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
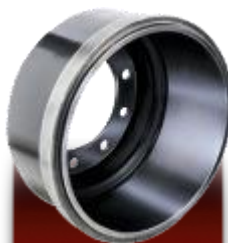
Past-Chair ASQ QMD, NAM: STEP Ahead Awardee, MBB

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

Purpose of Lean

Customer Satisfaction

Go

Stop

Continuous

Kaizen

Improvement

"Pull" Through-out System

Quality at the Source

Tools of Lean

Core of Lean

Employee Satisfaction

Stability, Reliability

Standardized Work

5S

Teamwork

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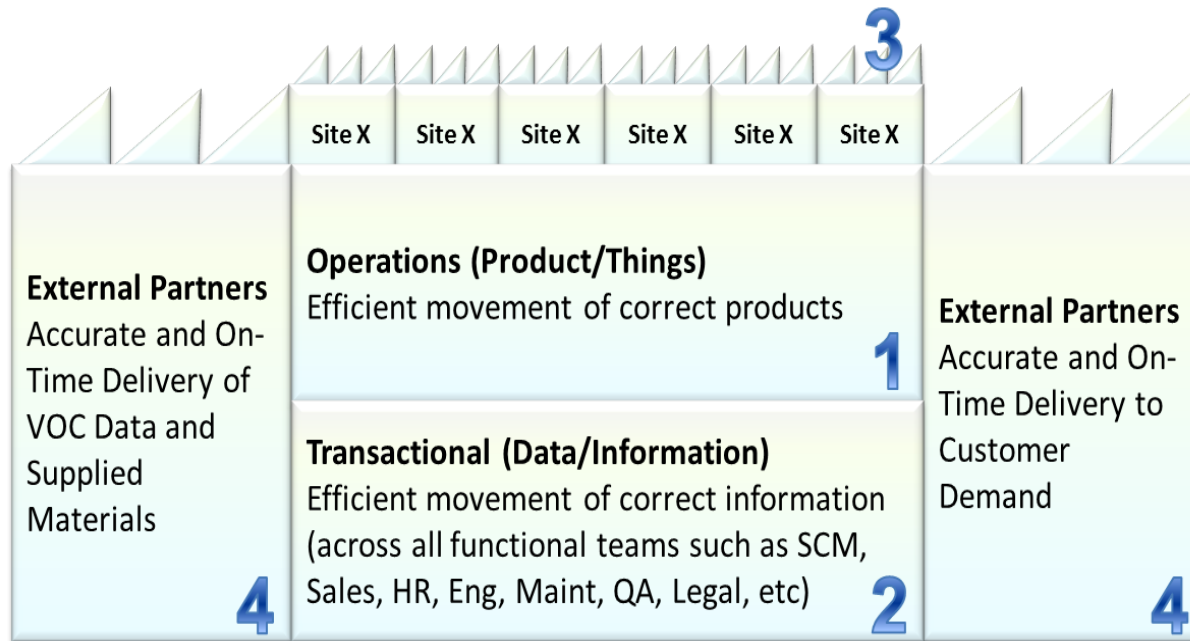
1. Lean "Operations". Effective, Efficient flow of **Product**
2. Transactional systems: Effective, Efficient flow of **Data/Information**
3. Align Product & Transactional Value Streams across the **Enterprise**
4. Incorporate **External Partners**: Customers, Supply Chain, Contract Services

Lean & DMAIC: *Strategically*

Define — External/Internal customer needs are identified ("Interested Parties")

Measure — Determine performance baselines. Identify necessary target levels

Analyze — Investigate causes for gaps from performance to target. Create a plan

Improve — Execute the improvements identified. Use tools to fit the problem

Control — Monitor the results. Hold gains via accountability

Define

The "X-Matrix"

A Process to convert *Strategy* to *Reality* by using both <u>horizontal</u> and <u>vertical</u> 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
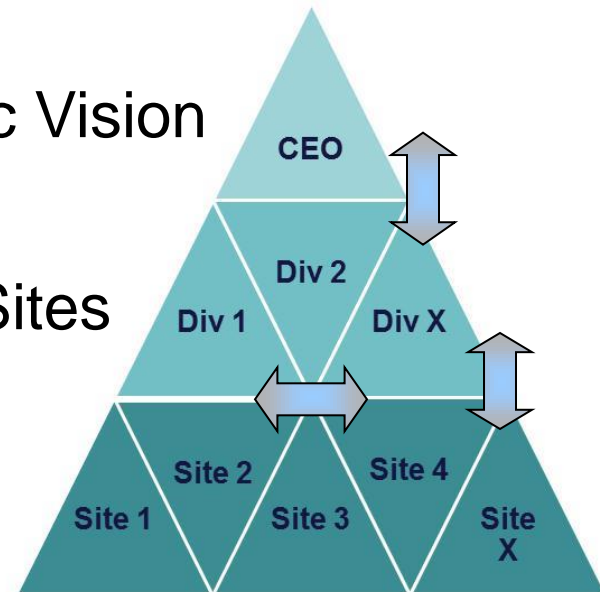
aka…Hoshin Kanri

Sample "X-Matrix" Format

Tactical Actions

Main Initiatives

Key Metrics

Resources
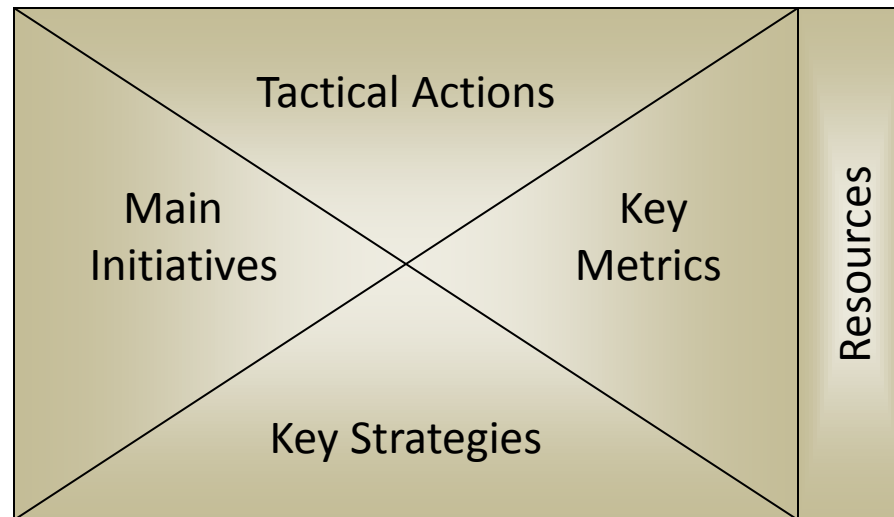
Key Strategies

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

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
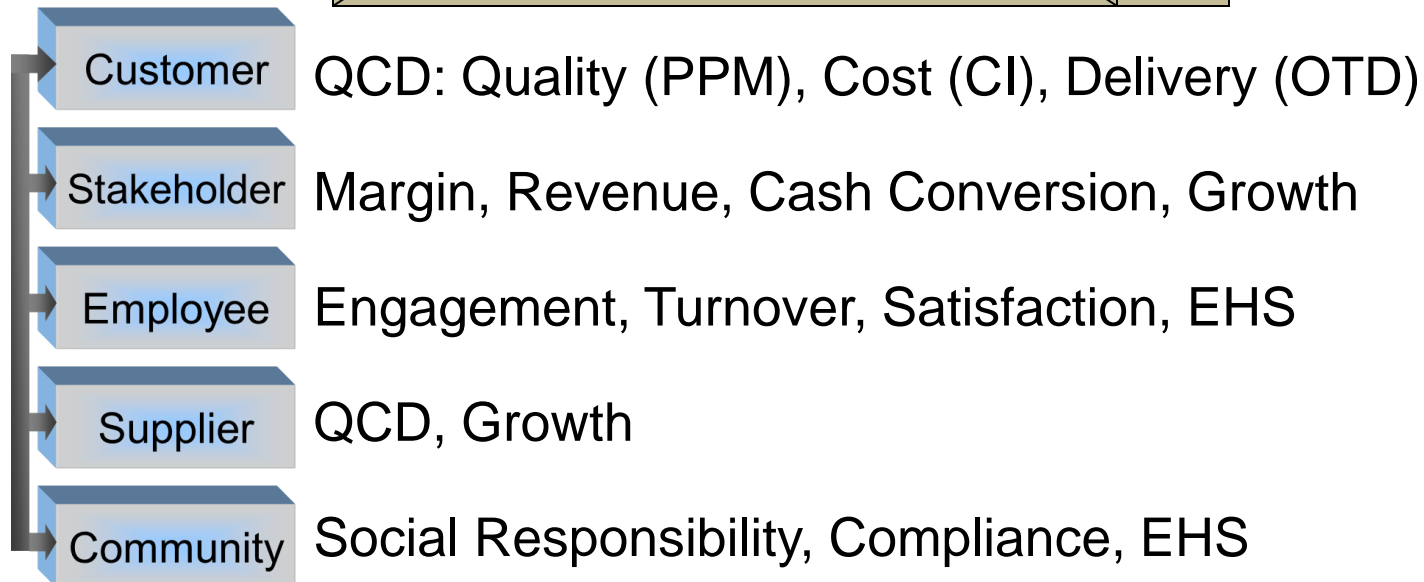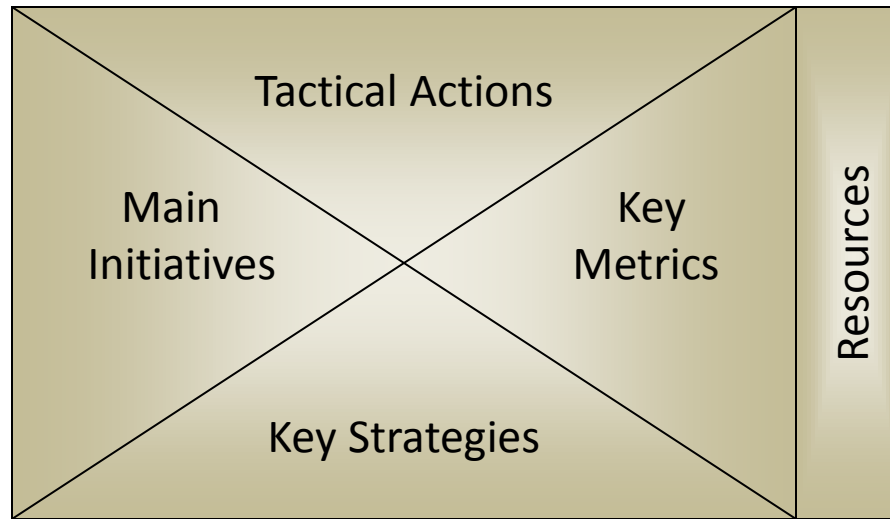
X-Matrix Worksheet

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 tactical plans to achieve the initiative

Main 1-3 Tactical Plans

1.1a _____

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

1.1b _____

1.1c _____

What are the key metrics?

Main 1-3 Initiatives

Key Input Metrics

1.1 _____

1.2 _____

1.3 _____

Tactical Actions

Main Initiatives

Key Metrics

Resources

Key Strategies

1.1a _____

1.1b _____

1.1c _____

Key Strategy/Performance Goal (SMART)

1 _____

Write a sample Key Objective

Define "SMART" Strategies

~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
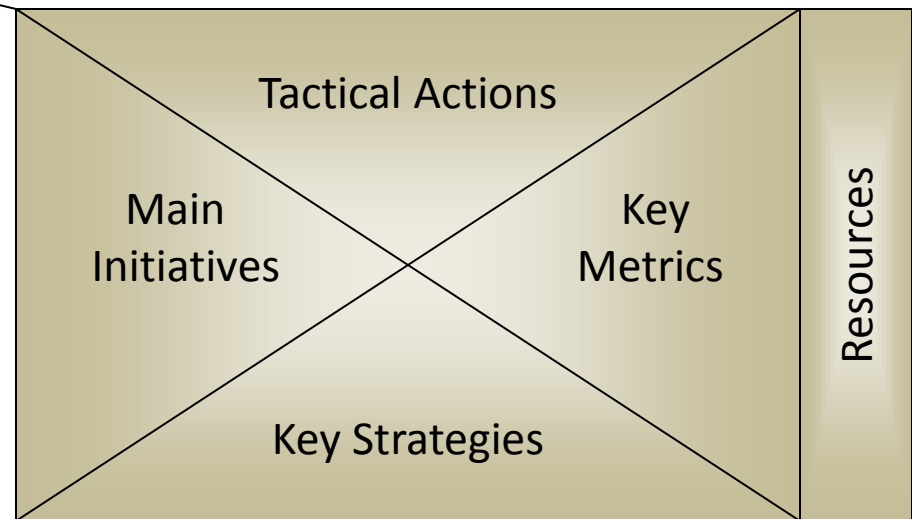
Identify 2-3 Initiatives

Main 1-3 Initiatives

1.1 _____

1.2 _____

1.3 _____

Tactical Actions

Main Initiatives

Key Metrics

Resources

Key Strategies

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
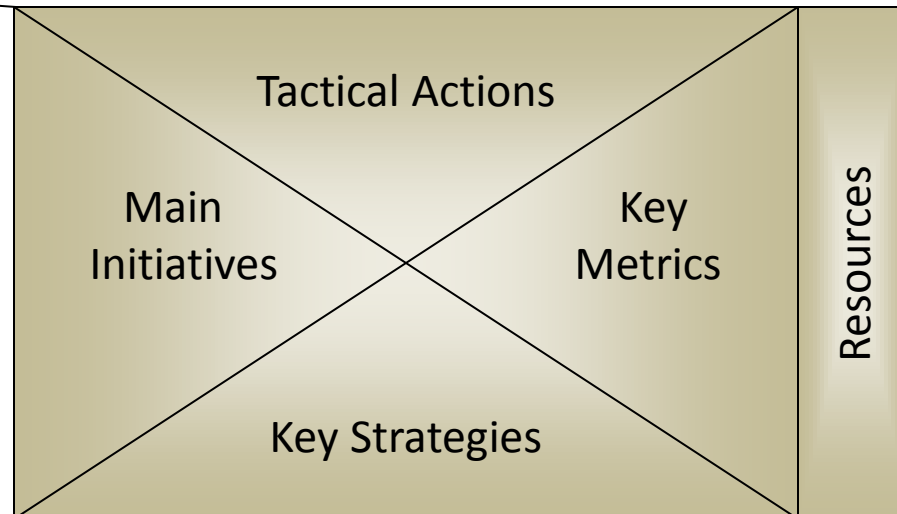
Create 1-3 Tactics

Main 1-3 Tactical Plans

1.1a _____

1.1b _____

1.1c _____

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

Tactical Actions

Main Initiatives

Key Metrics

Resources

Key Strategies

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   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

Tactical Actions

Main Initiatives

Key Metrics

Resources

Key Strategies

Key Metrics

- Margin
- Warranty
- Family Portfolio Margins

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

						Margin	Warranty	Portfolio Margin	Joe	Tom	Sue
	●		1.2a Conduct Portfolion Analysis. Rationalize			●		●			●
		●	1.1b Conduct FMEA/CP Reviews on loss leaders			●	●	●		●	
		●	1.1a Implement Warranty Team. Conduct CA/PA			●	●	●	●		

Key Tactics "HOW 2"

Main Initiatives "HOW 1"

Key Metrics "BSC"

Key Objectives "WHAT"

1.2 Reorganize Product Portfolios. $100K

1.1 Reduce Warranty Losses. $150K

						Margin	Warranty	Portfolio Margin			
	●	●	1 Improve Margin by 5% Points			●	●	●	Resources		
			2 xxx						● Primary		
									○ Support		

Sample X-Matrix: ASQ QMD

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

2nd Level Tactical Improvement Plans

- 6.1e Develop/Execute go-forward functional conference committee structure -- *Chair, F2F*
- 6.1d Develop/Execute plan to better utilize volunteers -- *Mmbrshp*
- 6.1c Share Lessons Learned across ASQ (Ex. DMA, X-Matrix…) -- *Chair, Chair-Elect*
- 6.1b Manage and facilitate attainment of budgeted plan -- *Treasurer*
- 6.1a Develop/Utilize succession planning, strategic management of board, and key measures -- *Chair, Chair-Elect*
- 5.1a Develop a Strategy to Collaborate w/ASQ on EoQ/Social Responsibility (Mason) -- *TC*
- 4.1c Develop/Execute effective Web-site in which to grow exposure and customer support, and delivery mechanisms -- *e-based*
- 4.1b Select organizations/venues w/in ASQ (Div's, Sections, HQ, etc.) and tailor service or product offerings and interaction methods -- *Mktg*
- 4.1a Identify Opportunities and Leverage QMD offerings into non-ASQ/alternative venues (ie. State Award Program Offices, etc) -- *Mktg*
- 3.1a Develop Feedback/Feed Forward Loops, Review VOC data, Summarize results, Develop Next Steps and Feed into QMD Strategies -- *Mktg*
- 2.1.c Execute to a defined Touchpoint Plan (Tradeshows, Conferences, Forums, Courses, etc.) include Lisa Bray (ASQ)
- 2.1b Develop Partnership Plan w/ASQ on non-US Growth (China/India, ROW) -- *Mktg*
- 2.1a Develop Marketing Plan to grow Membership Base -- *Mktg*
- 1.2b Deliver CMQ/OE, CQE, CQIA Refresher Courses and Cost of Quality Courses as needed -- *F2F*
- 1.2a Support the CMQ/OE Certification (BOK, Exam Review, Item Writing) - *Ops*
- 1.1f Manage a project that utilizes F2F, Web & Print to bring pertinant information/training to QMD Members -- *Print, F2F, e-Base*
- 1.1e Grow QMD membership of certification holders (CMQ/OE, CQE, …) and conference attendees that are non-QMD members -- *Mktg*
- 1.1d Determine web-content (search engine, articles, courses, skills training webinars, forums, etc.) to be provided through the e-based market channel based on VOC criteria with Tech Cmte input - *e-based*
- 1.1c Determine offerings (articles, courses, skills training, tracks) to be provided at relevant events based on VOC criteria -- *F2F , e-based*
- 1.1b Manage the annual QMC -- *F2F*
- 1.1a Publish/Maintain the Quality Management Forum -- *Print*

Top Level Improvement Priorities

QMD Vision
Engage people, organizations, and communities in continual improvement

QMD Mission
Convey lifelong quality related knowledge through information, methods and tools that add value to Organizations, Society and Individuals

Key Success Indicators (KSI's) and Outcomes

1-2 Year Strategic Objectives

Left columns:
- 6.2 Use Strategic Planning methods & Action Plan formats
- 6.1 Follow through on key plans and objectives
- 5.1 Continue to develop and deliver EoQ resources (multiple)
- 4.1 Identify sponsoring partners and develop service or product offering model
- 3.1 Develop Feedback Loops and Review VOC input/data
- 2.1 Develop Market Strategy to Grow Membership base
- 1.2 Support the CMQ/OE certification process
- 1.1 Leverage our organizational structure to develop and deliver products and services

Right columns (KSI's):
- Qty of Learning Documents/Events (OO 3, 5)
- Attendance at QMD activities/sessions (OO 2, 3, 4, 5, 6)
- Web-Site Hits (OO 1, 3, 4, 5)
- Qty of CMQ/OE's & Trend (OO 1, 2, 4, 5)
- Checking and Savings Balance, Liquidity (OO 4, 5)
- Period Revenue & Expense Comparisons (OO 4, 5)
- Forum Unit Cost/Member (OO 4, 5)
- Membership Rate (Include Intl Growth) (OO 1, 2, 3, 4, 5, 6)
- Retention Rate (OO 1, 2, 4, 5, 6)
- New Membership Rate (OO 1, 2, 4, 5, 6)
- Members w/ASQ Certification(s) (OO 1, 2, 3, 4, 5)
- Members by State/Country (OO 1, 2, 3)
- %Objectives Achieved (OO 5, 6)
- Succession Planning Depth (OO 5, 6)

Resources
Primary Responsibility
Secondary Responsibility

- Chair: Heather McCain
- Chair Elect: Jd Marhevko
- Treasurer: Katrina Harris
- VC Print Initiatives: Fred Walker
- VC Marketing: Milt Krivokuca
- VC Membership: John Sharp
- VC Face to Face: David Little
- VC e-Based Initiatives: Ron Meier
- VC Technical Cmte: Steve Babb
- VC Operations: Carol Kurtz
- Conference Cmte: Trepanier/Denney/Bane

1-2 Year Strategic Objectives rows:
1. (1, 2, 3) Membership Expertise: Provide products/services that develop continuous improvement and enhance our memberships' skills
2. (1, 4) Membership Growth: Continue to grow the Membership base and improve upon retention
3. (1, 2) Determine VOC: Get feedback so that the QMD can define the product and services that are needed
4. (1, 2, 3, 4, 5, 6) Define Markets: Develop/execute a cross-market strategy and delivery mechanisms utilizing current technologies
5. (2, 6) EoQ: Insure that the Economics of Quality (EoQ) are within the context of our products and services
6. (4, 5) Infrastructure: Improve the management of the QMD…IT, Volunteer Utilization, Succession Planning, Budgeting, Follow Through…

ASQ — Quality Management Division

ASQ QMD Result

- Largest division in ASQ…>24,000 global members

- In the top 5 of all divisions for member growth and retention

- Most touch points (member-valued interactions) of any division. >30/year

- Have completed >90% of all goals and objectives for the past 5 years
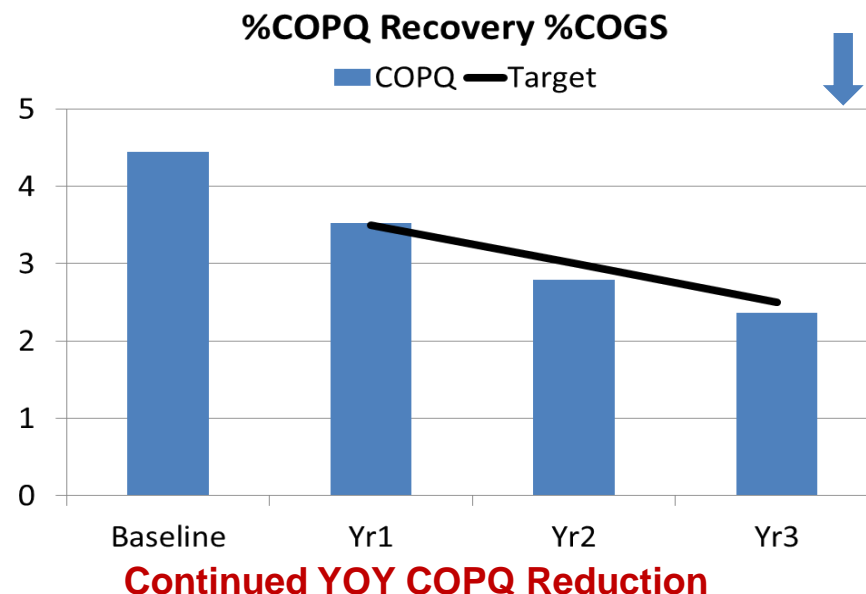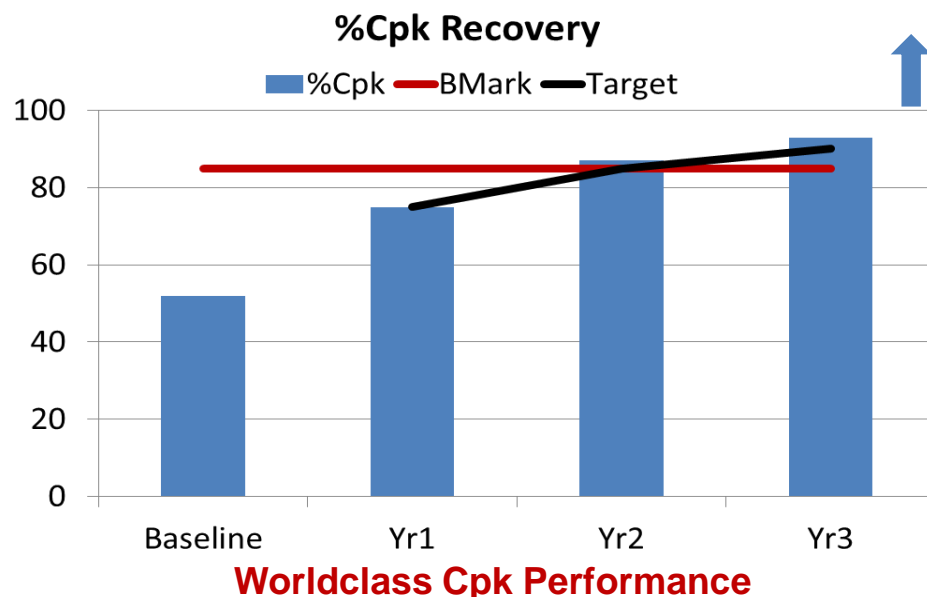
A Non-Profit Organization

A For-Profit X-Matrix Sample

Level II Matrix - YEAR 20XX

Tactics / Initiatives / Metrics / Strategies

It Must Be Right For It To Flow

%Cpk Recovery

Legend: %Cpk ■ — BMark — Target

Worldclass Cpk Performance

%COPQ Recovery %COGS

Legend: COPQ ■ — Target

Continued YOY COPQ Reduction

Have the QLMS leverage a three-point 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. Train personnel effectively in two skill sets: 1. Corrective Action and 2. Preventive, Risk-Based Thinking (RBT) design

Flow Means "Go" 50-2x-20™©

%ΔLT: Category vs Baseline

Observation: The more complex the process, the more LT was reduced
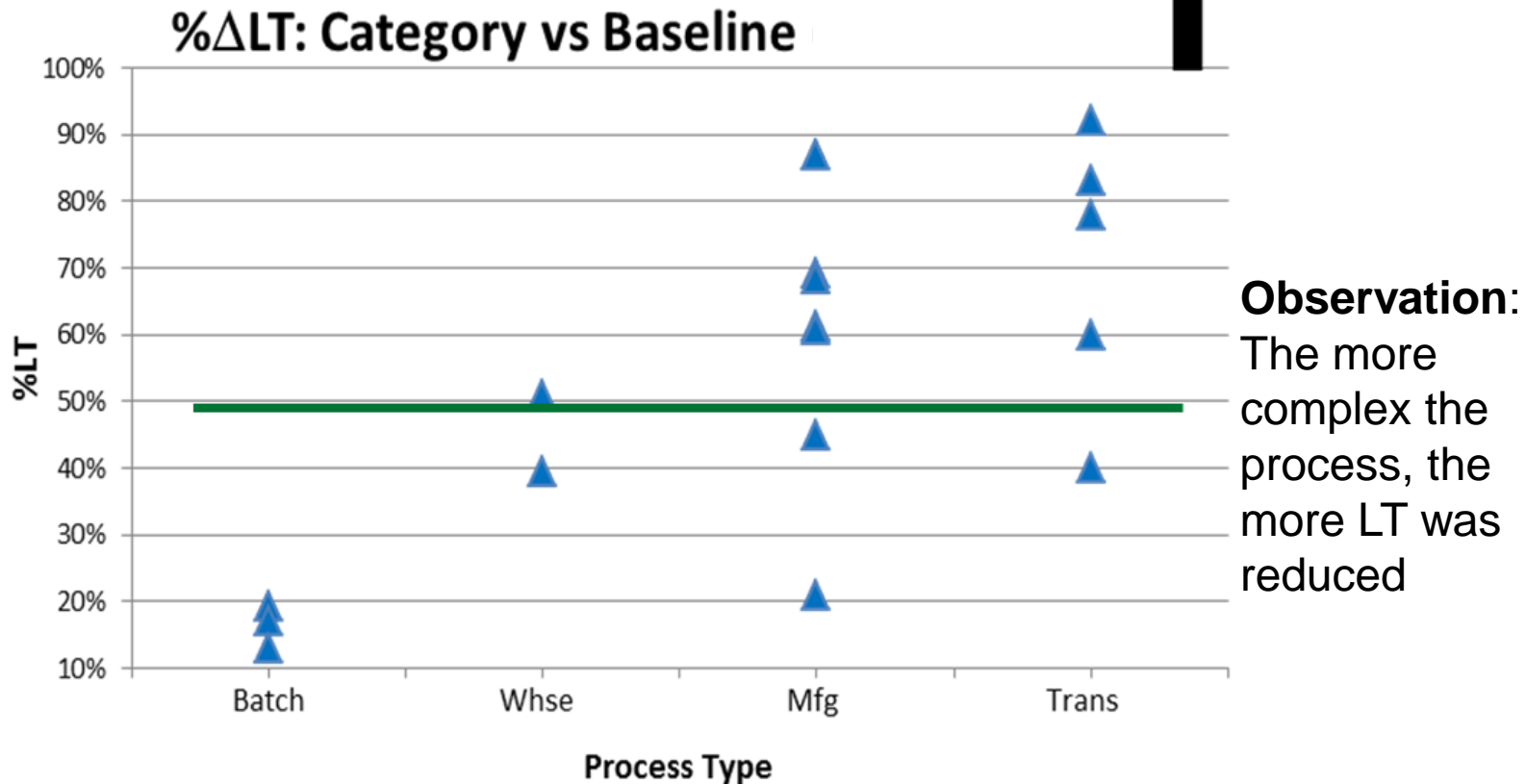
- An average reduction of **50% LT** had much less working capital
- Enabling the average **Productivity** to more than **double**
- And The average **CPU** to be lowered by more than **20%**

Sample VSM: NPI

Original Process

170 Days

Improved Process

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

Lead Time (Days)

Visual Results

	Before	Proj 1	Proj 2	Proj 3
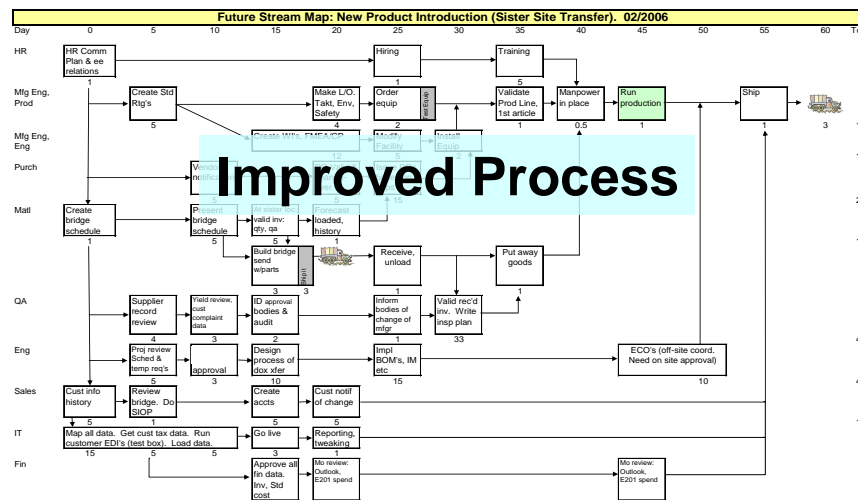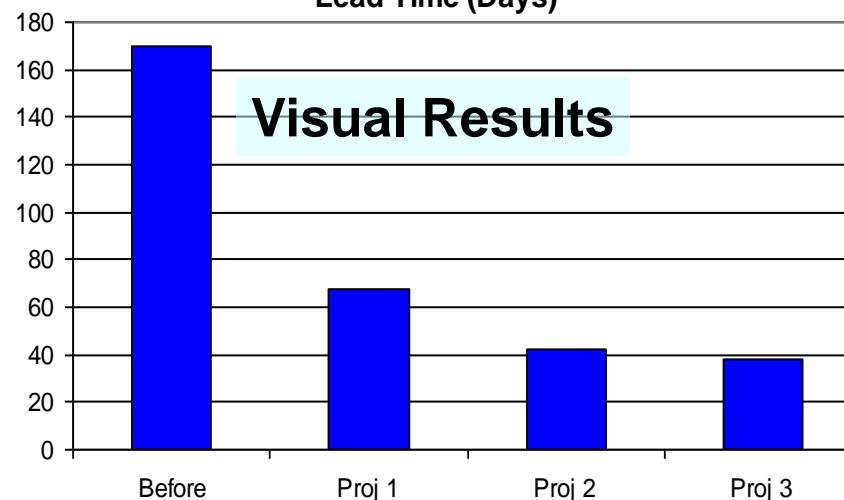
Measure

What gets measured gets done.

Don't know who said it, it works…

Sample BSC Format
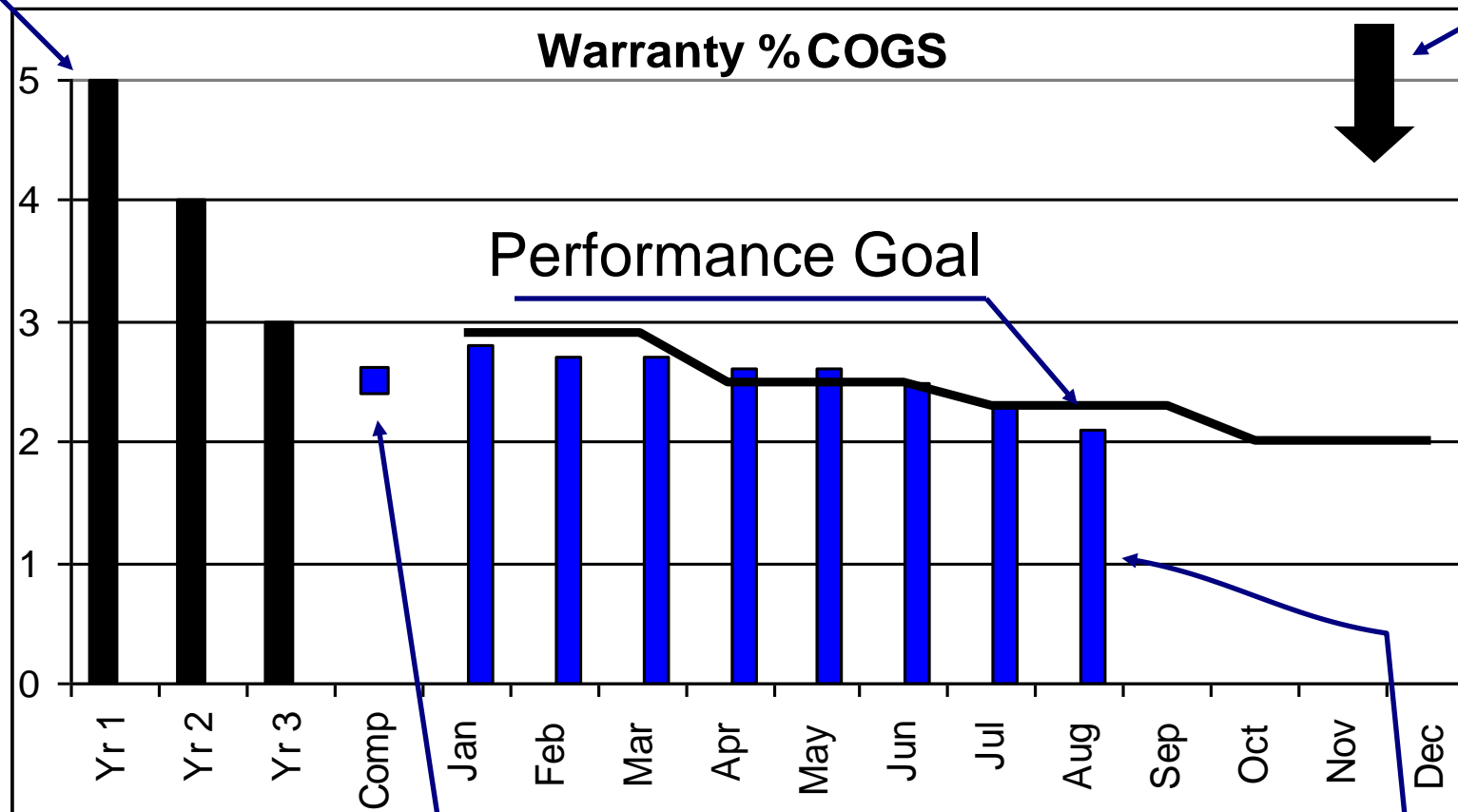
Analyze

To know and not to do is not to know.

Chinese Proverb

Product Portfolio…5% Margin

Initiative: Improve margin by 5%

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

Results: **22%** Improvement in margin base
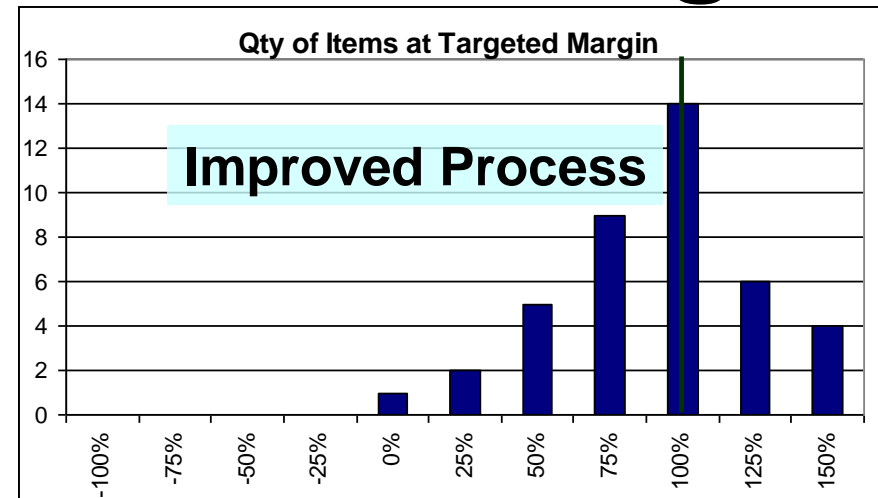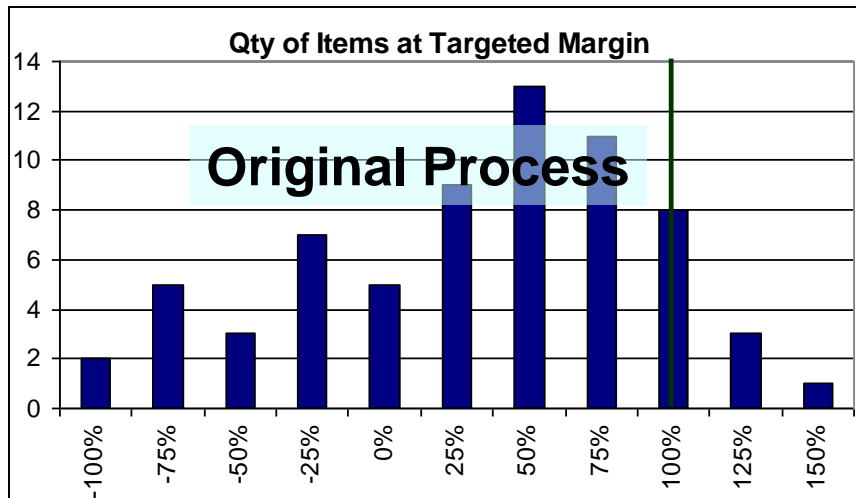
Ex: If targeted margin is 5%, then 8+ Items were meeting the 5% objective before and 14+ were meeting the objective after
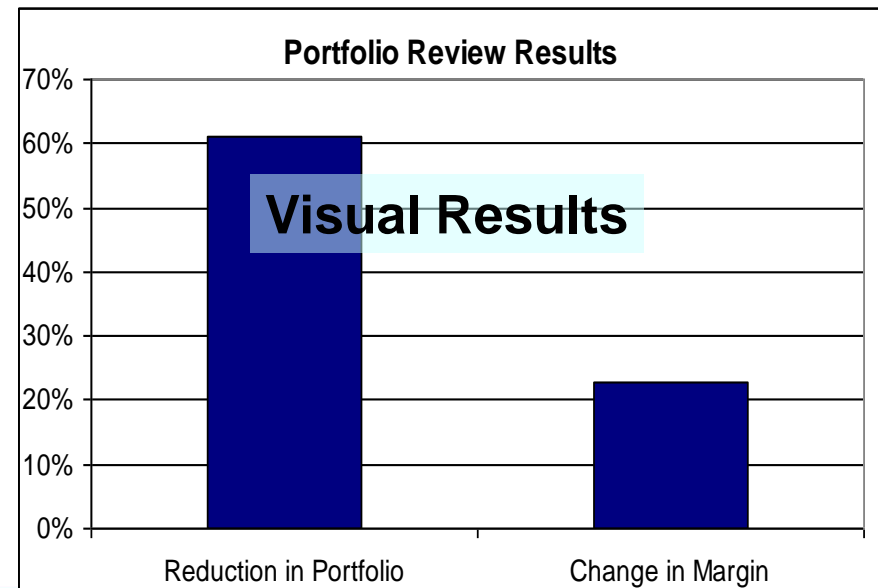
Improve

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 Objectives (MBOs)

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

Management by Objectives (MBOs)	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…

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

Thank You!

Your opinion is important to us!
Please take a moment to complete the survey using the conference mobile app.

Session: ThP/50
Linking Lean with Business Strategy
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419-704-5603

Sources/Ideas

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

- 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