

Lean Transformation: A Business Case

***Lean Transformation:
A Business Case***

Noel Nightingale

Pressure Exists From Investment Community

For Companies To Grow Earnings

Earnings Growth Can Be Accomplished Through:

- Sales Growth

- **Organic (New Products & Markets)**
- **Acquisitions**

- Margin Growth

- **Increased Prices**
- **Reduced Costs**

A Lean Enterprise Affects All of These Strategies

BUT:

- **Return on Invested Capital Is Critical (ROIC)**
- **Invested Capital Reflected In:**
 - **Inventories**
 - **Fixed Assets: Plant & Equipment**
 - **Goodwill**

A Lean Enterprise Manages Invested Capital

Outline

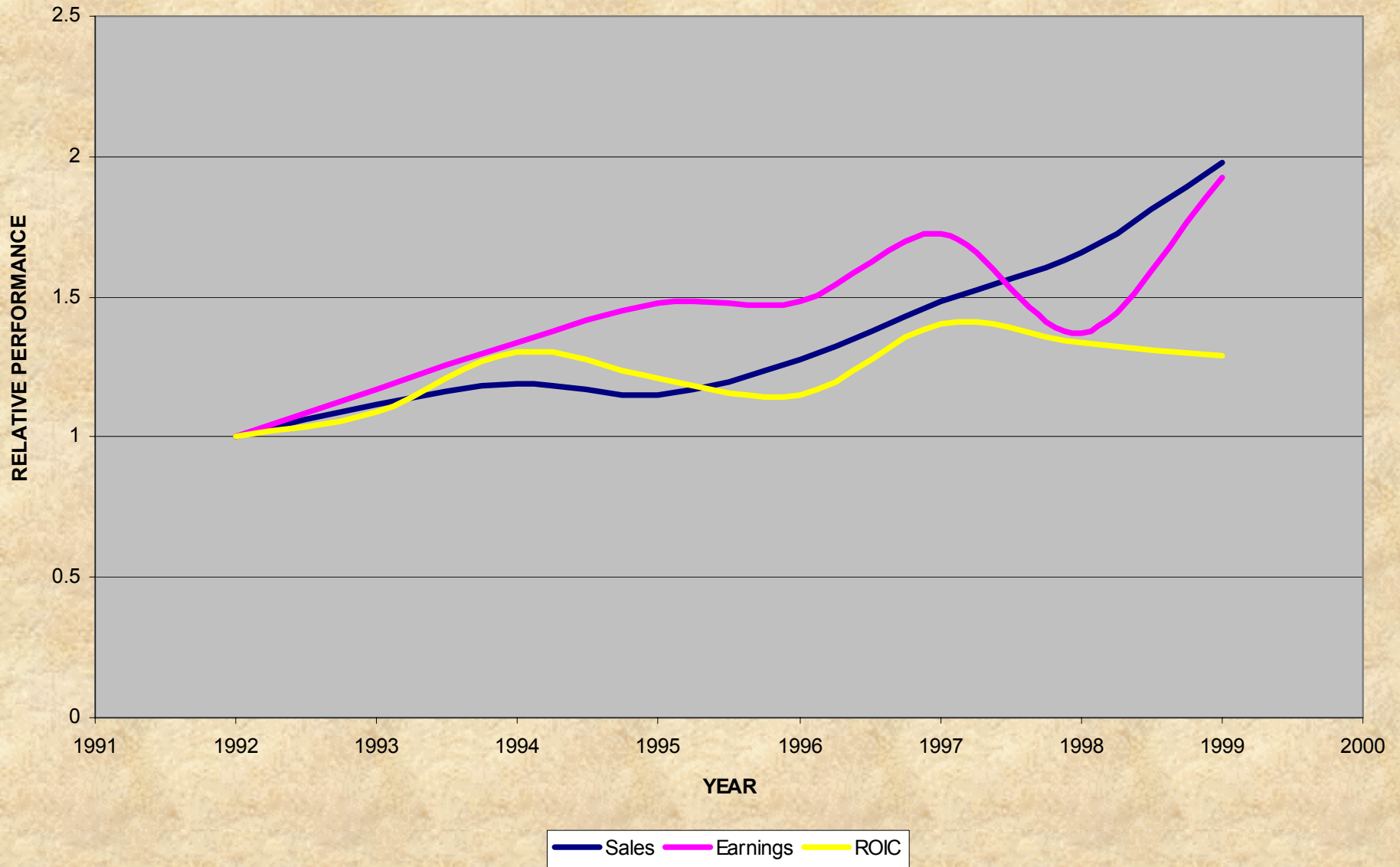
- **The Business Case**
- **Lean Assessment**
- **Lean Assessment Results**
- **Summary**

Company Summary

- **Multi Billion Dollars In Sales**
- **Twelve (12) Separate Major Businesses**
- **Forty (40) Operational Plants**
- **12,000 Employees**
- **Eight (8) Different Countries**
- **Nine (9) Million Square Feet In Facilities**

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Relative Performance:

1992 to 1995:

Sales Growth: Organic

Earnings Growth: Leaning Out Operations

ROIC: Balance Sheet Management

1995 to 1999:

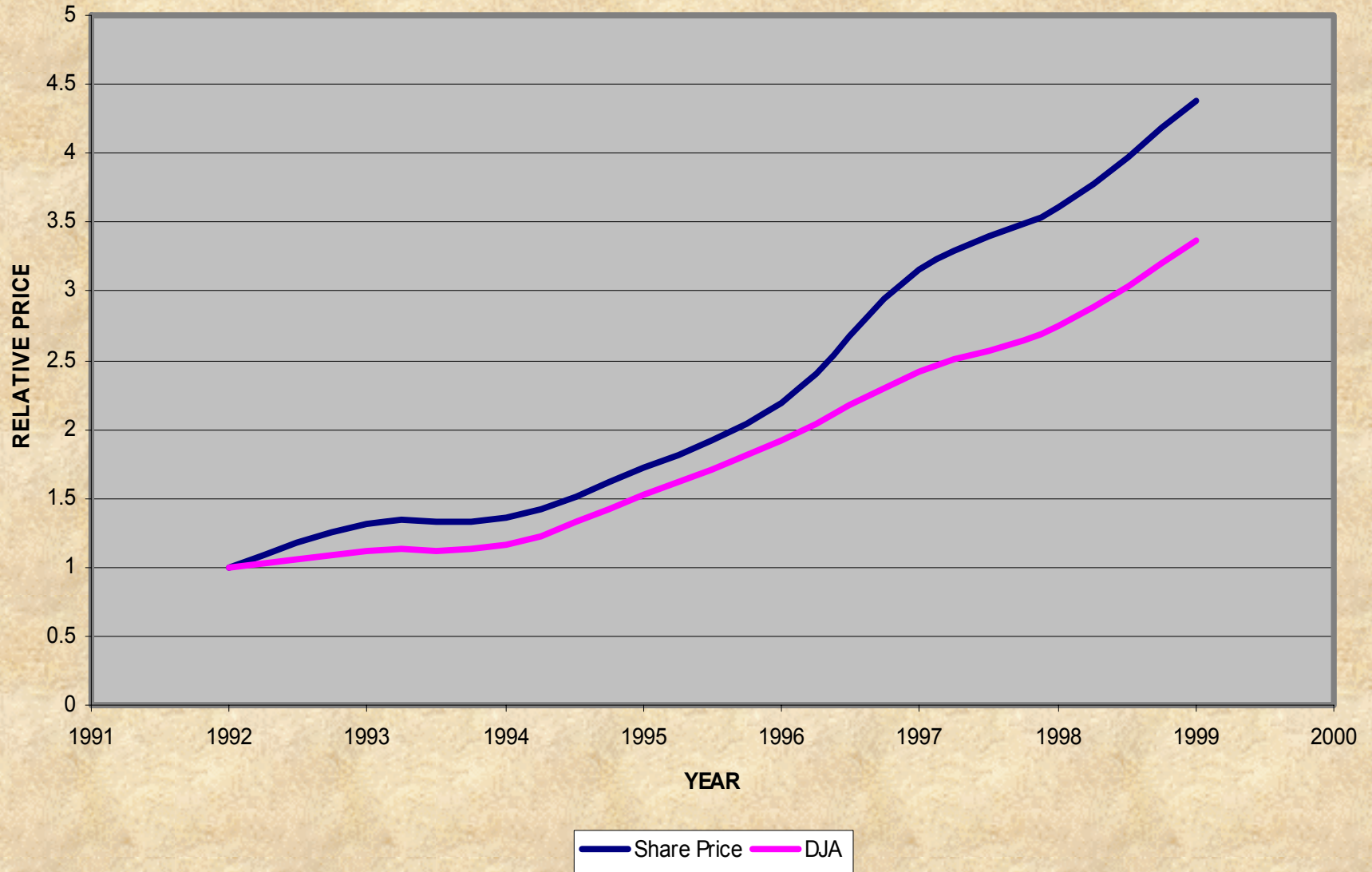
Sales Growth: Acquisitions

Earnings Growth: Follow Sales At A Lower Rate

ROIC: Initial Growth Followed By Deterioration

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Share Price

1992 to 1995:

Share Price Growth Parallels General Market

1995 to 1999:

Market Rewards Higher Growth Rate With Share Price Increase Beyond Market Trend

Metrics

Inventory Turns:

- **Varied From 3.4 to 7.0**
- **Not Measured At One Business**

On-Time Delivery:

- **Varied From 70% to 99%**
- **Not Measured At Two Businesses**

Issue

- **Successful Growth Strategy**

- **But At What Cost To**

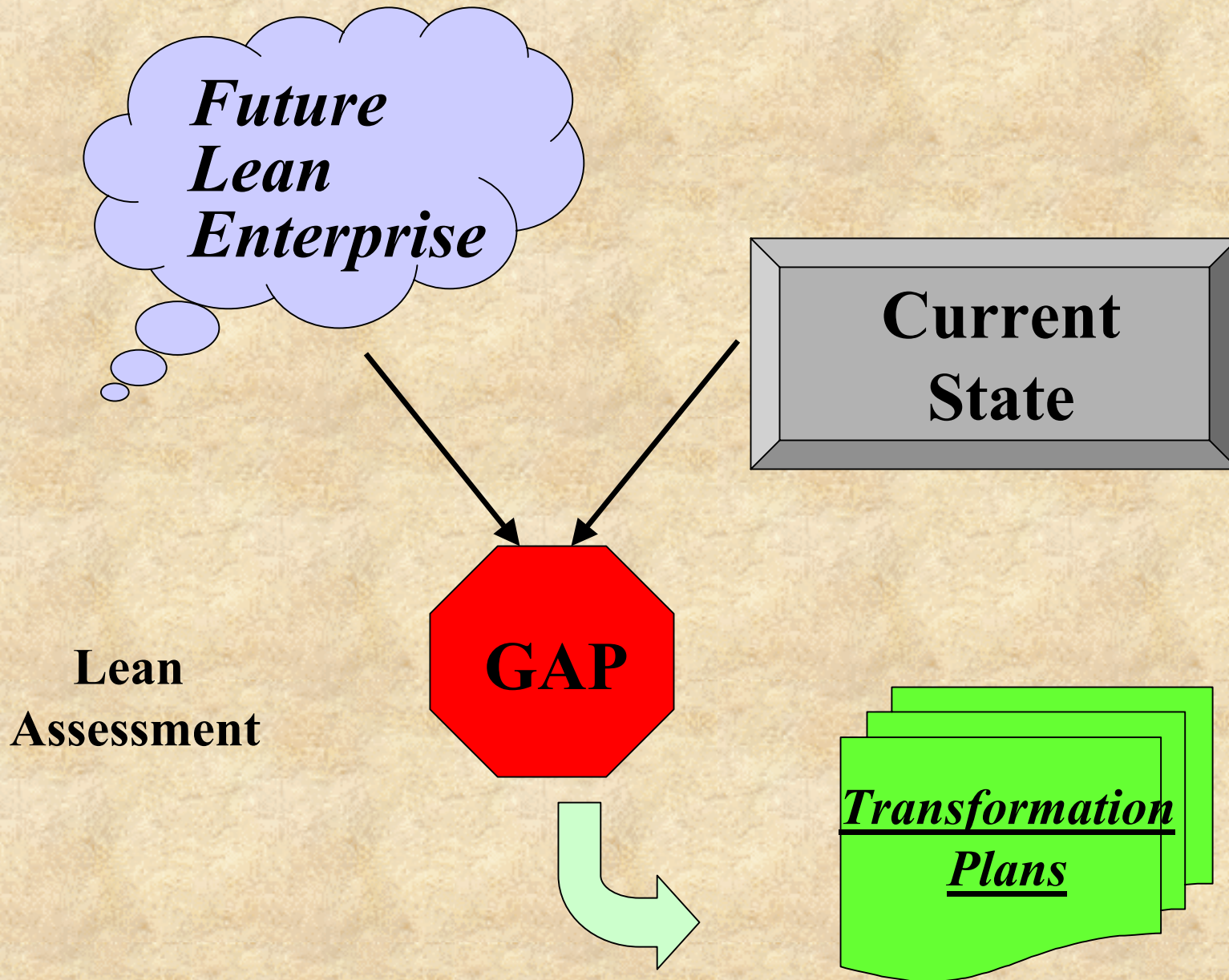
Maintaining (Or Not Maintaining) A

Lean Enterprise?

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Lean Assessment Process



Process Benefits

- Objective identification of Gaps in each major business
- Knowledge and understanding of what it takes to improve business performance
 - What is causing the gaps?
 - Transformation Plans and Resources necessary to close gaps
- Opportunity to develop consensus on priorities

Criteria for Assessment Team Selection

- Cross functional, diversified team to include:
 - Accounting
 - Engineering
 - Info Systems
 - Manufacturing
 - Sales / Marketing
 - Customer Service
 - Human Resources
 - Materials / Purchasing
 - Quality
 - Optional: Customers / Suppliers
- 30% of participants to be hourly
- All Shifts to be represented
- Minimum 10 participants / maximum 30

Assessment Elements

- Element 1: Quality
- Element 2: Management Process
- Element 3: Lean
- Element 4: Leadership/Communication
- Element 5: Schedule Performance
- Element 6: Data Integrity
- Element 7: Customer Service
- Element 8: Supplier Base Management
- Element 9: Safety
- Element 10: Education/Training
- Element 11: Distribution (optional)
- Element 12: Program/Project Management (optional)

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Element 1: Quality

- RATING:
5. Process excellence, Institutionalized (100%)
 4. Validated process, Implementation in most areas(75%)
 3. Consistent process, Partial implementation (50%)
 2. Process being developed, Beginning implementation (25%)
 1. No formal process in place, No implementation (0%)

Systems & Controls: Evaluate the following systems and controls using the rating scale (1-5) to indicate the process maturity and implementation status. If rating is split, use the lower score.

	Rating				
	1	2	3	4	5
1) The Quality System is certified and registered to ISO 9000 and/or QS 9000 standards					
2) Total Cost of Quality goals are documented, have visible measures, and are achieved through aggressive cost reductions in Appraisal and Failure costs.					
3) Customer requirements are clearly defined, understood by all relevant personnel, and are directly linked to improvement initiatives.					
4) Non-conforming material is captured by closed loop systems with immediate containment, root cause analysis, and implementation of corrective action, preventive action, and error-proofing.					
5) Advanced Product Quality Planning (APQP) process is in place and is rigorously followed. Flow Diagrams, Control Plans, and Process FMEA's are maintained by cross-functional teams.					
6) A Design for Manufacture/Assembly process has been institutionalized to improve time-to-market, reduce product cost, and optimize product quality.					

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Element 1: Quality

Performance Indicators: Evaluate the following performance indicators using the rating system outlined with each statement below

Rating

		1	2	3	4	5
19) Defect rates:	1= dpm is not measured or tracked 2= dpm > 10,000 3= dpm < 10,000 4= dpm < 1,000 5= dpm < 100					
20) Process Capability (key characteristics)	1= Cpk is not measured or tracked 2= Cpk < 1.0 3= Cpk 1.0-1.33 4= Cpk 1.33-1.66 5= Cpk > 1.66					
21) Cost of Quality	1= COQ is not measured or tracked 2= COQ is measured but not routinely tracked 3= COQ is measured with no signs of improvement 4= COQ shows downward trend 5= COQ is meeting targets					

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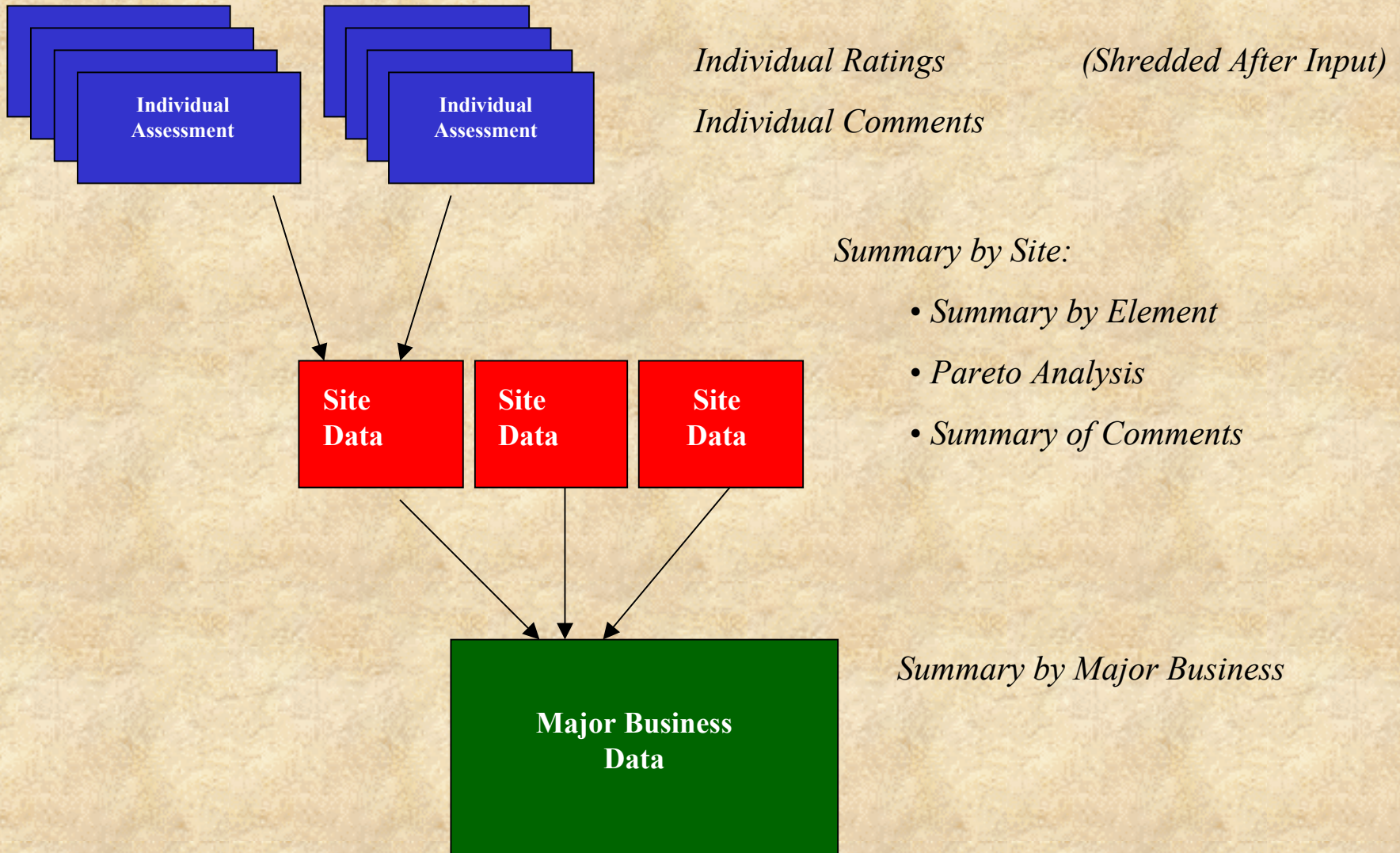
Element 1: Quality

Record any specific comments or observations related to this element (ie: strengths, weaknesses, opportunities for improvement)

Comments and Observations:

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Data and Analysis Flow

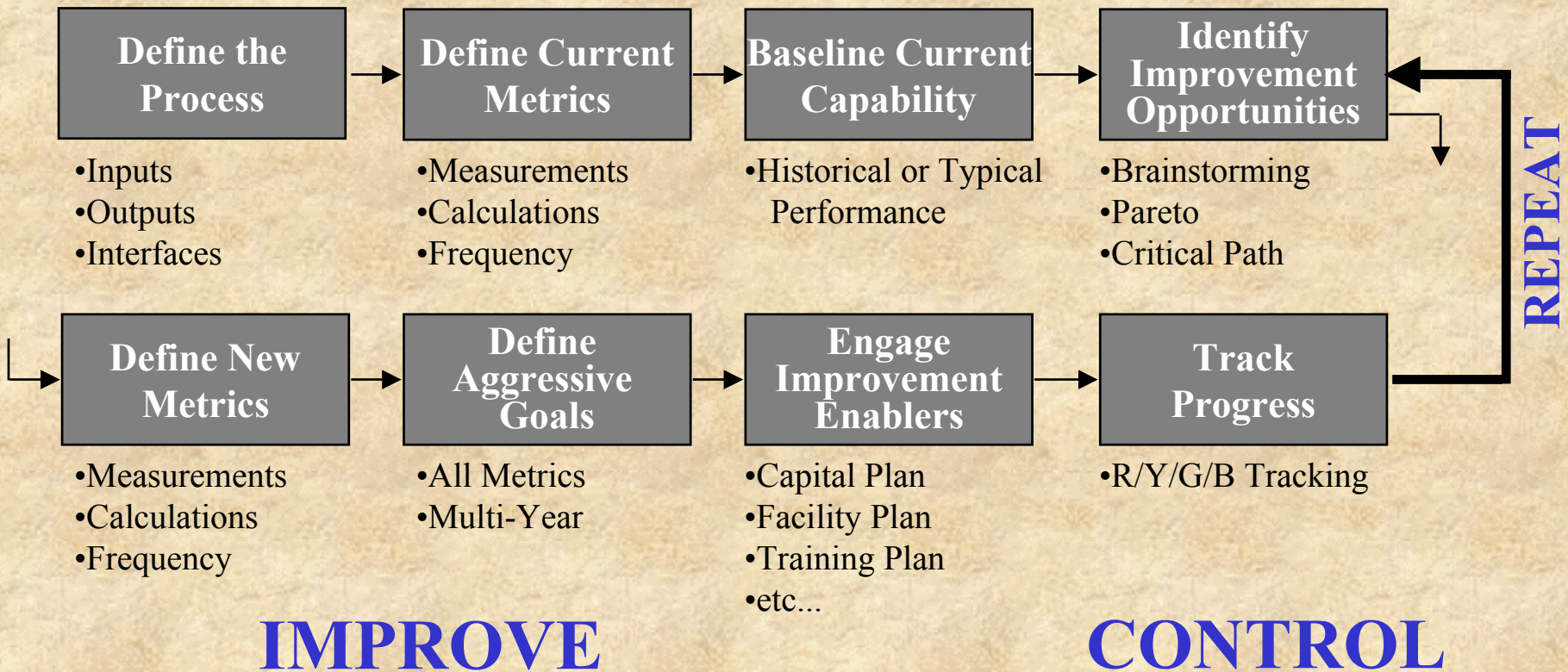


Develop Transformation Plans

Root Cause Analysis

UNDERSTAND

MEASURE



Lean Assessment: Fact Sheet

- 24 Weeks To Complete
- 12 Elements In Assessment
- 229 Questions In Assessment
- 611 Assessments
- 140,000 Data Points
- 2 Members In Lean Team
 - Used 10 Trained Facilitators

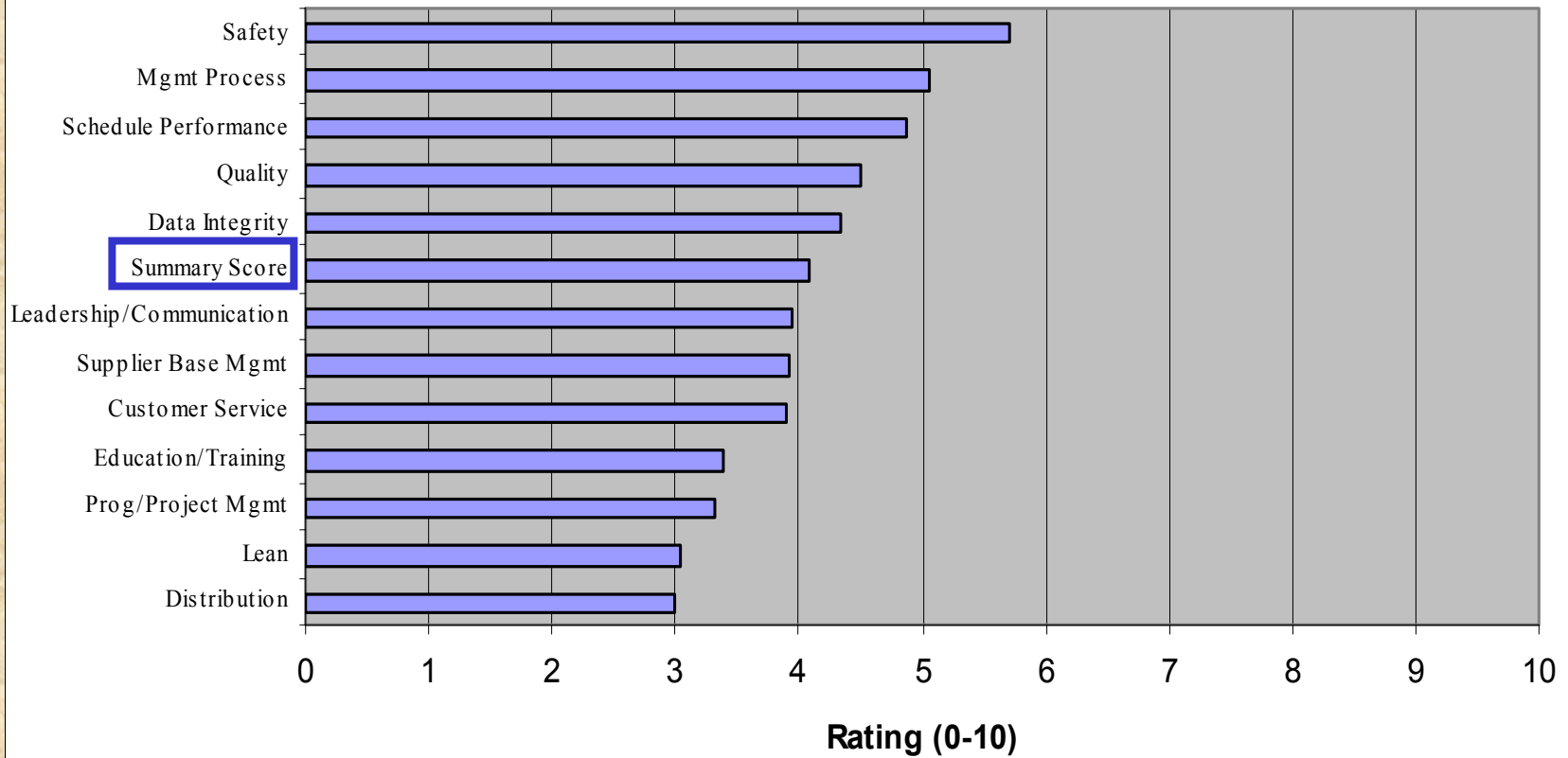
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Lean Transformation Consolidated Gap Assessment Ratings (Average all Businesses)

Average Rating : 4.1



Major Observations

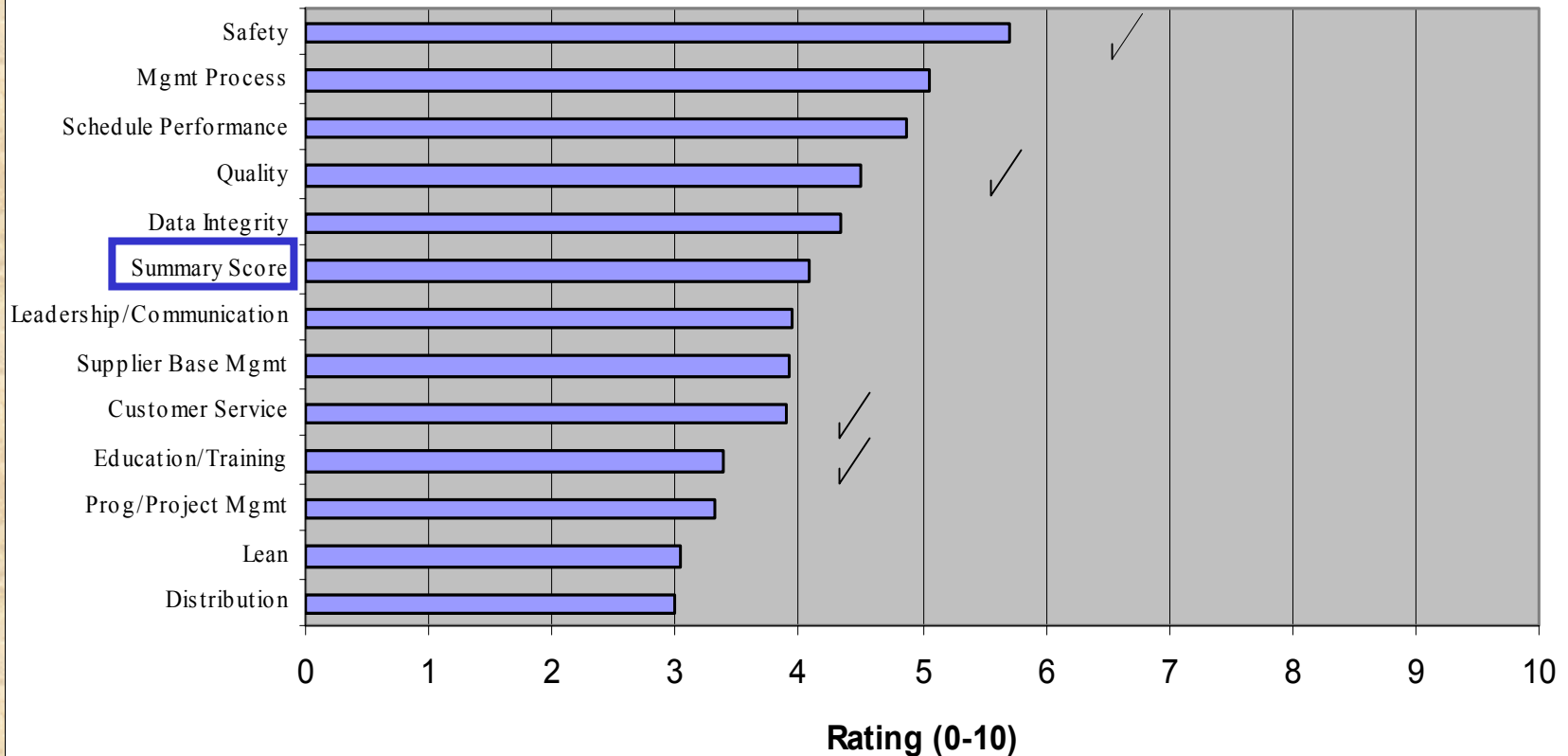
Strong Culture to Deliver

- Responsive to customer delivery requirements
- Culture well developed to put out fires/work around/circumvent systems --- lack of focus on good planning
- ***High Level of Waste in Manufacturing***
 - Machine downtime, set-up times, inventory management, process controls, flow, work arounds, inaccurate data, etc.
- ***Innovation Process is Very Weak***
 - Weak Project Management skills to get product to market
- ***Supplier Base Management Process Weak***
 - Supplier expectations set low for cost reduction, higher quality and improved operations
- ***Lack of Effective Communication and Employee Development***
 - In too Many Cases Employees are Poorly Informed and Received Little Feedback on Their Performance

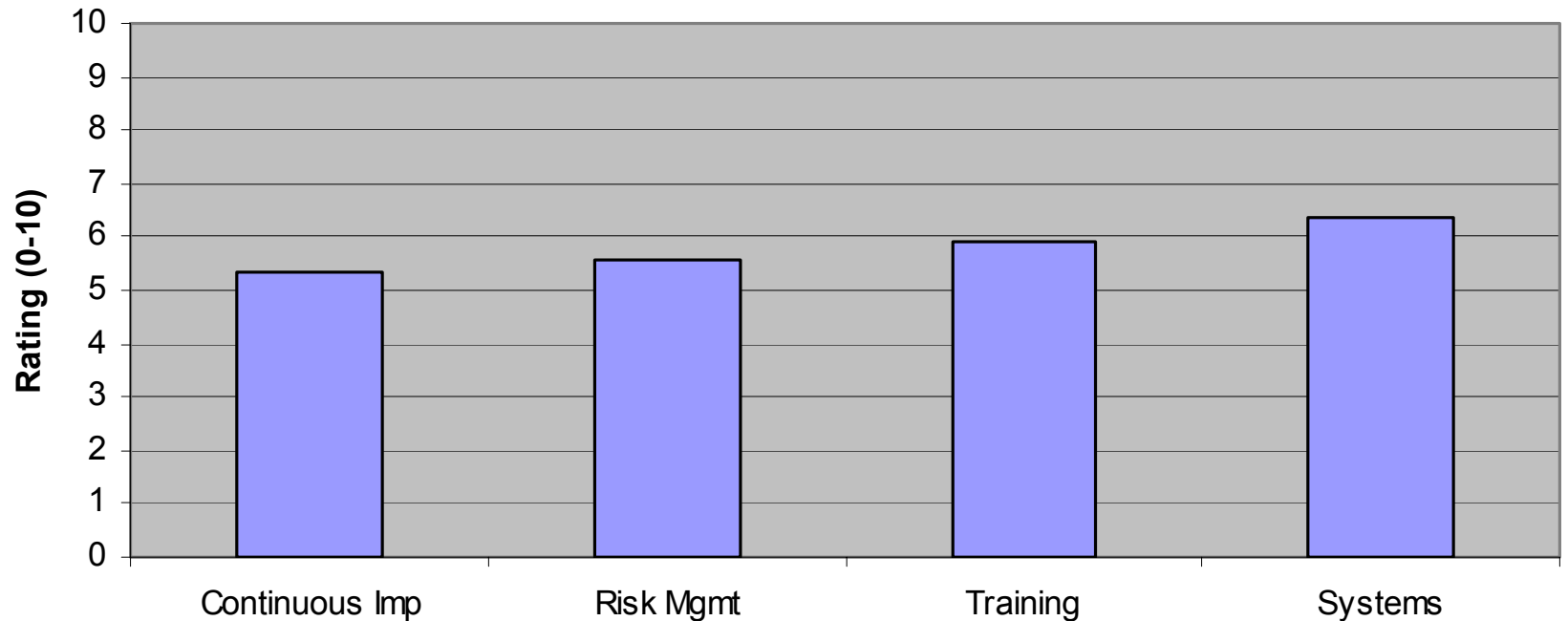
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Safety Categories



- **Safety is the highest scoring element for nearly all businesses. Credit the Corporate-wide DuPont training initiative for this achievement.**

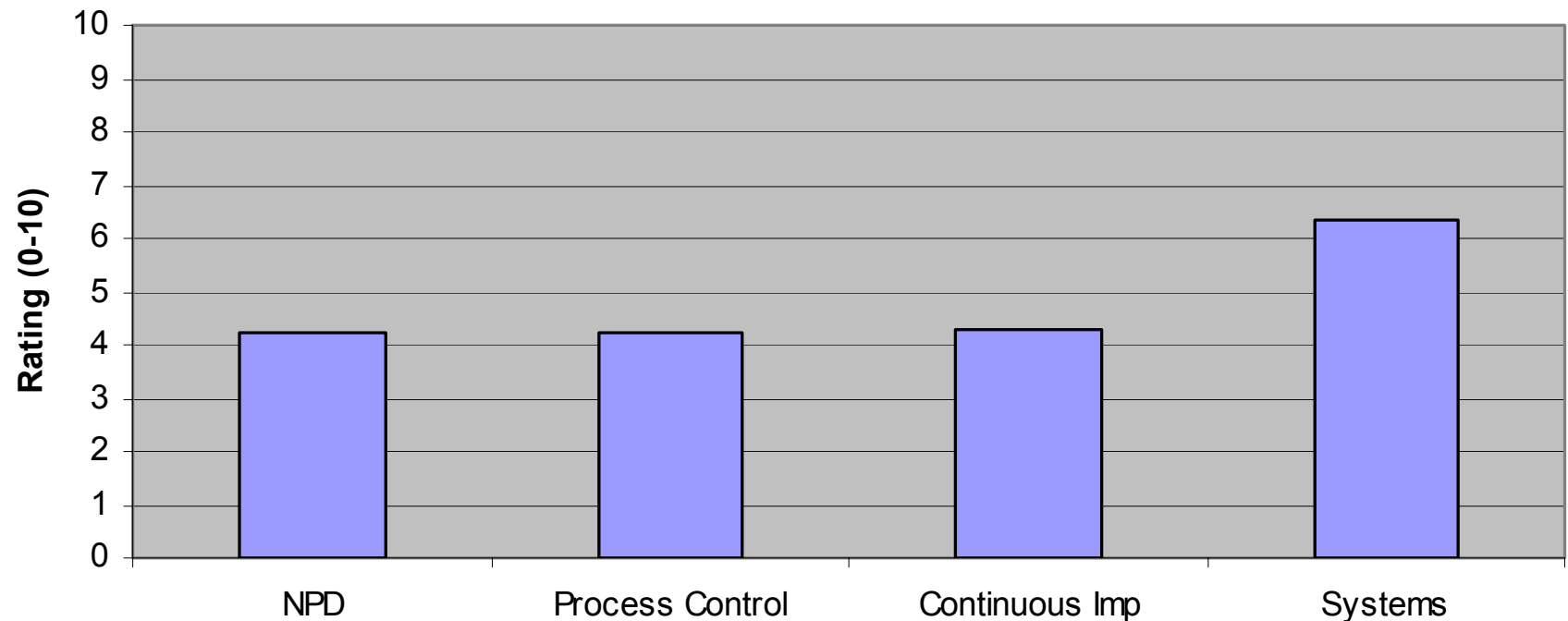
Safety

12 Employee perception surveys are used to formulate improvement plans; results are communicated back to employees.

14 Safety recognition is integrated with the business recognition process and includes such techniques as positive reinforcement, awards, and Senior Management “Thank you”.

15 Total Recordable Injuries: 1= $TRIR > 10$, 2= $TRIR < 10$, 3= $TRIR < 6$, 4= $TRIR < 3$, 5= $TRIR < 2$.

Quality Categories



- **Lack of clearly defined processes for New Product Development and Advanced Product Quality Planning -need more focus on process controls.**
- **Having ISO Certification is not enough.**

Quality

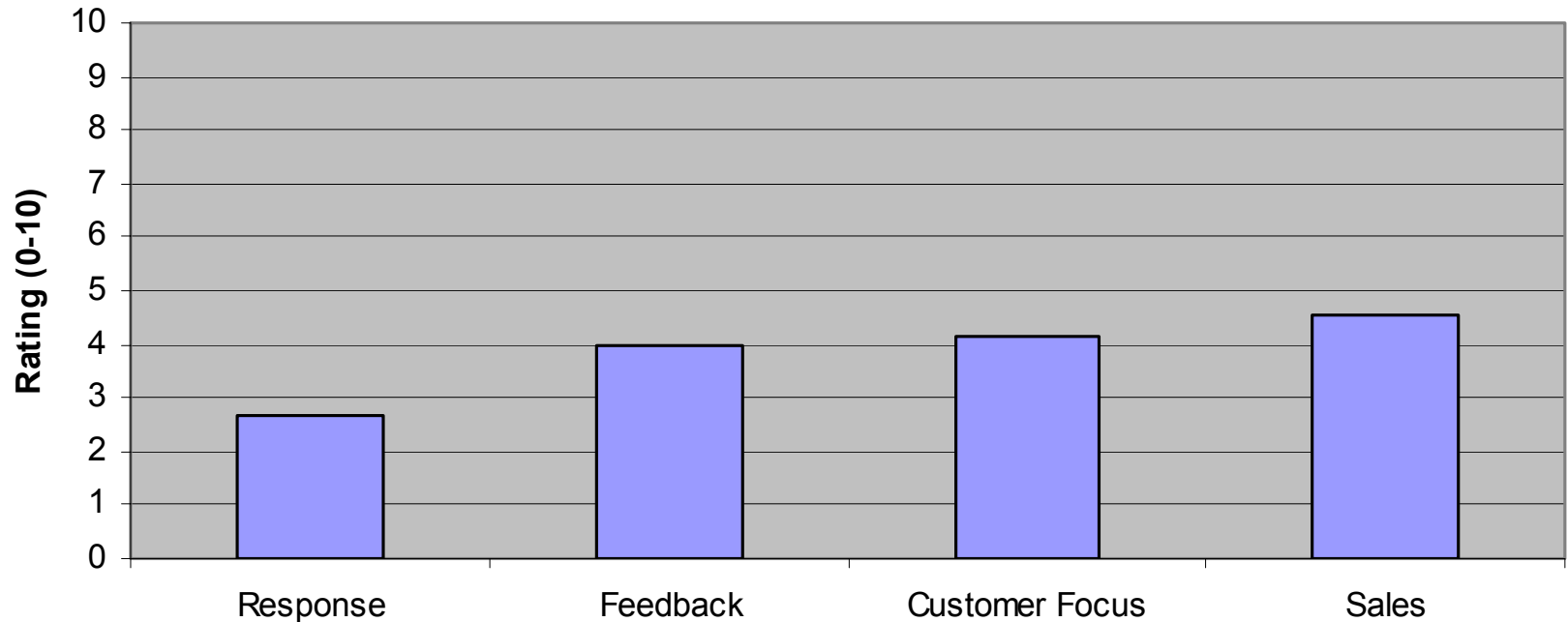
20 Process Capability (key characteristics): 1= Cpk not measured, 2= Cpk<1.0, 3= Cpk 1.0-1.33, 4=Cpk 1.33-1.66, 5=Cpk > 1.66

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16 Suppliers are actively involved in product development, process control and continuous improvement activities.

#**19 Defect rates**: 1= dpm not measured, 2= dpm>10,000, 3= dpm < 10,000, 4= dpm< 1000, 5= dpm<100.

Customer Service Categories



Customer Service Process is not understood by many employees. Communication beyond the Sales and Marketing groups is a frequent issue. Employees do not feel connected with their customers, nor do they clearly understand customer expectations.

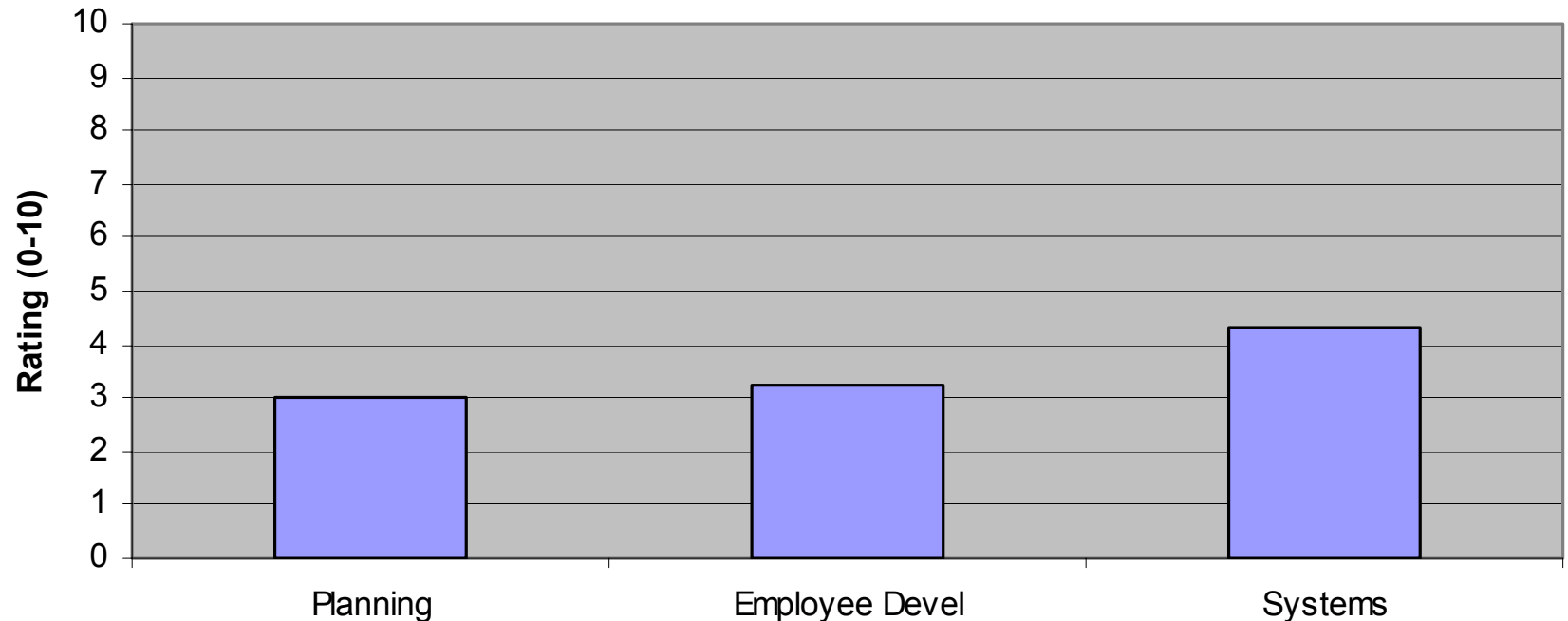
Customer Service

16 Response Time: 1= Response time to customer requests are not tracked, 2= Requests responded to in over 24 hours, 3= Requests responded to within 12 hours, 4= Requests responded to within 4 hours, 5= Requests responded to within 1 hour.

8 Lost customers are interviewed and results are reviewed, documented and communicated to appropriate employees.

12 Performance measures and service standards apply to **all employees** within the company that make customer response timely and effective.

Education/Training Categories



- **A void in education/training is a sore spot for nearly all employees.**
- **Budgets have been cut significantly. Basics such as development planning, training needs assessments, and new employee orientation have been dropped in many cases.**

Education/Training

#14 Development Training Hours (annual, not including mandatory):
1= not tracked, 2= average < 10 hours per employee, 3= average 10-30 hours/employee, 4= average 30-40 hours/employee, 5= > 40 hours/employee

#10 A knowledge database system for capturing, archiving, and accessing lessons learned exists and is used by employees. Technical solutions, corrective actions, and error-proofing techniques are captured by this database.

#5 The quality of training programs is routinely assessed and **curriculum improvement plans** are developed and implemented.

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Conclusions

- **Acquisition Strategy Resulted In Overcapacity In Plants, Equipment And People**
- **Business And Operational Processes Are Not Lean Nor Are They Focused On Delivering Value To Customers**
- **Management (At All Levels) Is Neither Aware Of Nor Trained In Lean Principles**

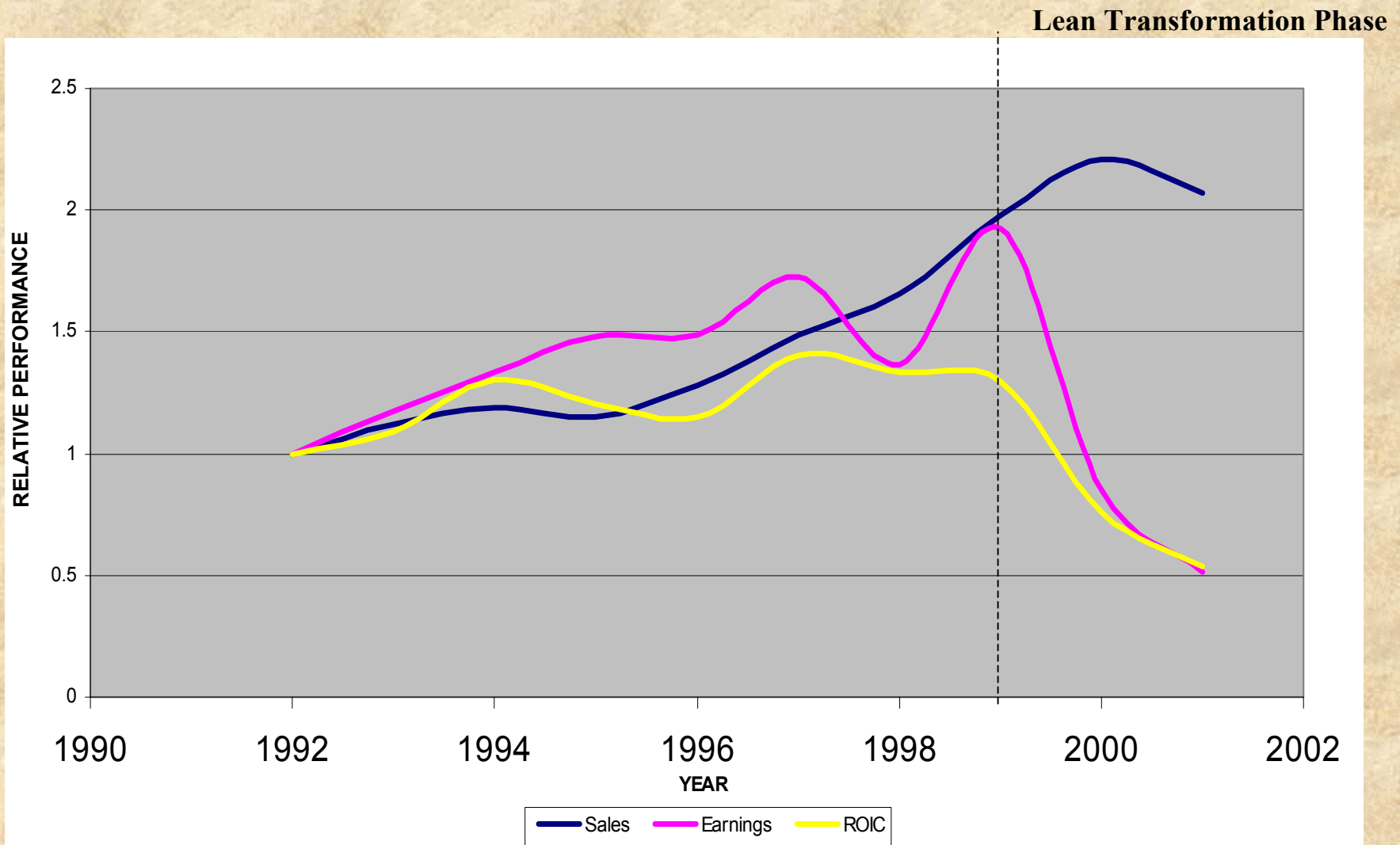
The Challenge

- **Lean Enterprise “Value Delivery” To Customers And Stakeholders Does Not Exist**
- **A Transformation To Lean Is Mandatory**
- **Time Is Of The Essence**

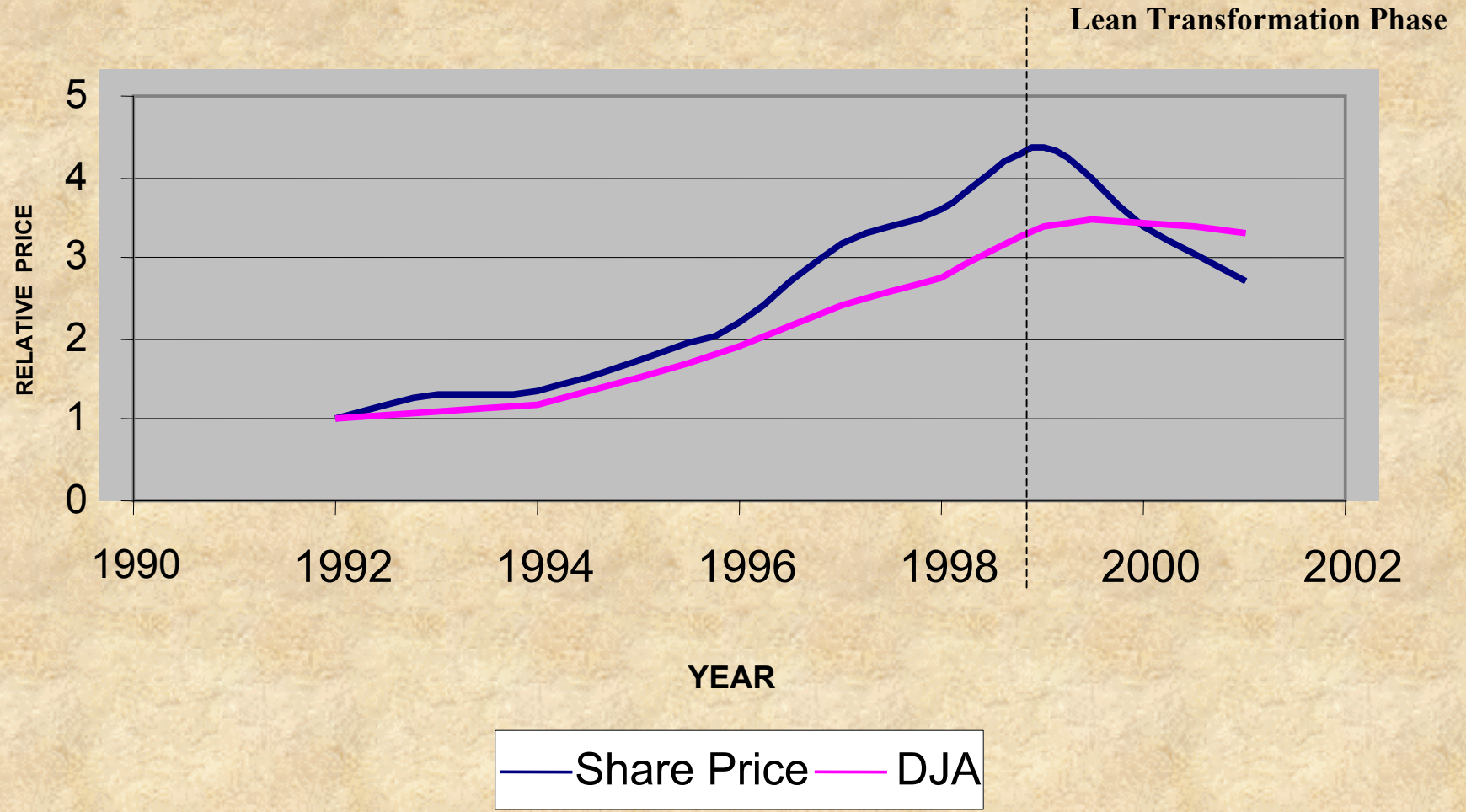
Major Actions In Transforming To Lean

- **Businesses Restructured**
- **Management Restructured**
- **Training Instituted**

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Theme

- **‘Lean’ Is Critical To Success Of Any Business Growth Strategy**
- **‘Lean’ Applies To Invested Capital**
- **‘Lean’ Is A Way Of Conducting Business Which Must Be Embraced Throughout An Enterprise From Top To Bottom**

Thank you

Noel Nightingale