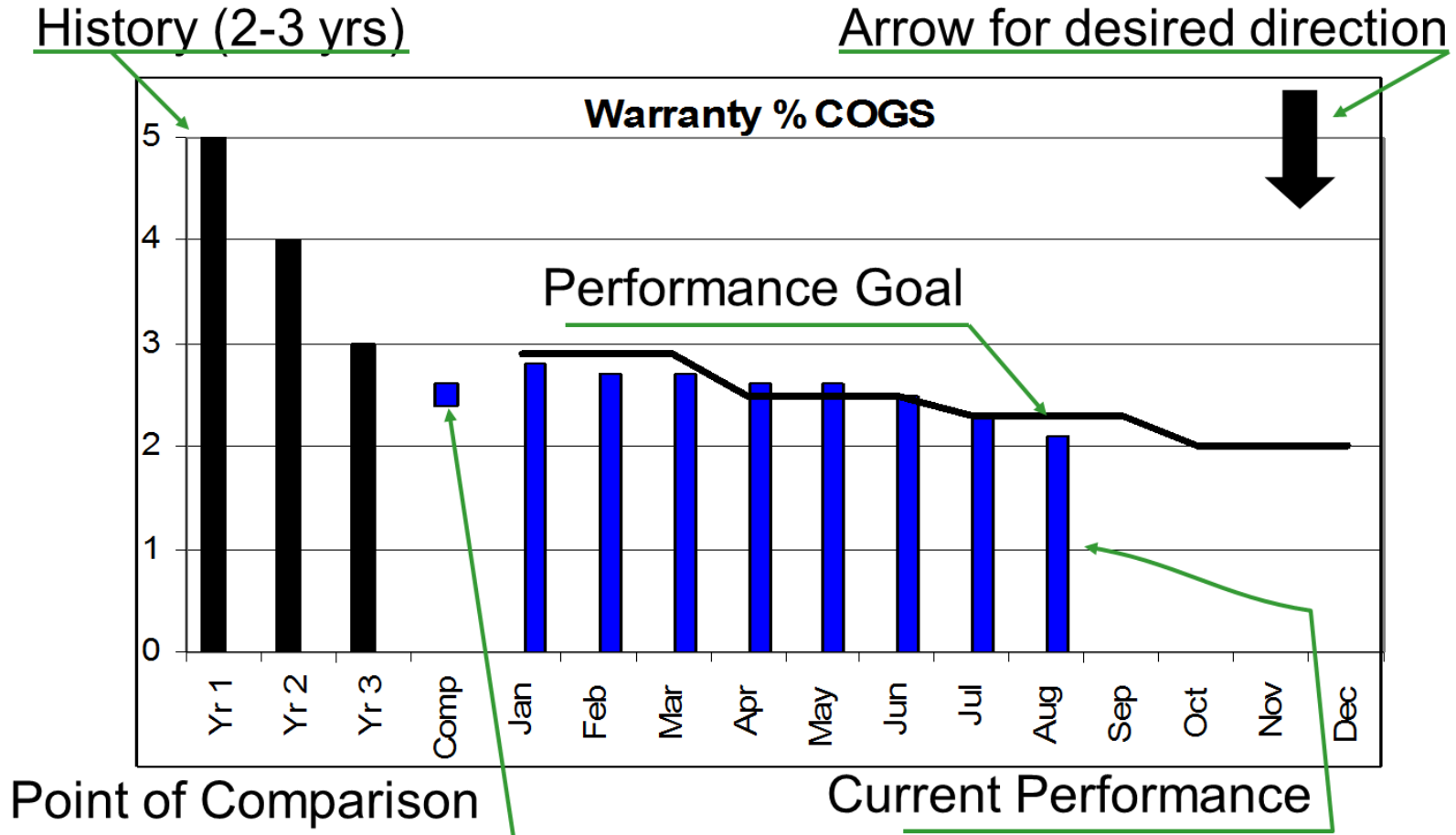
Measure

What gets measured gets done.

Don't know who said it, it works...



Sample BSC Format





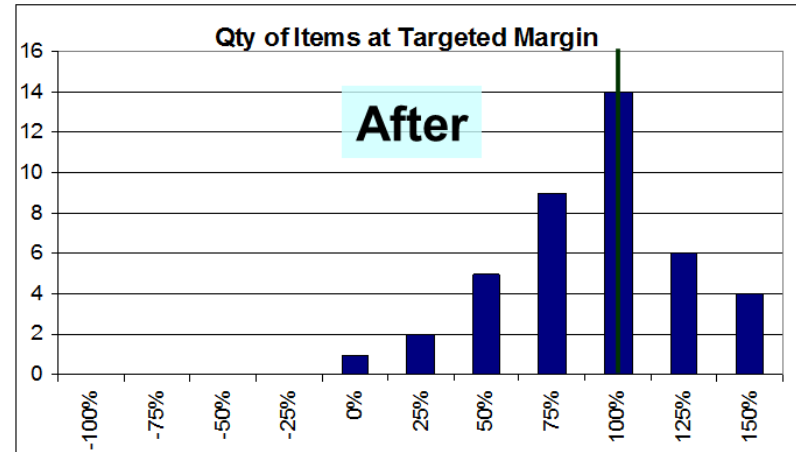
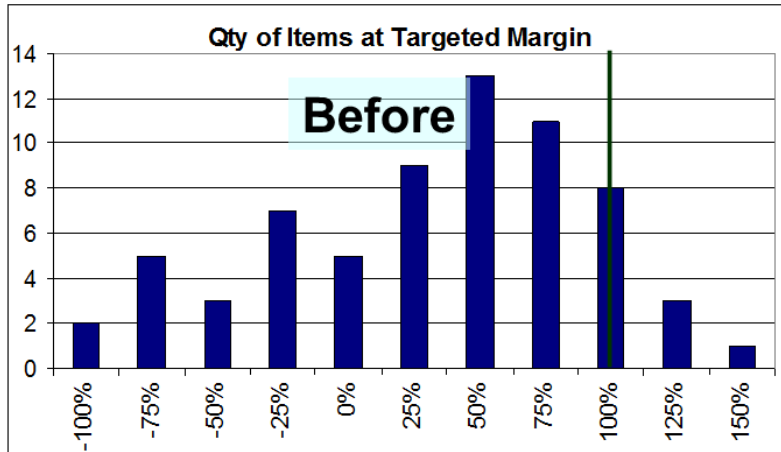
Analyze

To know and not to do is not to know.

Chinese Proverb



Product Portfolio...5% Margin

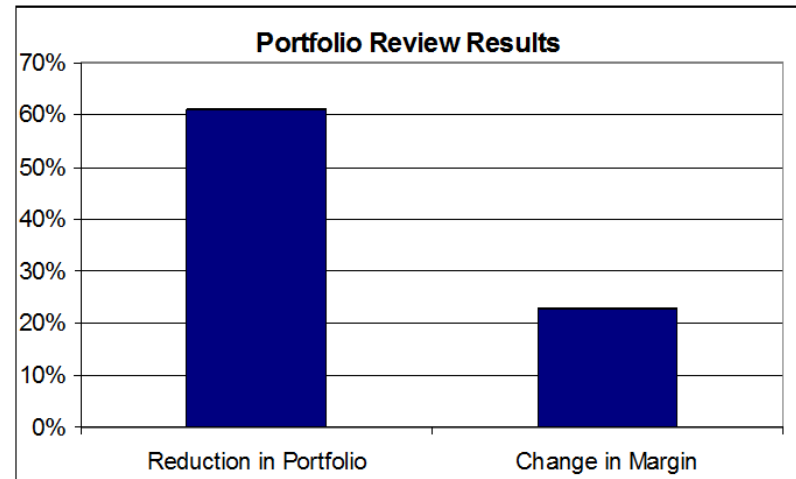


Ex: If targeted margin is 5%, then 8+ Items were meeting the 5% objective before and 14+ were meeting the objective after

Initiative: Improve margin by 5%

Action: Conduct VSM review on portfolio mix. Rationalize products. Continue to prune

Results: 22% Improvement in margin base





Improve

Even if you're on the right track, you'll still get run over if you just sit there.

Will Rogers



Leveraging the X-Matrix (HK)

Hoshin Kanri is not the same as Management by Objective (MBO)

Source: Toyota Culture – Jeffrey Liker and Michael Hoseus (2008)

Management by Objective (MBO)	X-Matrix (Hoshin Kanri)
Results-oriented evaluation of effort	Concerned with both results and process of getting those results
Top-down communication	Top-down direction setting and bottom-up flow of information and means
Directive	Participative
Linear (no feedback, no second chance, just start over from scratch each time)	Circular (adds feedback loops (aka Catchball) and cycles of improvement)



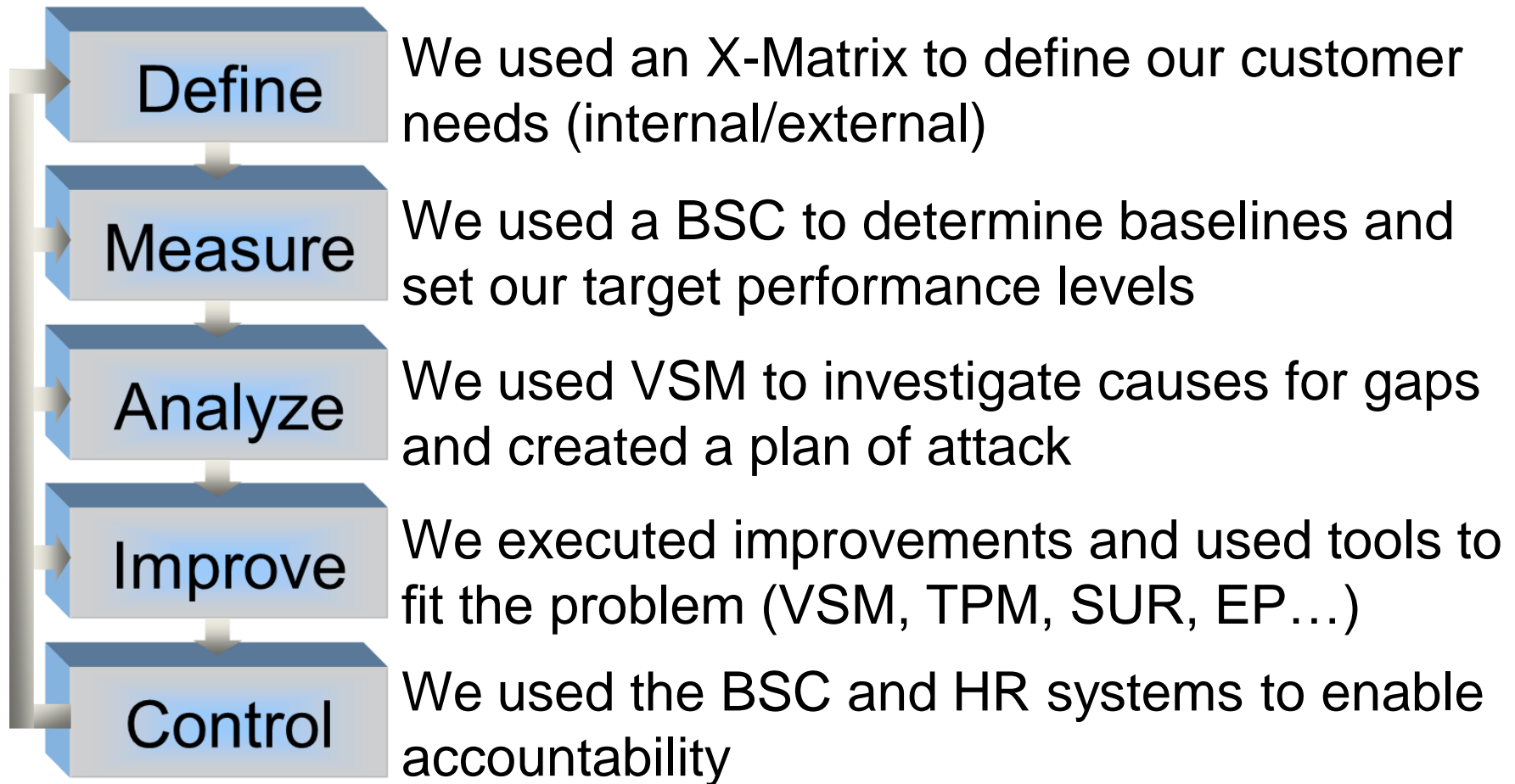
Control

There is nothing as useless as doing something efficiently that which should not be done at all...

Peter Drucker



We Strategically Applied DMAIC...





What's Next? *Create Waves of Excellence...* Get Engaged

- Learn your organization's strategies
- Match those strategies to your objectives
- If they don't match, adjust accordingly
- Share how YOU and your TEAM are making a contributory difference to enabling the strategies to occur
- Demonstrate YOUR relevance!



Thank You!

Your opinion is important to us!

Please take a moment to complete the survey using the conference mobile app.

**Session No: ThS/44
Linking Quality & Lean Systems
with Strategic Plans**

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Sources/Ideas

There are hundreds of excellent books/tools/sites, etc. Here are few that I have used as recent references:

- Accuride Corporation. Lean Management 50-50-20. Marhevko, Srivastava, Blair
- ASQ Quality Management Division. ASQ-QM.org.
- ASQ.org
- AME.org
- Lean Enterprise Institute (LEI) at Lean.org
- Superfactory.com
- Hoshin Kanri for the Lean Enterprise. Developing Competitive Capabilities and Managing Profit. Thomas L. Jackson
- The Lean Pocket Guide: National Association of Job Shops and Small Manufacturers (NAJS)
- From Good to Great. Jim Collins
- The Tipping Point. How Little Things can make a big Difference. Malcolm Gladwell
- Blink. The Power of Thinking without Thinking. Malcolm Gladwell
- Toyota Production System. Beyond Large Scale Production. Taichii Ohno
- The Toyota Way. Jeffrey Liker
- The Executive Guide to Understanding and Implementing the Baldrige Criteria. Leonard & McGuire
- The Executive Guide to Understanding and Implementing Lean Six Sigma. Meisel, Babb, Marsh, Schlichting