

Linking Lean with Business Strategy (via Hoshin Kanri)

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FOUR (4) Time AME Manufacturing Excellence Site Winner

ASQ Fellow, Shainin Medalist, CSSBB, CMQ/OE, CQE
Past-Chair ASQ QMD, NAM: STEP Ahead Awardee, MBB



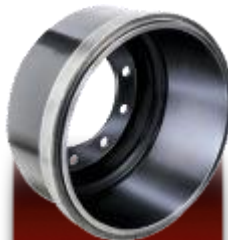
Accuride Wheel End Products



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...

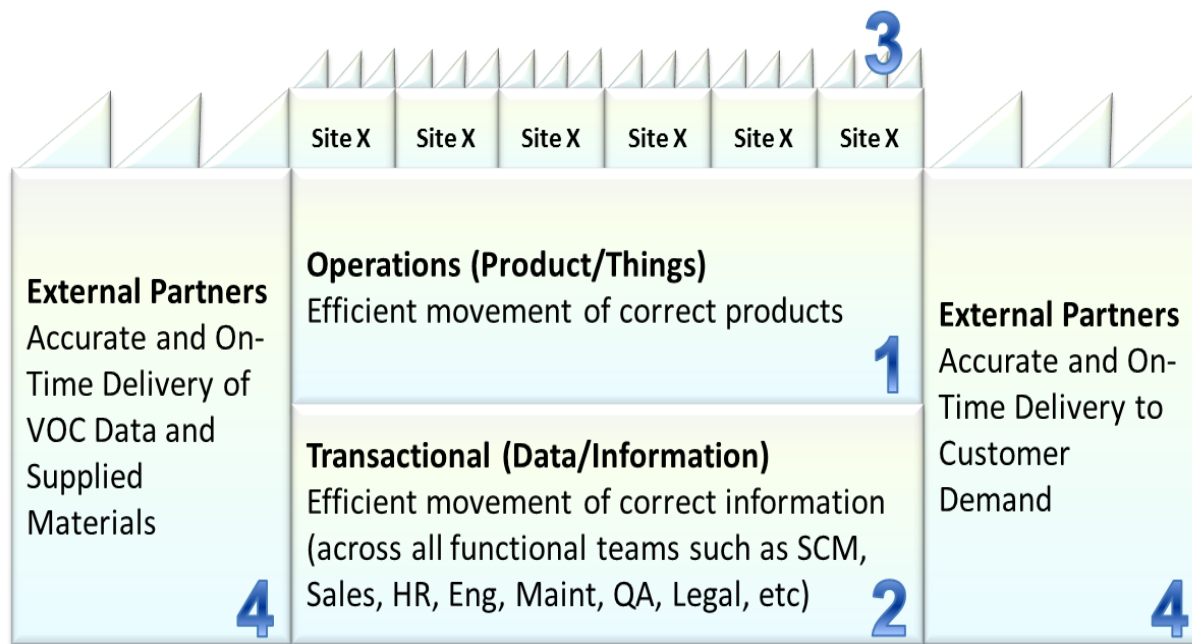
- Tactically apply Define, Measure, Analyze, Improve and Control (DMAIC) to link Lean Management System (LMS) strategies to that of the organization via Hoshin Kanri
- See how this lean tool can be applied to any business
- Increase your understanding of how to develop, manage and execute a strategic plan

A Definition of Lean



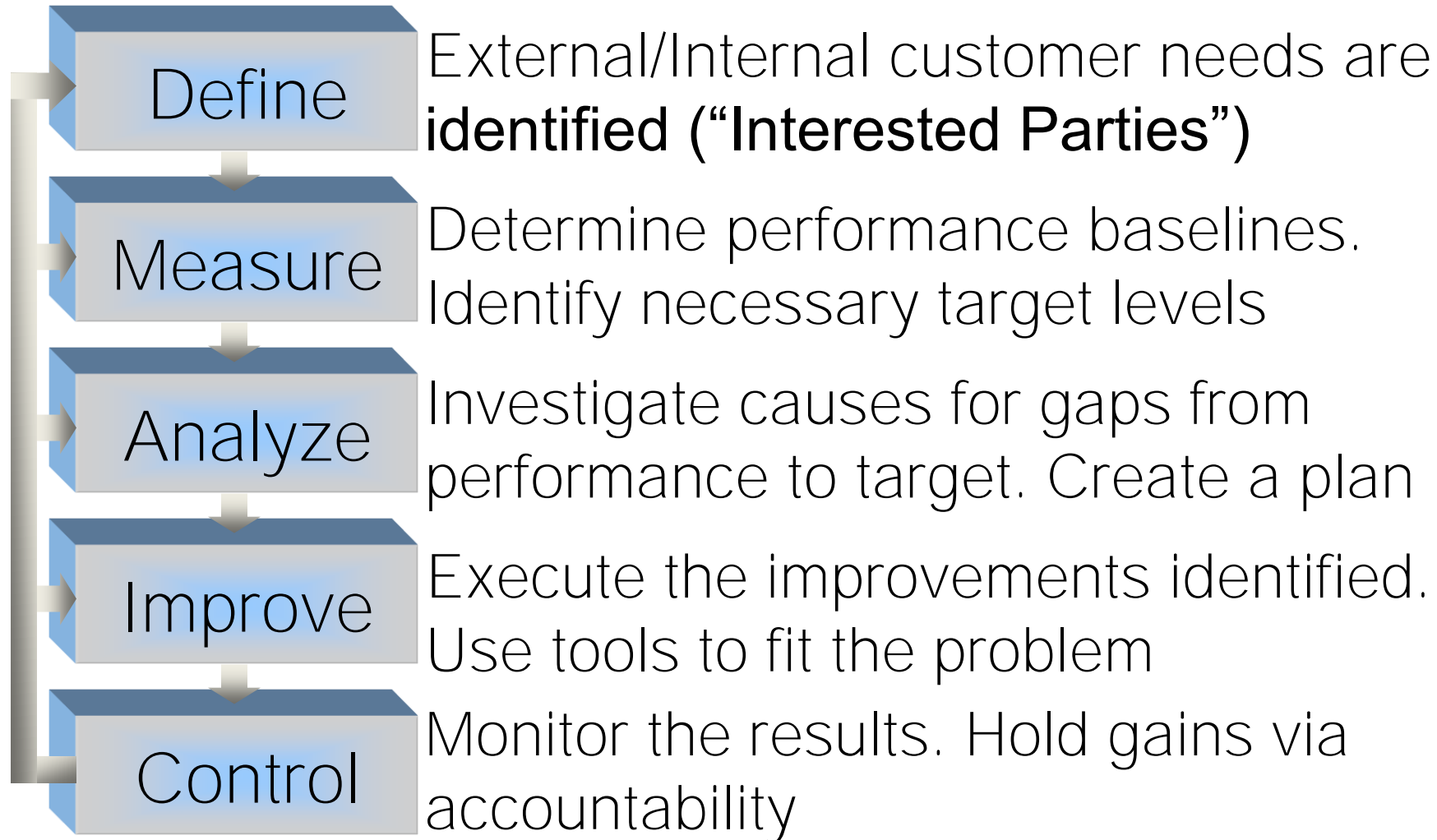
Lean is ***FLOW*** through pull. It uses an enterprise-wide set of concepts and tools. Lean strengthens an organization's competitive advantage realized from operating its processes

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

Lean & DMAIC: *Strategically*



Define

The “X-Matrix”

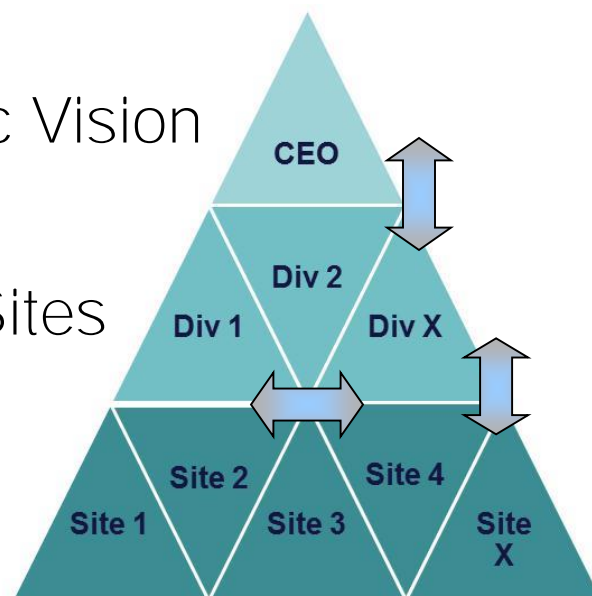
A Process to convert *Strategy* to *Reality* by using both horizontal and vertical alignment in the organization

CEO's 3-5 year Strategic Vision

Planning across Division(s).

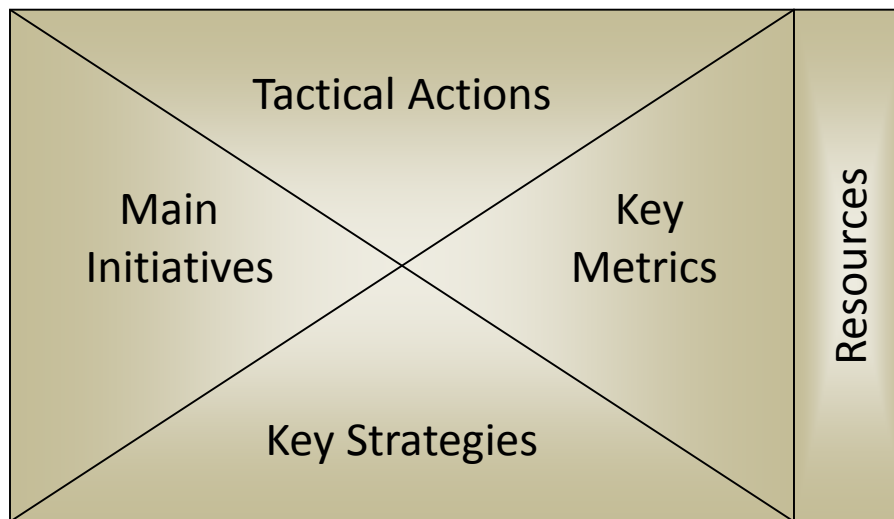
Vertically supports CEO and Sites

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 Whom...

“Interested Parties*” to Consider...



Customer

People that use the end product/service

Stakeholder

Personnel that invest in the organization
(stockholders, investors)

Employee

Personnel that run the organization.
May be paid or voluntary

Supplier

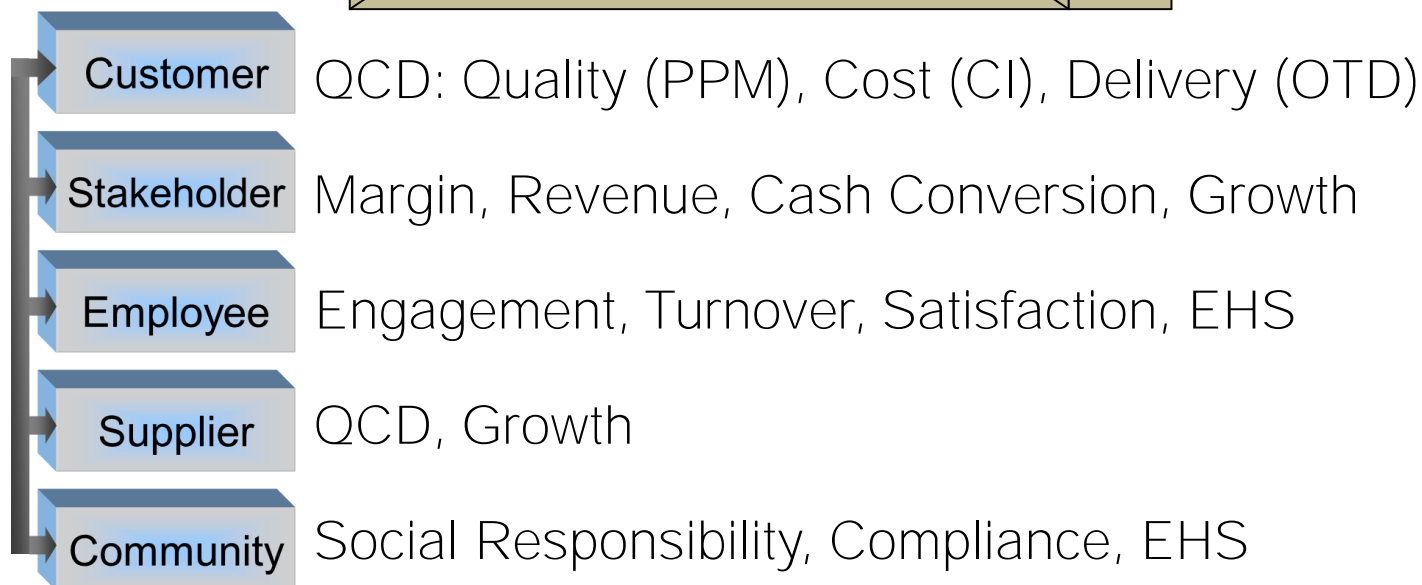
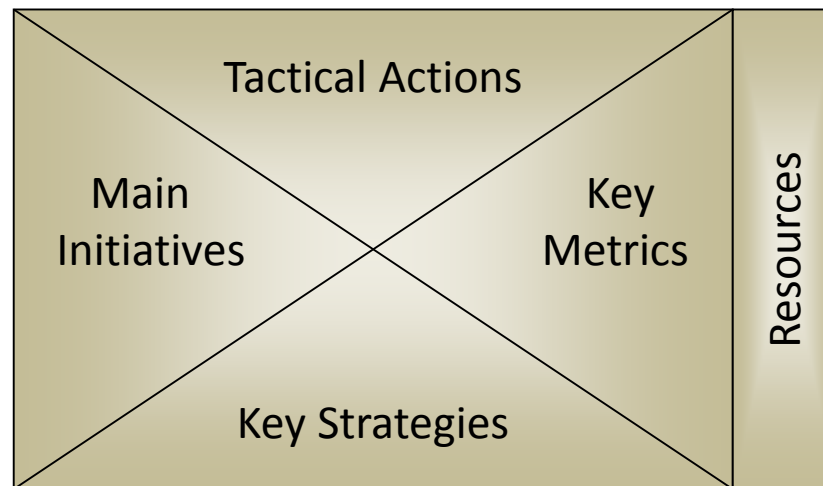
Businesses/donors that provide goods
and services usually for a fee

Community

Local organizational. Surroundings.
Environment, tax-**base**...

*Formally called out in ISO 9001:2015 for Risk-Based Thinking and consideration of impact to business

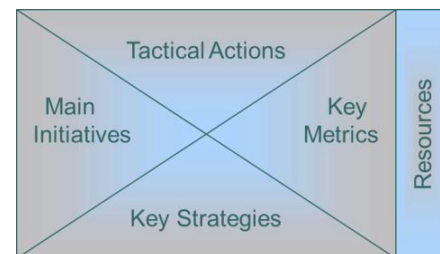
Sample Strategies



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 _____

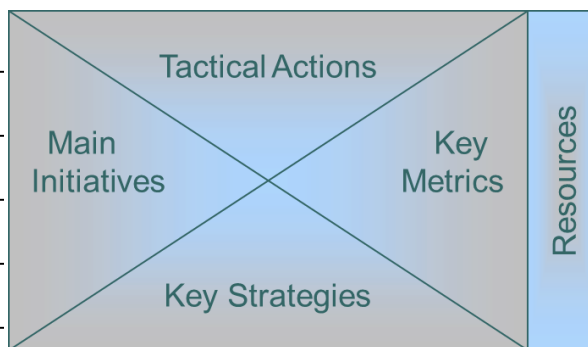
What are the key metrics?

Main 1-3 Initiatives

1.1 _____

1.2 _____

1.3 _____



Key Input Metrics

1.1a _____

1.1b _____

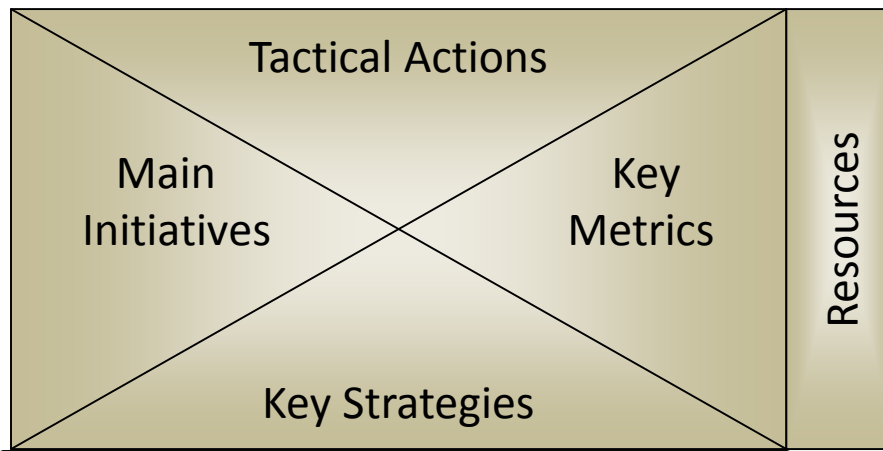
1.1c _____

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

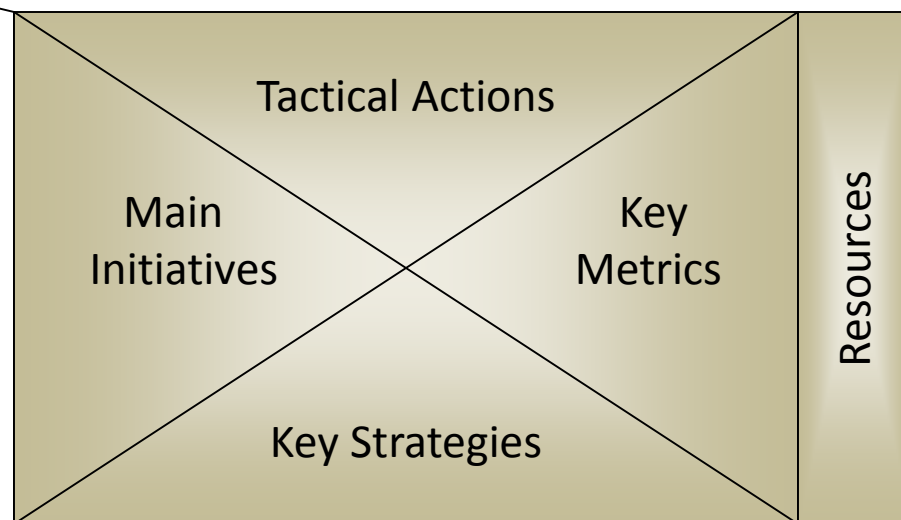
- Improve Margin by 5% points by 4Q. Increase of \$250K

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

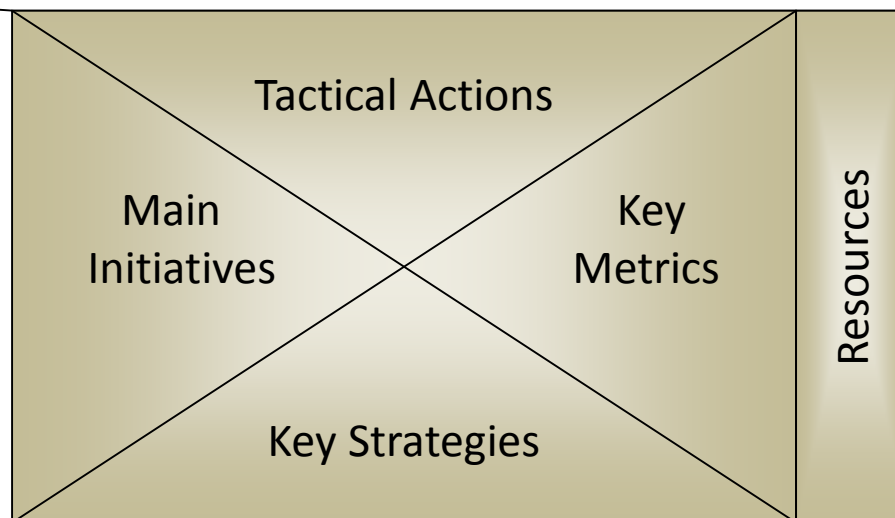
Develop Tactics

~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 Metrics

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



Leading Metrics	Lagging Metrics			
	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

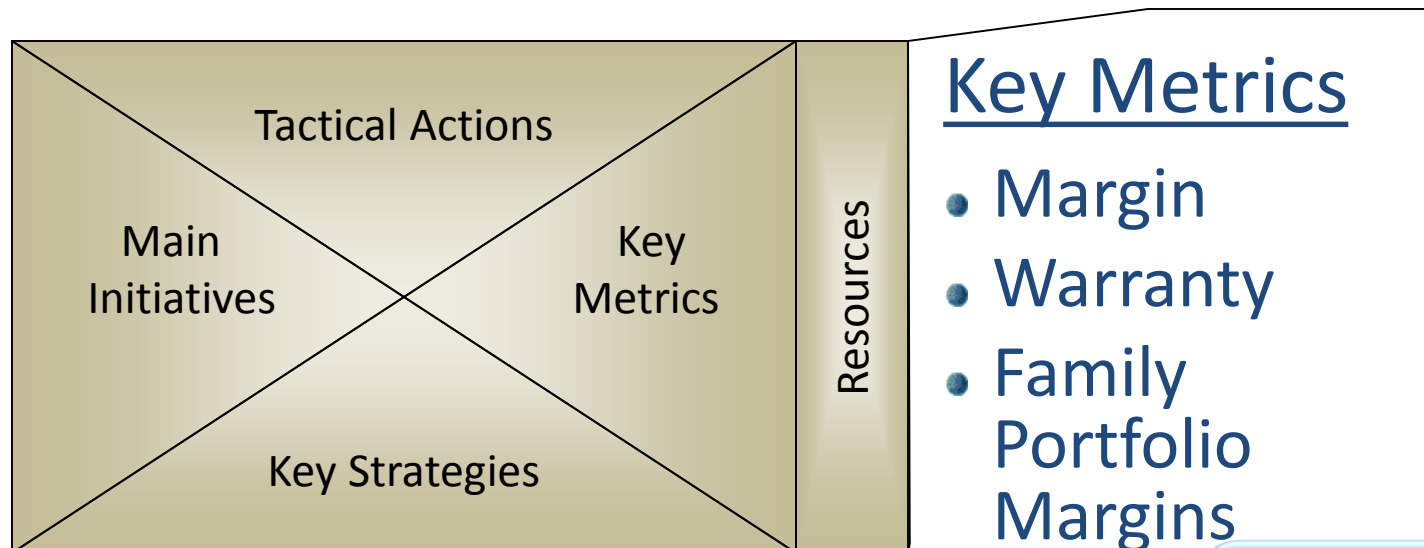
- Implement Warranty Team. Conduct CA/PA
- Conduct FMEA/CP Reviews on loss leaders
- Conduct VSM on Portfolio. Rationalize

Who: Joe

Who: Tom

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: Organization, Year



C:\Documents and Settings\marhevid\My Documents\ASQ\QMD Strat Plan & BSC Data\QMD Strat Plan 08 Q2 QMP 08 09 v1.xls\Succession Plan



AME Association
for Manufacturing
Excellence

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

Level II Matrix - YEAR 20XX

										14																									
●	○									4.3.b. Conduct annual reviews and training updates on ISO/TS Core Tools by 2Q											●	●	●		●	●	○	○	○				●		
●										4.3.a. Increase QA personnel understanding & interpretation of product specs by 3Q	●		●																						
	●		○	○						4.2				●						●															
	○	●		○		○	○			4.1													●	●	●	●	●		○						
○	○	●		○						4.1.a. Upgrade corporated-wide APQP processes to achieve 95% compliance on TS System score by 2Q													●	●	●	●	●		●						
		○	○	●	○					3.1.a. Leverage sub-teams to implement MRP conversion		●	●	●															○						
		○		●		○				2.2.c. Participate in monthly Council reviews					●	●							●	●											
○			○	●	○					2.2.a. Implement Kanban flow plans to reduce DIOH by 20% by 4Q	●				●	●							●	●				○							
						●				2.1.b. Create action plan to close customer feedback gaps by 3Q							●						●	●											
						●				2.1.a. Review and upgrade existing Customer Feedback Process by 1Q													●	●											
○		○	○	○		●	○			1.2.c. Plan, develop, manage and implement automated SPC at appropriate processes	●			●															○						
○		○	○	○		●	○			1.2.b. Enable accurate SPC formats to meet 80% audit scores	●			●														○	○						
○		○	○	○	○	●	○			1.2.a. Monthly Management to increase Capable Processes to >85% KPIs	●			●									●	●											
			○	○		●	○			1.1.a. Reduce scrap/rework losses by 50% 4Q	●			●													○								
																										1	3								
																										3	5								

The diagram illustrates the hierarchy of business strategy implementation:

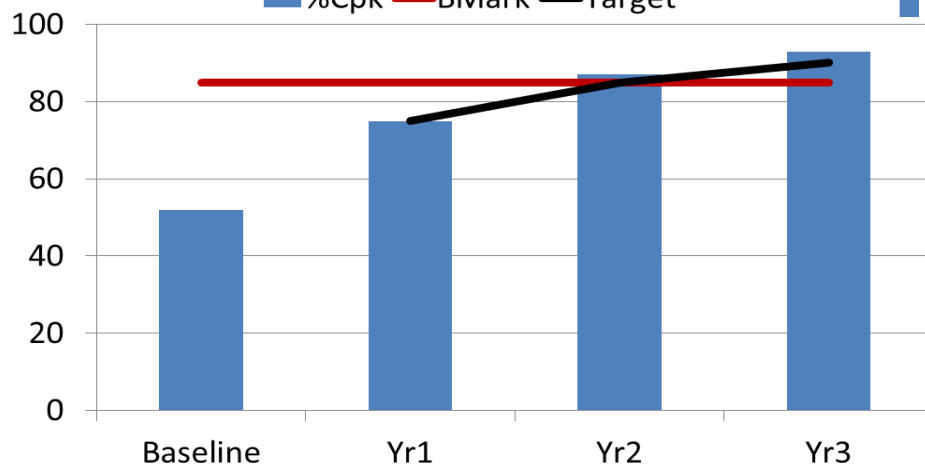
- Top Level Initiatives (To Achieve Priorities)**: These are linked to **Tactics**.
- Tactics**: These lead to specific **Initiatives**.
- Metrics**: These are used to track progress towards **Strategies**.
- Strategies**: These are derived from the **Business Strategy**.
- Business Strategy**: This includes strategic priorities such as reducing costs, improving quality, growing skills, and exceeding safety standards.

A diagonal line separates the top-level initiatives/tactics from the bottom-level strategies/metrics.

It Must Be Right For It To Flow

%Cpk Recovery

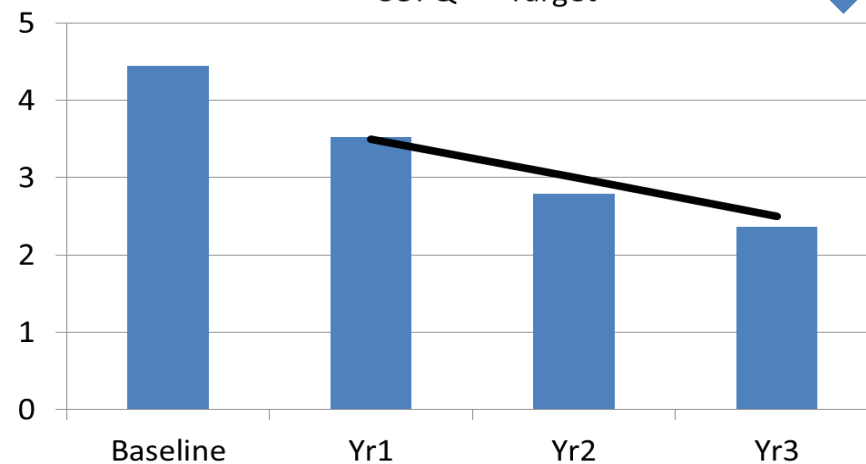
■ %Cpk ■ BMark — Target



Worldclass Cpk Performance

%COPQ Recovery %COGS

■ COPQ — Target

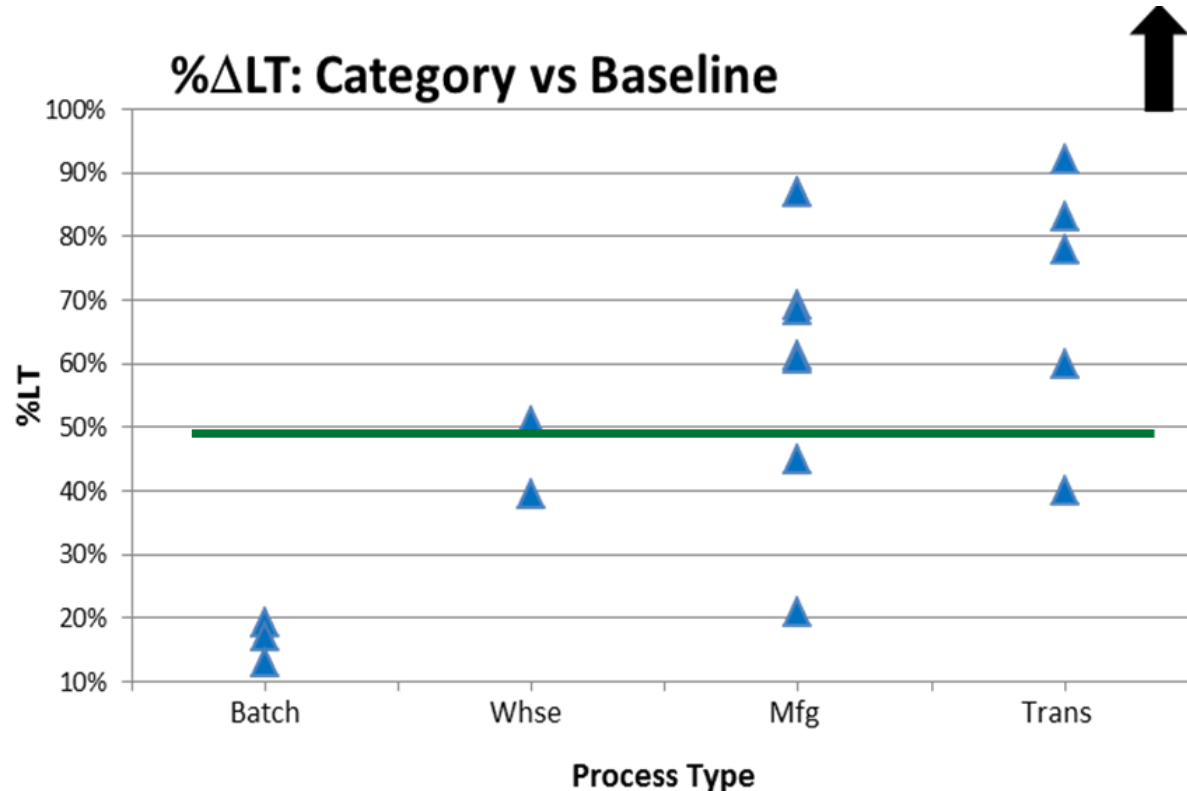


Continued YOY COPQ Reduction

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

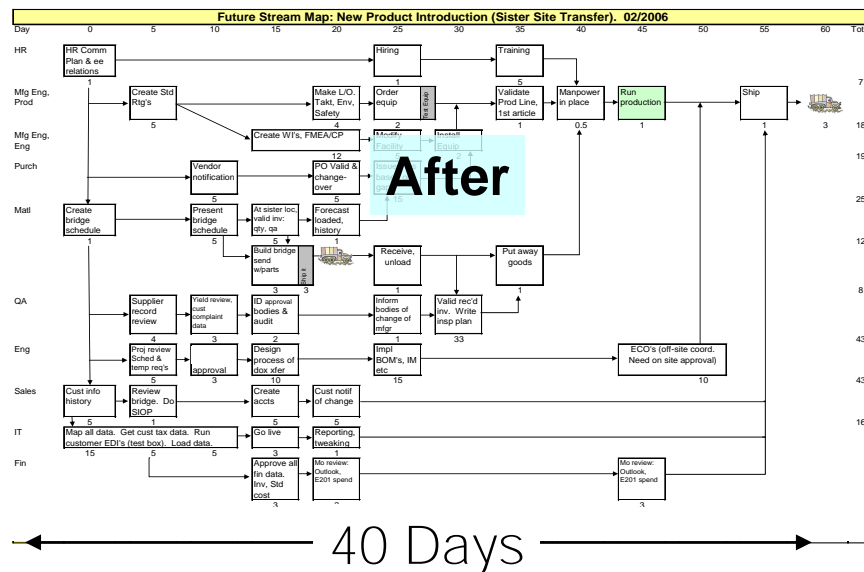
- An average reduction of **50% LT** had much less working capital
- Enabling the average **Productivity** to increase by **50%**
- And the average **CPU** to be lowered by more than **20%**

Sample VSM: NPI



Before

170 Days



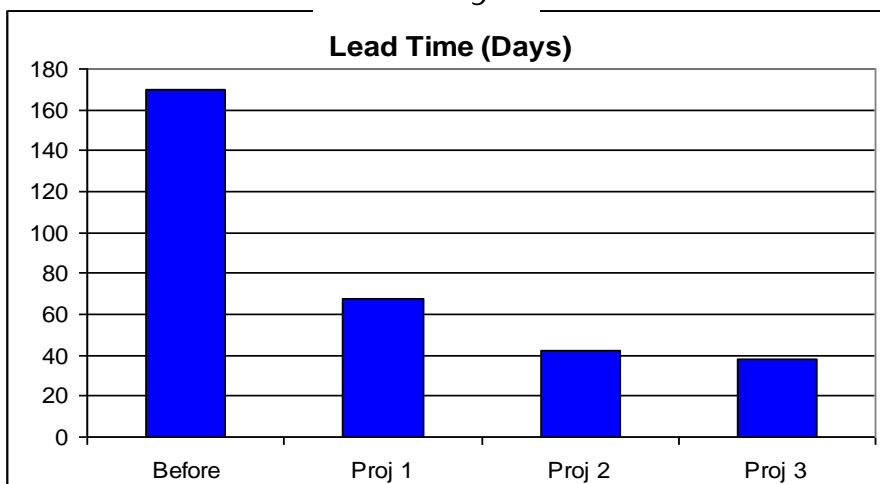
After

40 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

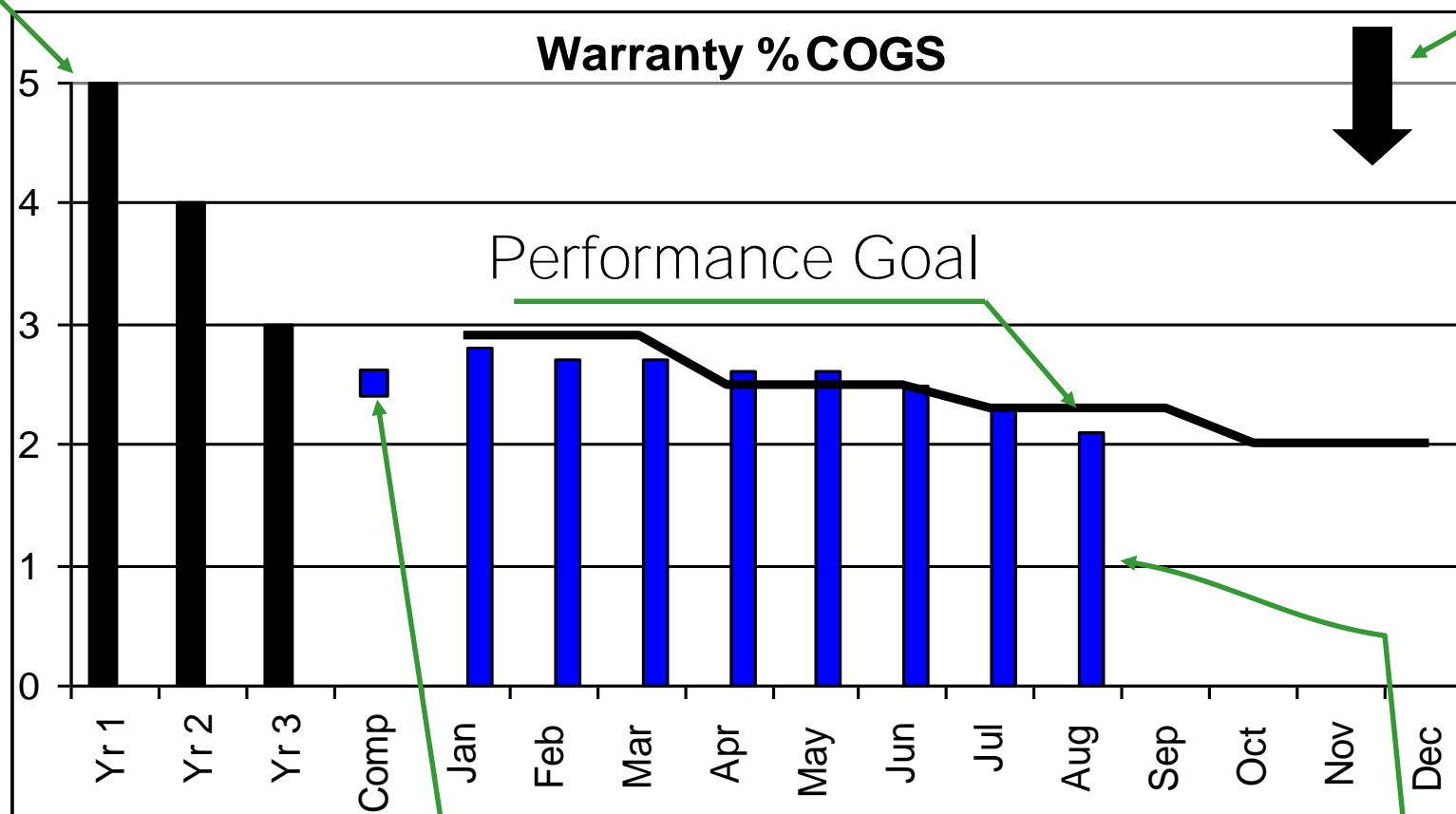
What gets measured gets done.

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

Sample BSC Format

History (2-3 yrs)

Arrow for desired direction



Point of Comparison

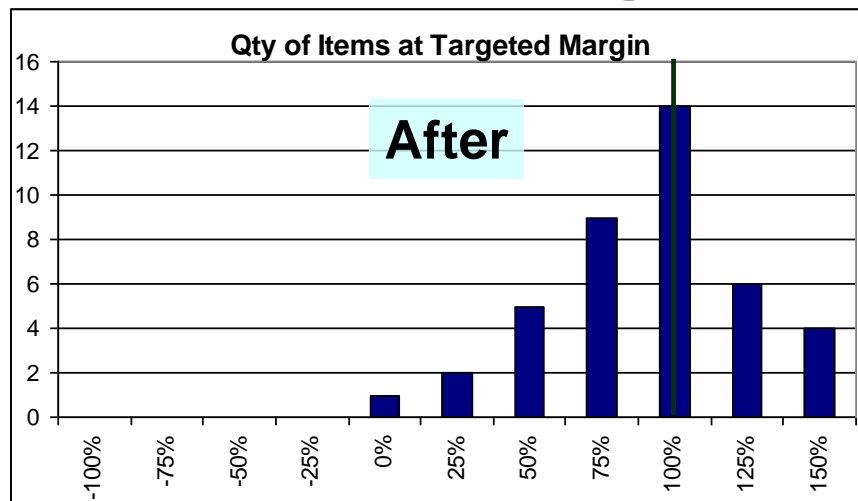
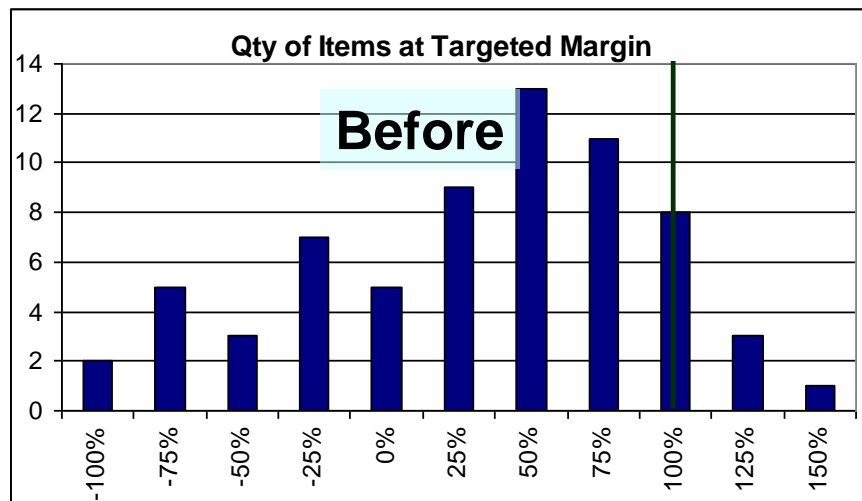
Current Performance

Analyze

To know and not to do is not to know.

Chinese Proverb

Product Portfolio...5% Margin

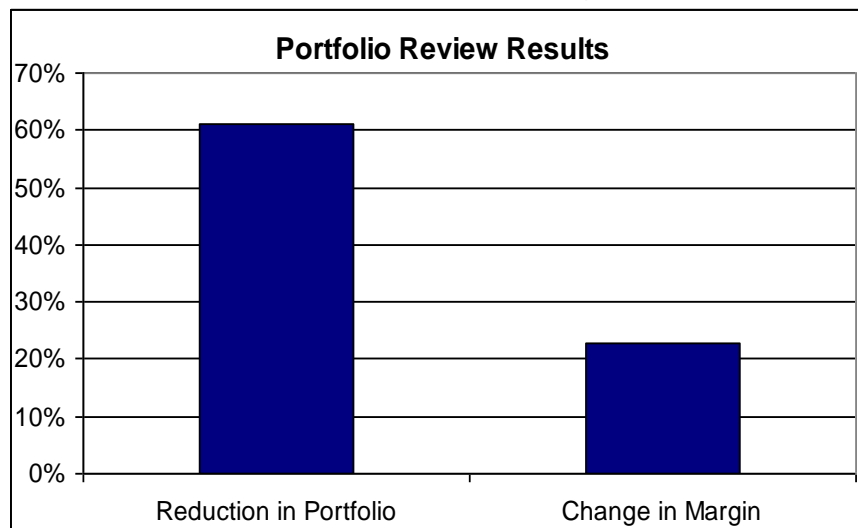


Ex: If targeted margin is 5%, then 8+ Items were meeting the 5% objective before and 14+ were meeting the objective after

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...

A vertical flow diagram of the DMAIC process. On the left, a grey vertical line with five horizontal arrows points to five blue 3D rectangular boxes stacked vertically. Each box contains a step name in blue text. To the right of each box is a corresponding paragraph of text in black.

Define

We used an X-Matrix to define our customer needs (internal/external)

Measure

We used a BSC to determine baselines and set our target performance levels

Analyze

We used VSM to investigate causes for gaps and created a plan of attack

Improve

We executed improvements and used tools to fit the problem (VSM, TPM, SUR, EP...)

Control

We used the BSC and HR systems to enable accountability

What's Next? 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: TS10
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. Taiichi 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