

Goodrich Aerostructures

Fourteen Years...and Counting

Lean Transformation Summit

March 4, 2010

Greg Peters



right attitude/right approach/right alongside
www.goodrich.com



GOODRICH

Agenda

1

Who We Are

Facilities
Products
Customers

2

Our Transformation

Building on our Technology
Building on our Legacy
Building a Competitive Culture

3

Defining Moments

Some we controlled...some we did not

4

Summary

A great and Sustainable Business

Corporate Overview 2009

right attitude/right approach/right alongside
www.goodrich.com



Goodrich Strategic Objectives

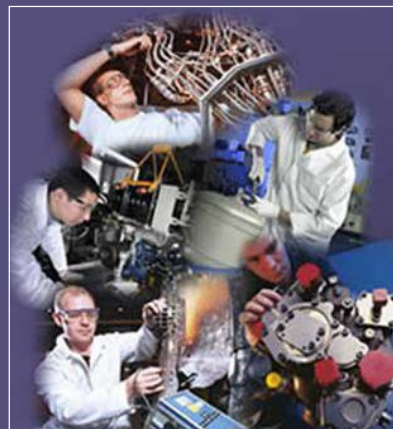


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A Global Leader in Aerospace and Defense

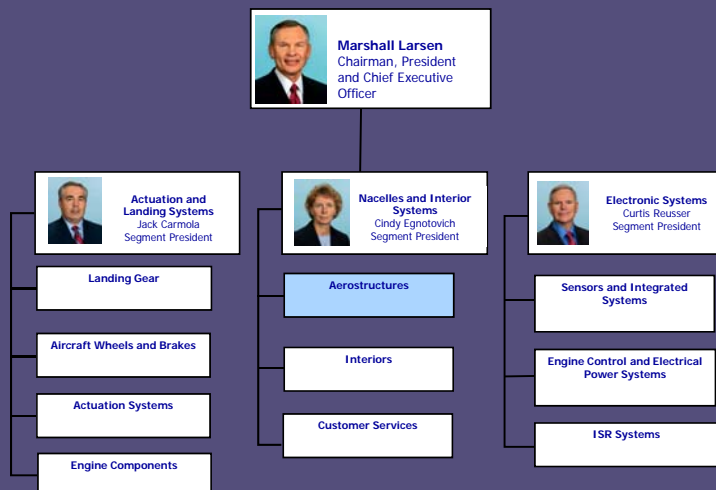
- One of the largest worldwide aerospace and defense suppliers
- Large installed base on modern fleets drives aftermarket sales
- Significant defense and space presence
- Proprietary flight-critical systems and products
- Operating history of nearly 140 years
- 2008 sales - \$7.1 billion
- 25,000 employees at 80 locations worldwide



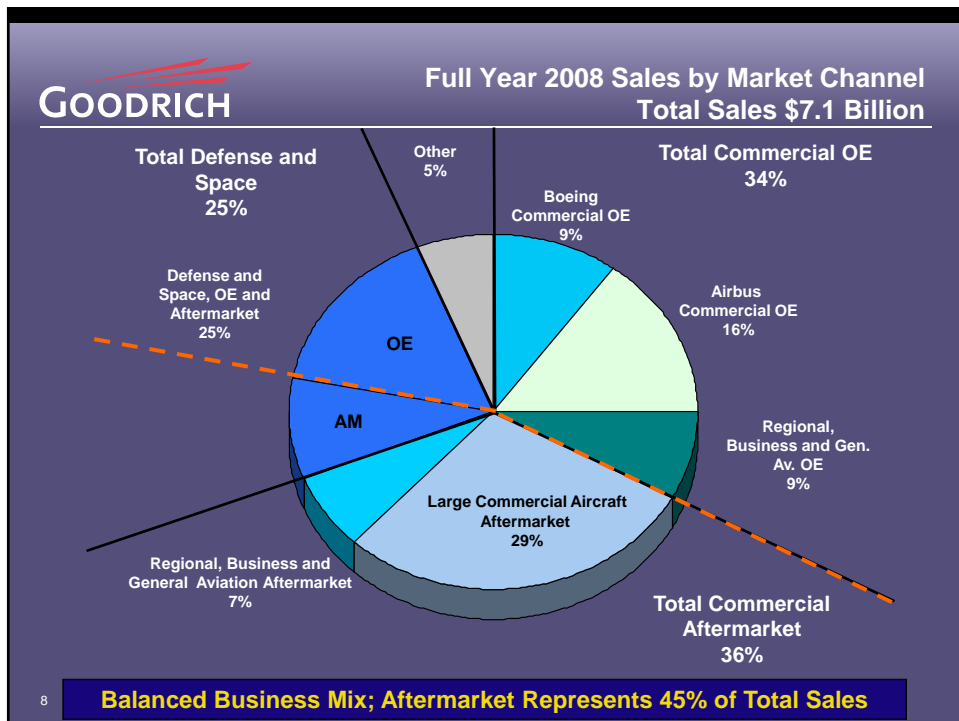
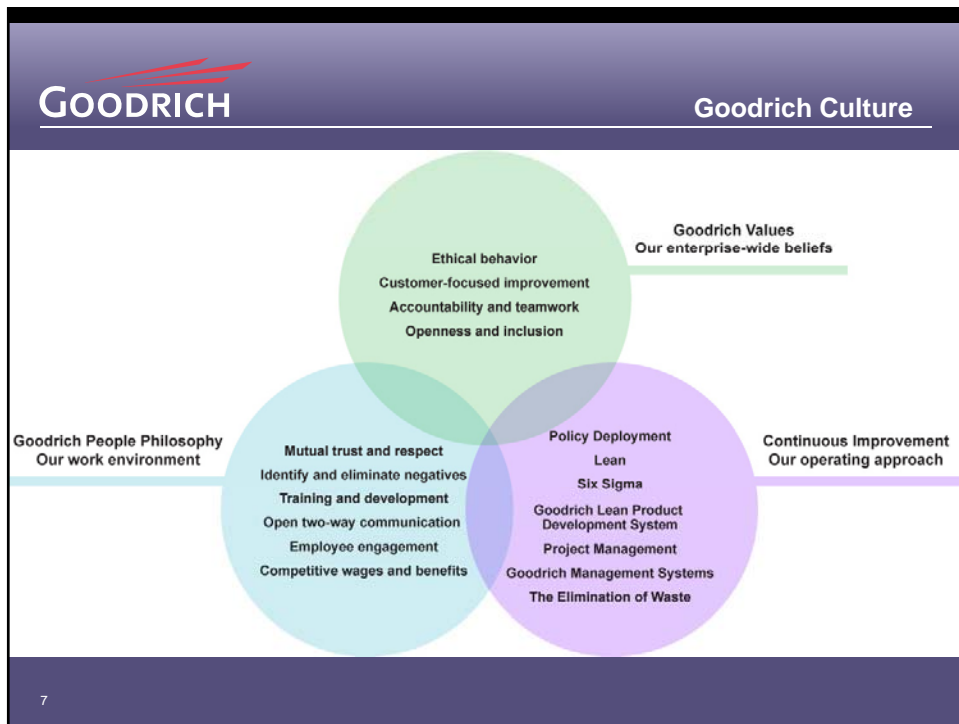
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Organization



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Commercial

787 Dreamliner



A350XWB



A380



*Pratt and Whitney
PurePower
PW1000G Engine*



Military

F-35 Lightning II



C-5 Re-Engine



*DB-110
Reconnaissance Pod*



UH-60M Black Hawk



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**Chula Vista, CA USA
Headquarters**

These capabilities differentiate us from our competition and have become a competitive advantage for GR

Manufacturing



Chula Vista, CA Riverside, CA Foley, AL San Marcos, TX Mexicali, MX

Engine / Nacelle Integration



Toulouse, FR Hamburg, GR Everett, WA Tianjin, China

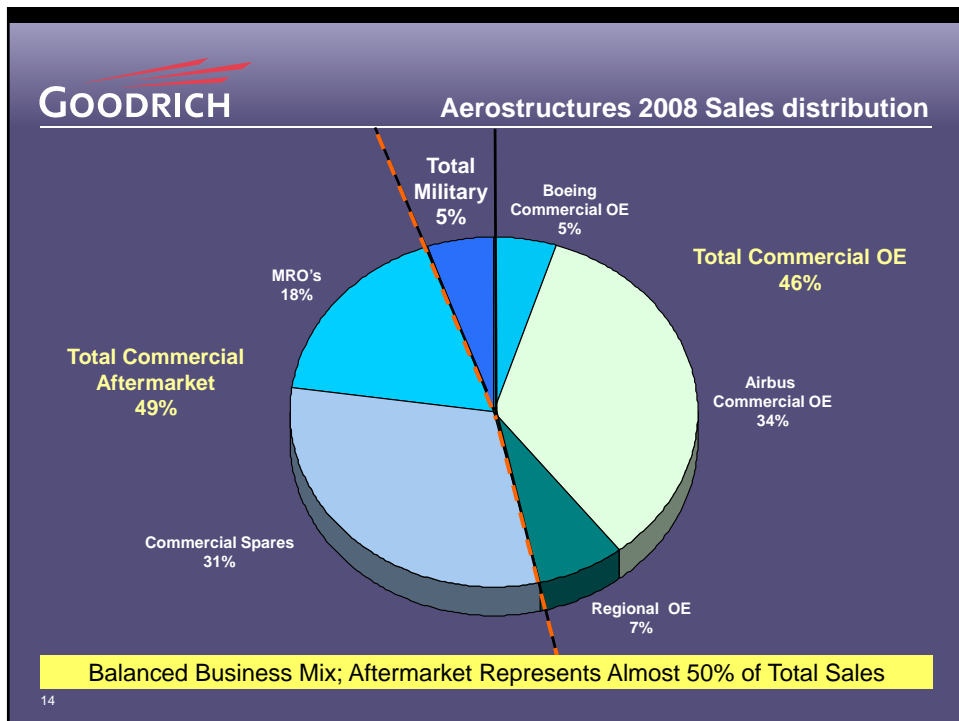
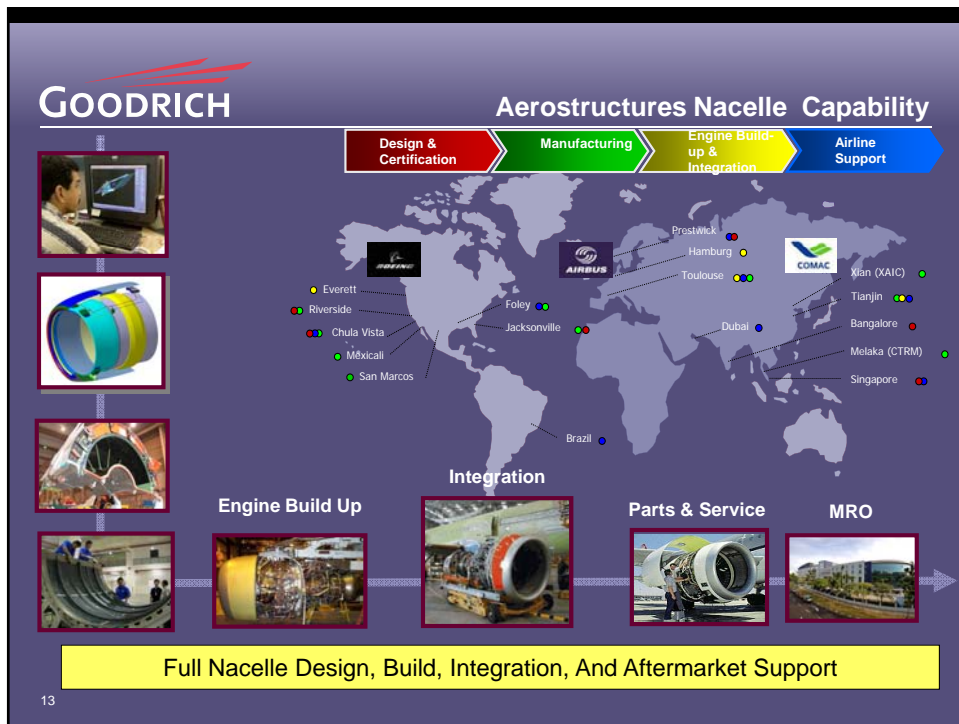
Aftermarket Support, MRO



Singapore Prestwick, UK Foley, AL Dubai Tianjin

The Industry's Leading Capability and Capacity

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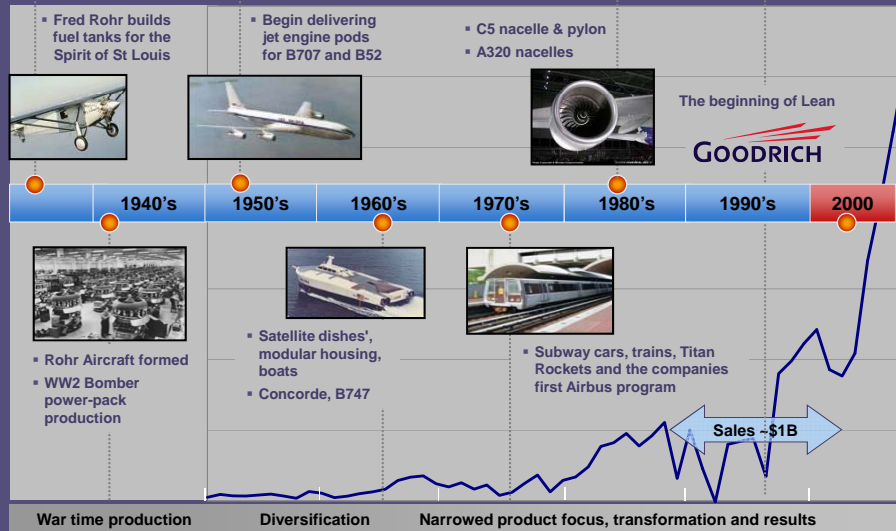
1	Who we are Facilities Products Customers
2	Our Transformation <i>Building on our Technology</i> <i>Building on our Legacy</i> <i>Building a Competitive Culture</i>
3	Defining Moments <i>Some we controlled...some we did not</i>
4	Summary <i>A great and Sustainable Business</i>

- **What can...**
- Operate in Ambient Temperature Ranges of -100°F to +140°F???
- Protect against engine fire temperatures up to 2000°F and engine case temperatures up to 1300°F.
- Nacelle Must Protect Essential Systems Against:
 - Lightning Strike
 - Engine Fires
 - Ice Build up
 - Bird Strike
- Safe stopping of the aircraft in normal landings, rejected takeoffs or aborted landings
- Outstanding reliability
- Protect against burst engine ducts and fan blade out

I can do that!



Nacelle Must be Fully Functional for Over 60,000 Flight Cycles and 20 Years of Operation



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1	Who we are
	Facilities
	Products
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	Building on a Legacy
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	Building a Competitive Culture
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	<i>A great and Sustainable Business</i>

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Foundational

1. Deployed the "People Philosophy"
2. Developed & deployed the "Principles for Excellence"

Fundamental

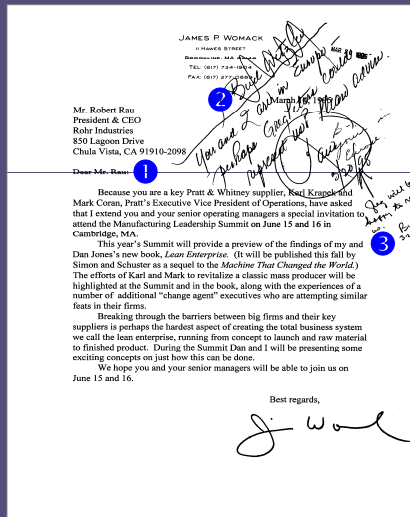
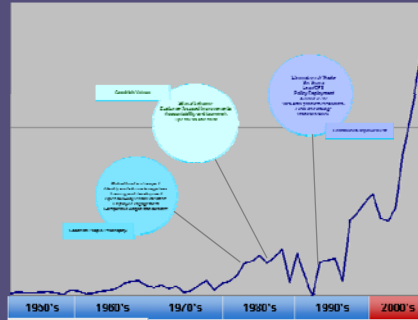
3. Recognized the foundational aspects of the People Philosophy and the Principles for Excellence as foundational tools for Continuous Improvement

Recognition that you must have all three

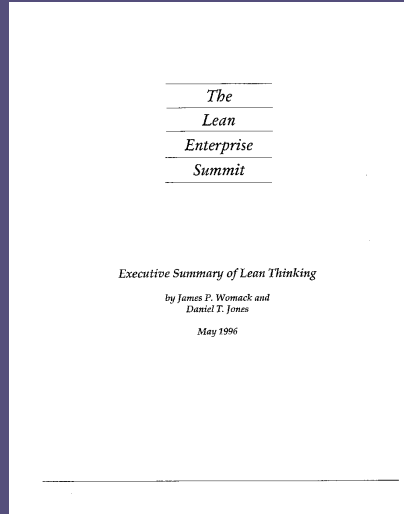
Specific Actions

- Increased accountability through the introduction of Policy Deployment
- Leadership is leading
- Solid education in all "Three Circles"
- Leadership Forums to develop the next Generation of Leaders

Lean gave us the Environment that gave the People Philosophy and our Values traction



- A Facility faced closure if improvement could not be quickly demonstrated
- Pratt and Whitney targeted Rohr
- "Third String" was sent to the Lean Summit in 1995



24 page White Paper

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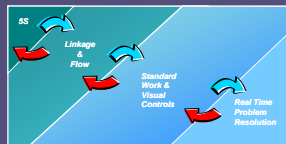
- We did not have much information at the start
- We “jumped in the deep end” and started running events
- Bias for action with limited understanding
- Began a “Learning Together” process that continues to this day
- Chose to remove those that threatened progress

Foundational

- Goodrich People Philosophy
- Goodrich Values
- Solid Principles of CI

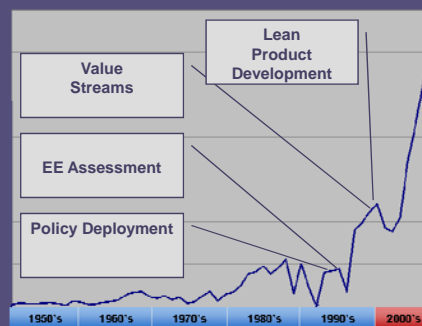
Fundamental

Recognized & understood the value of :



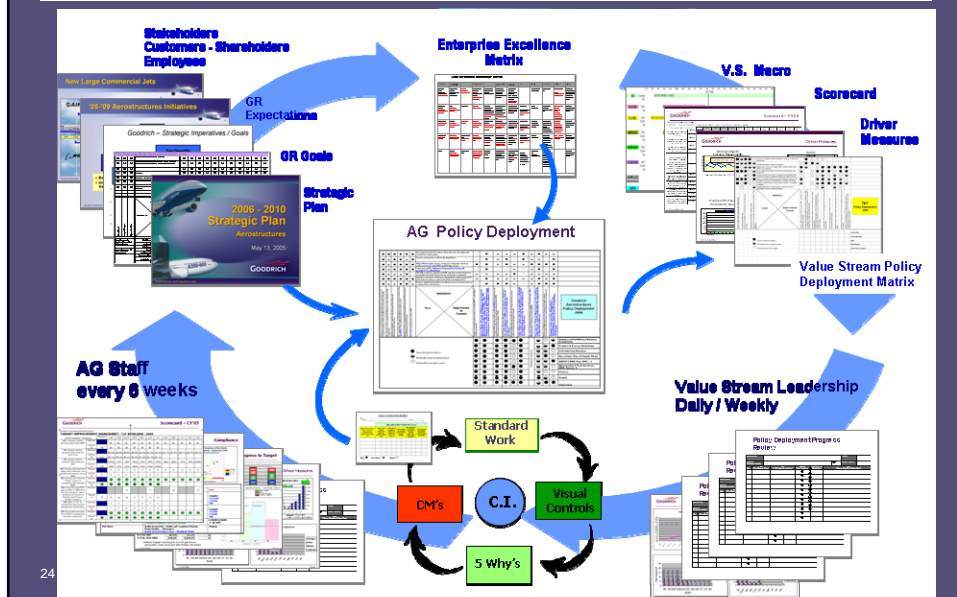
Mission Critical Actions

- Initial deployment of Continuous Improvement – the Toyota Production System
- Initial deployment of Lean Practitioner Training – Senior Leadership presenting
- Introduction of the Policy Deployment process
- Introduction of the Enterprise Excellence Assessment tool & process
- Reorganized into Value Streams
- Lean Product Development launched



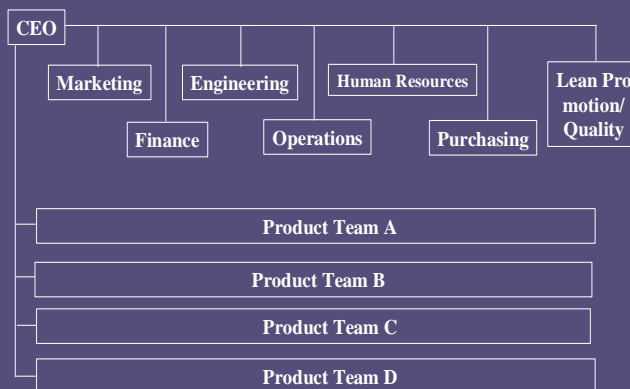
Enterprise Excellence has Become a Core Competency

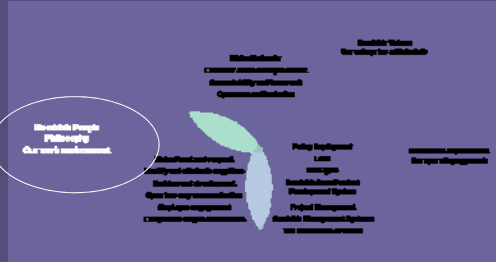
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"As you get the kinks out of your physical production, ... it will become obvious that reorganizing by product family and value stream is the best way to sustain your achievement ... it will become apparent that a large fraction of your people and tools can be dedicated to specific product families."

Jones, Daniel T. and Womack, James P. *Lean Thinking* (New York: Simon & Schuster, 1996) pp256-257.





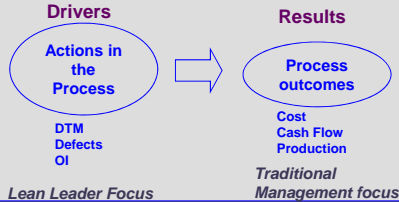
Change

- Awareness
- Understanding
- Commitment
- Habit

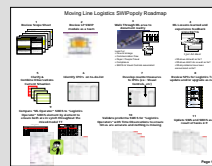


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Habit #1 – Recognition and action on Drivers vs. Results



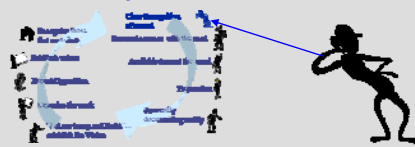
Habit #2 – discipline to recognize and follow a process



- Lean Events
- Policy Deployment
- Lean assessments
- Organization Change

Habit #4 – the ability to recognize the performance gap

Leadership model



Habit #3 – a change of habit. This is different, it requires a fundamental change

It is non-optional
This will mean some will not make it



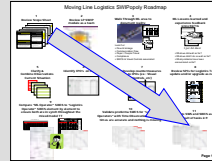
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Habit #1 – Focus only on Results



Results are at best
history lessons and
cannot be changed

**Habit #2 – the process is not
important, just give me the results**



Habit #4 – the Law of the lid*



An organization
cannot progress
beyond the level
of its leader

*John Maxwell

**Habit #3 – Inertia and those unable
to make the humbling journey**



I did not get
to this level
knowing
nothing ...

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Summary

A great and Sustainable Business

1992 - 2008

Facilities
Square Feet
Employees
Shift Distribution Percentage
Typical DTM
Sales
Sales / Employee
Spares OTD to Customer Request Date**
Delivered Quality
Operating Income
Operating Margin

Facilities	- 38%
Square feet (1m + sq ft open)	- 26%
Employees	- 63%
Shift distribution percentage	☑ first shift
Typical DTM	- 71%
Sales	+ 90%
Sales / employee*	+ 426%
Spares OTD to customer request date**	+ 126%
Delivered Quality	+ 2.6% pts
Operating Income	+++ m
Operating Margin	+ +% pts

2008	% Change
10	- 38%
74 m	- 26%
8,812	- 63%
9/10/1	☑
>10	- 71%
\$1.9b	+ 90%
395K	+ 426%
95%	+ 126%
8.9%	+ 2.6% pts
	+++m
	+ +% pts

* Includes contract labor

** 2001 to 2006 Financials exclude Cargo / EPP

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Strategies

Results

- Operations Excellence
 - Goodrich Values, People and CI
- Increase Value of Current Base
 - CI, Plant Consolidation
 - Value stream deployment
 - Supply Chain Management
- Sales Growth
 - Deploy Aftermarket Protect & Grow

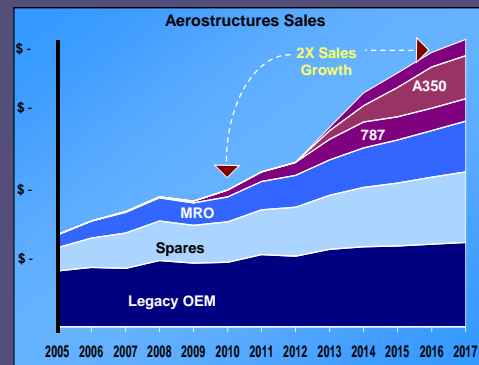


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Strategic Plan Focus Areas

Results

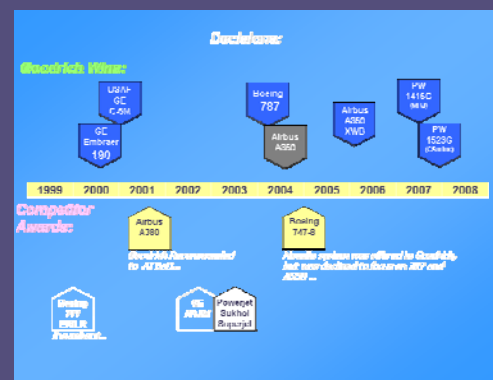
- Good plans in place, execution critical
- Meet challenge of improving cash conversion in difficult economy and high program investment period
- Balance response to current downturn with pressing demand for new capacity
- Competitors are reacting to our success and customer expectations increasing, adjust market strategies as required to maintain market leadership



Strategies

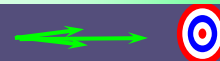
Results

- Develop and deploy a Value Proposition that provides the “best value” offering to meet customer requirements
 - Excellence in quality and delivery
 - Advanced product technology
 - Regional, responsive support
 - Engineering capability and capacity
 - Cost leadership when needed

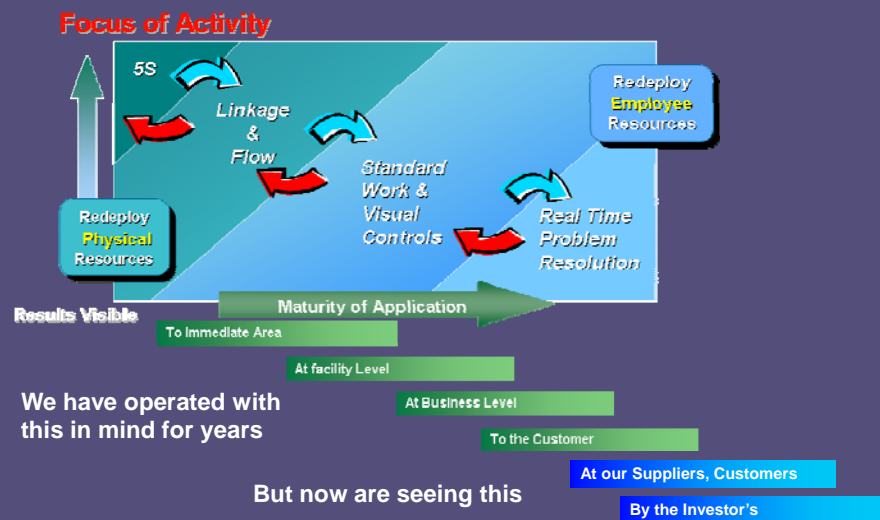


- Change will not happen without Leadership Leading
 - We had to learn what this meant
- Cultural change
 - A constant focus, both explicitly & implicitly
- Consistency of purpose and how to achieve
 - Beat a consistent drum
- TPS - real easy to understand and one the most difficult things we have undertaken.

Consistency of purpose ...



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