

MIT OpenCourseWare  
<http://ocw.mit.edu>

16.660 / 16.853 / ESD.62J Introduction to Lean Six Sigma Methods  
January (IAP) 2008

For information about citing these materials or our Terms of Use, visit: <http://ocw.mit.edu/terms>.



**People: The Heart of Lean**



“There are two major distinctive features of these [Toyota Production and Kanban] systems.

One of these is ‘just-in-time production’, an especially important factor in an assembly industry such as automotive manufacturing....

Second...is the **‘respect-for-human’ system** where the workers are allowed to display in full their capabilities through active participation in running and improving their own workshops”



**“The soft stuff is the  
hard stuff.”**

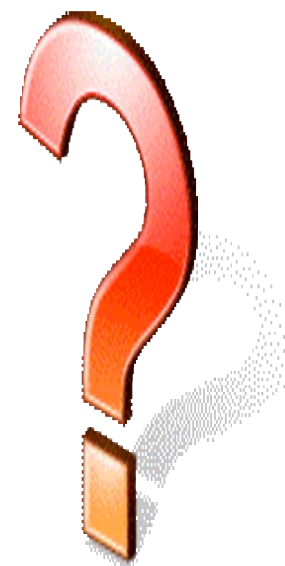
*Chris Cool - Northrop Grumman*

# Learning Objectives

**At the end of this module, you should be able to:**

- **Explain why people are the key to improving productivity**
- **Describe how to be an effective member of a team**
- **Compare & contrast leadership vs. management**

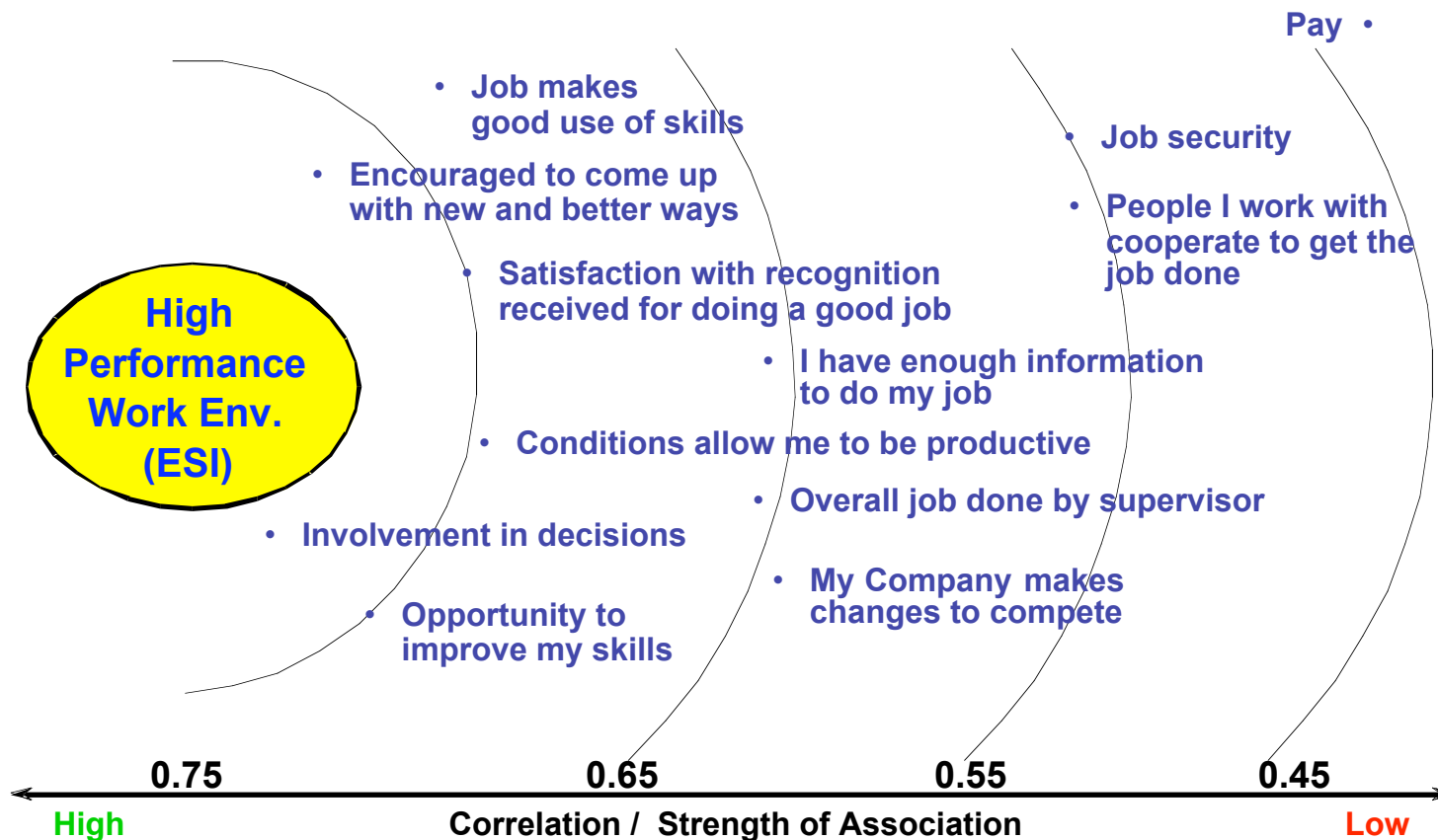
**What are the most important things that contribute to your job satisfaction?**



**Please contribute ideas,  
then we will vote on them**

# Drivers of Employee Satisfaction

## 2003 Employee Satisfaction Index Key Driver Analysis



Courtesy of Boeing. Used with permission.

# Productivity Virtuous Cycle

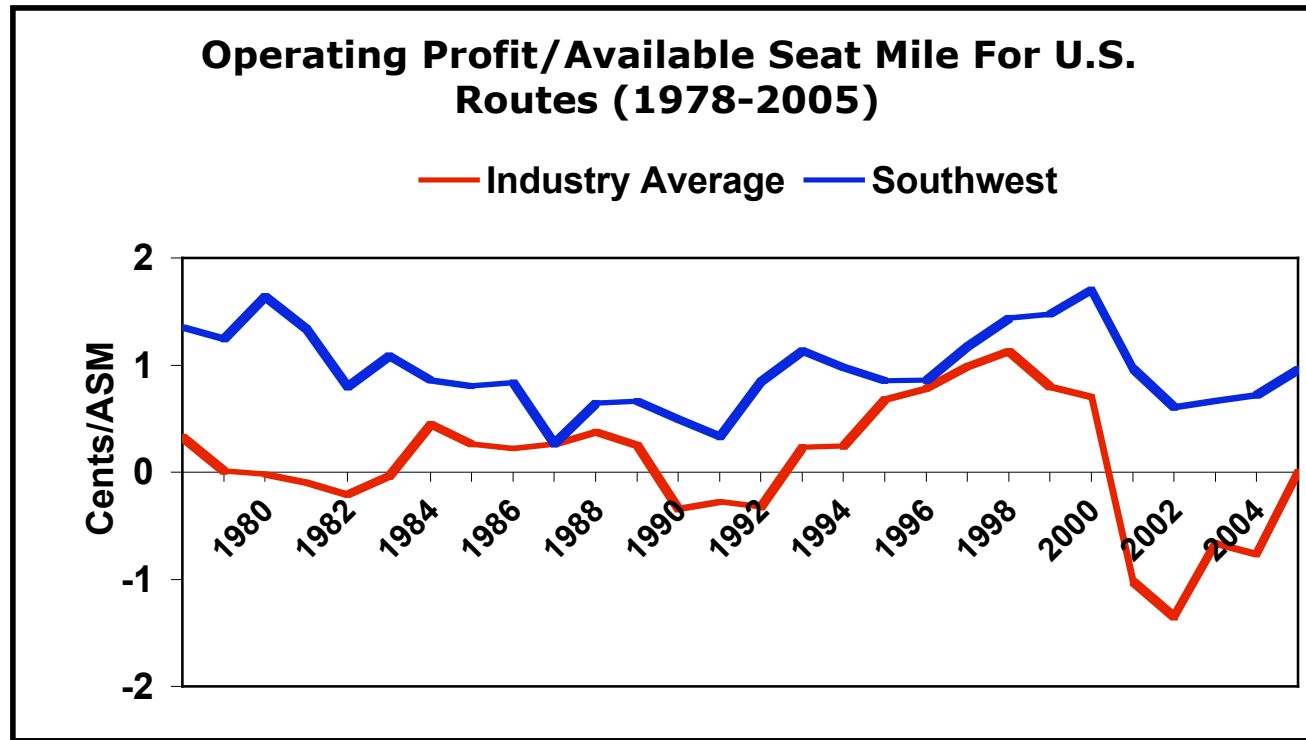


\*Richard Kleine, John Deere, c 2000

\*\* Elton Mayo, c 1920



# Southwest Performance vs. All U.S. Domestic Airlines



Southwest has made a profit every year since it started operation!



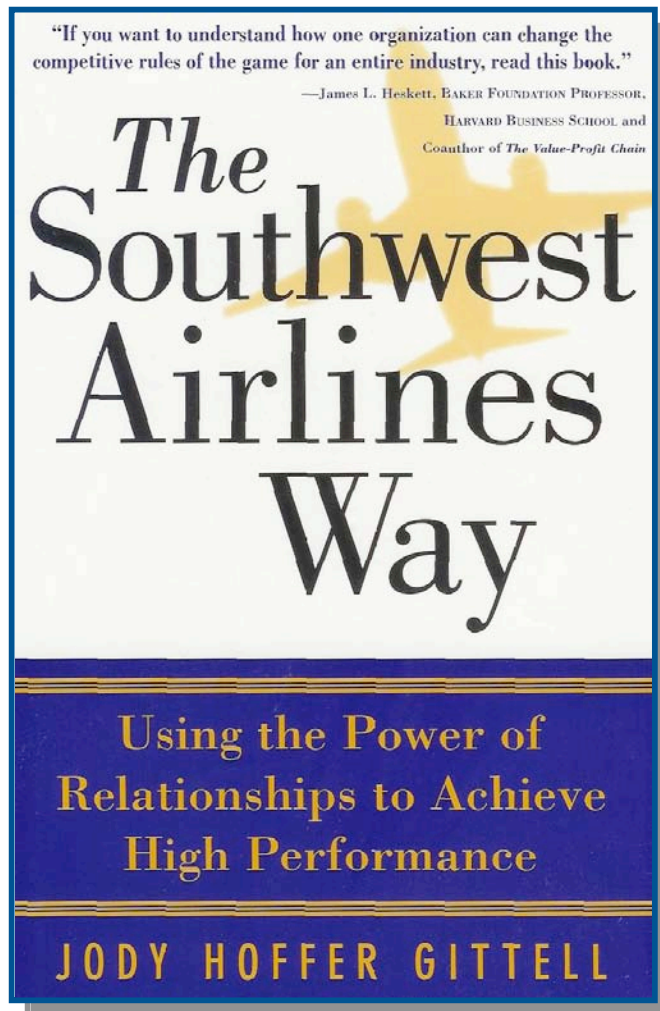
Courtesy of Southwest Airlines.  
Used with permission.

## Southwest Airlines...

- **Has had only one fatality in 35 years of operation - an overrun on a snowy runway at Midway on Dec 8, 2005**
- **Flies only one make of aircraft - Boeing 737**
  - **Simplifies training, maintenance, logistics**
- **Has never had a layoff of employees to reduce costs, including after 9/11**
- **Is the most highly unionized major U.S. airline**
- **Has a point-to-point, not hub-and-spoke, route structure**
- **Consistently offers some of the lowest fares available**
- **Is a favorite of both investors and employees**

## What makes Southwest so successful?

# Organizational Competency



“In this book I argue that Southwest’s most powerful organizational competency... is its ability to build and sustain high performance relationships ... characterized by **shared goals, shared knowledge, and mutual respect**. Although these relationships appear simple, appearances are deceptive.”  
(Emphasis added)

Courtesy of McGraw-Hill. Used with permission.

# Relational Coordination

- **Shared Goals** *aligns* employees to prioritize organizational success over “just doing my job”
  - SWA: Safety, Satisfied Customers, On-time Departure
- **Shared Knowledge** *enables visibility* of the overall work process, and the linkages between different jobs
  - SWA: Functional groups help each other; Pilots help flight attendants, gate agents help baggage handlers,...
- **Mutual Respect** *reduces barriers* between employees and employee groups
  - SWA: No one employee group is more important than another

***Supported by effective communication***



Colleen Barrett, SWA President  
[www.southwest.com](http://www.southwest.com)

Courtesy of Southwest Airlines. Used with permission.

# Communication

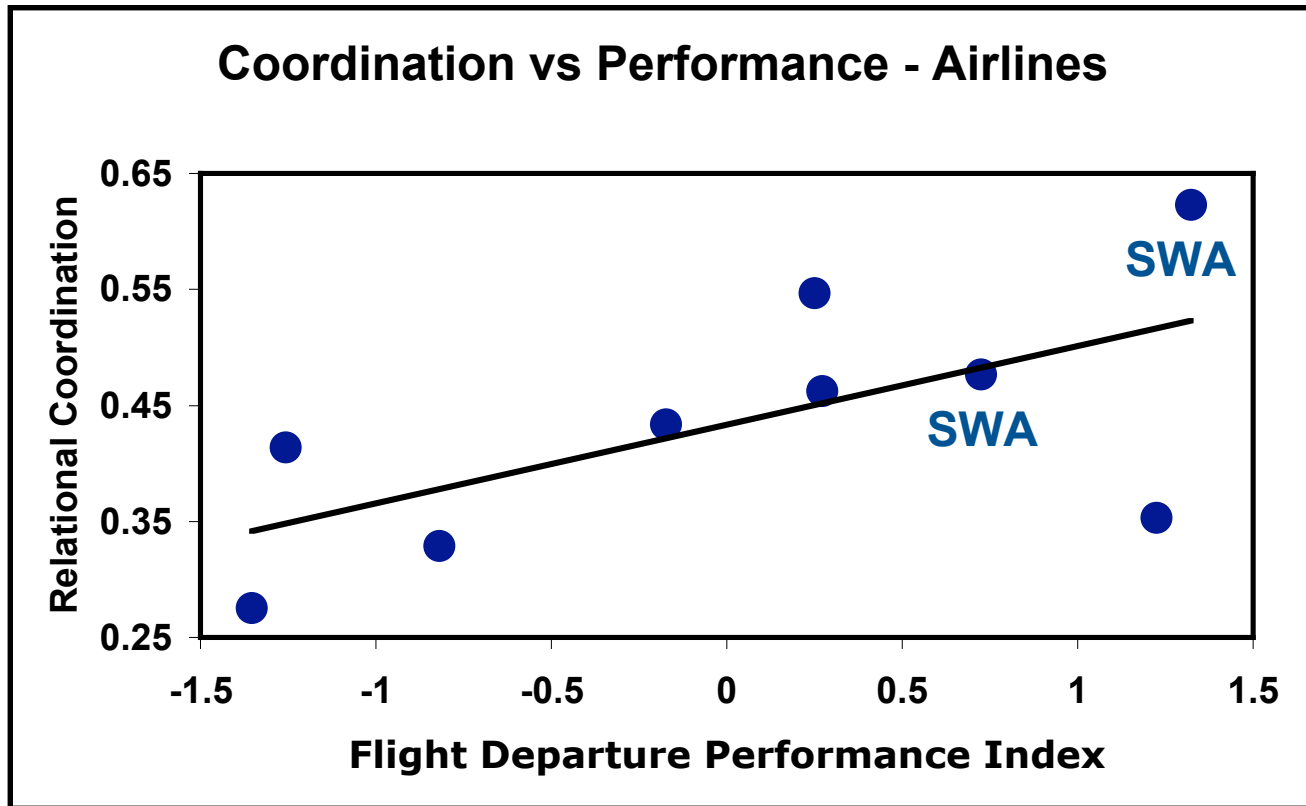


## From *The Southwest Airlines Way*

- “With frequent, timely communication, Southwest employees could respond quickly to changing circumstances in a coordinated way.”
- “...Southwest employees communicate about the problem itself, rather than assigning blame when difficulties occur.”

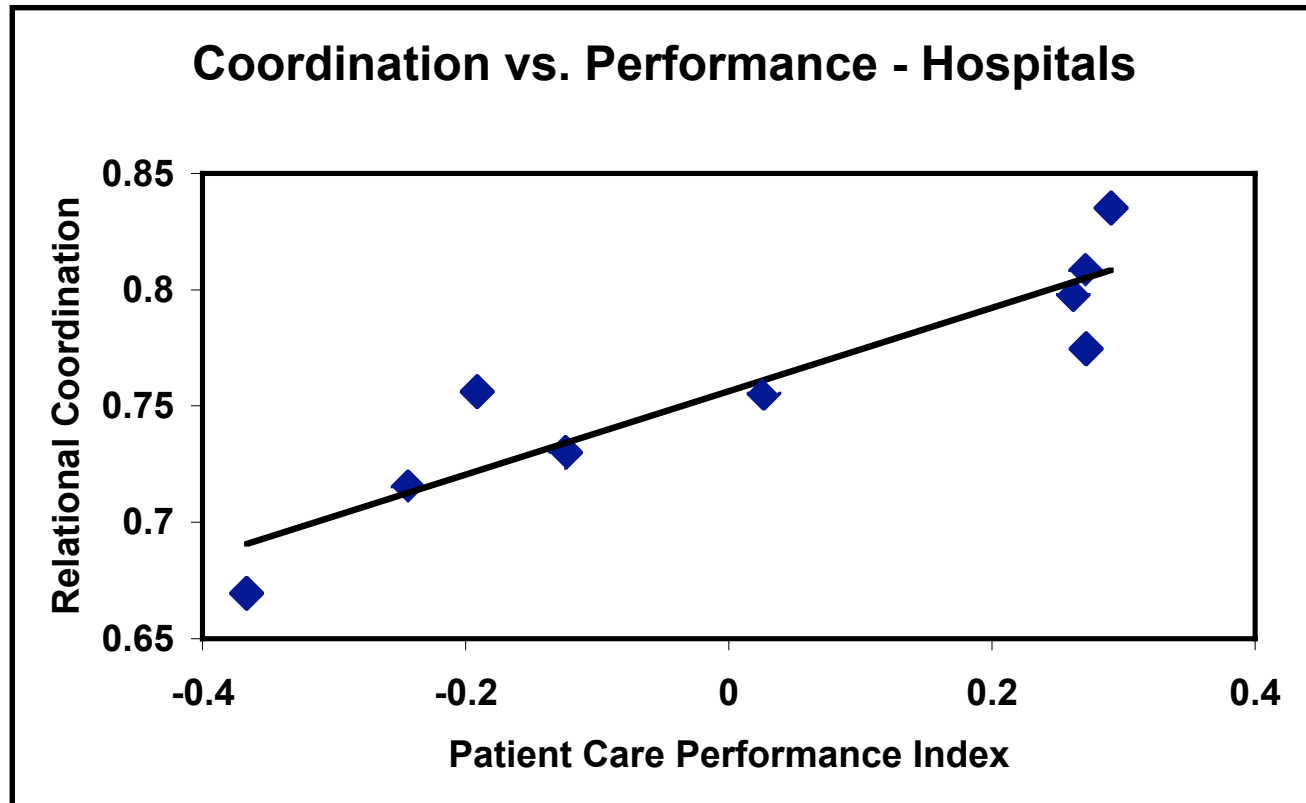
**Open and honest communication is a hallmark of lean thinking organizations**

# Coordination Correlates with Performance For Airlines



“The performance effects of relational coordination are large and statistically significant. This means you can be confident of achieving improved performance results if you can increase relational coordination.”

# Coordination Correlates with Performance For Hospitals



**“Relational coordination among care providers enables shorter hospital stays, higher levels of patient-perceived quality of care, and improved clinical outcomes.”**

# Relational Coordination Applies to Other Work Settings

- **Work setting characteristics where relational coordination applies**
  - **Task interdependence** - handoffs may require feedback and iterations
  - **Uncertainty** - adjustment of plans and updating
  - **Time constraints** - time buffers not feasible
- **Example work settings where relational coordination applies**
  - **Product development**
  - **Production**
  - **Operations**
  - **Can you think of others?**





# SWA Organizational Practices Supporting Relational Coordination

Lead with credibility and caring	Invest in frontline leadership
Hire and train for relational competence	Use conflicts to build relationships
Bridge the work/family divide	Create boundary spanners
Measure performance broadly	Keep jobs flexible at the boundaries
Make unions your partners	Build relationships with suppliers

## Practices



Courtesy of Southwest Airlines. Used with permission.

## Relational Coordination

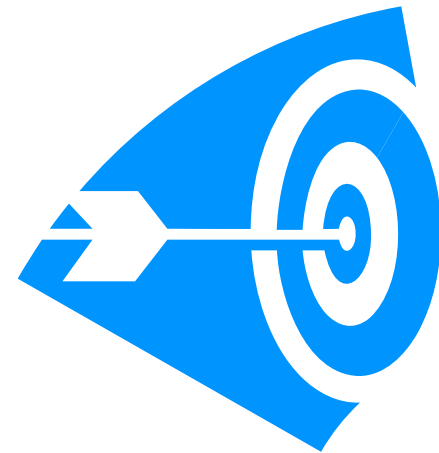
<b>Quality Performance</b>
Customer complaints
Lost baggage
Late arrivals
<b>Efficiency Performance</b>
Turnaround Time
Staff Time Per Passenger

## Outcomes

# Outcomes of Relational Coordination

**The SWA Study shows that increased Relational Coordination leads to:**

- **Higher reliability**
  - Better on time performance
  - Fewer lost bags
- **Greater customer satisfaction**
  - Fewer complaints
- **Shorter turn around time**
  - Greater aircraft and gate productivity
  - Most passengers served per employee



# The Power of Workforce Productivity

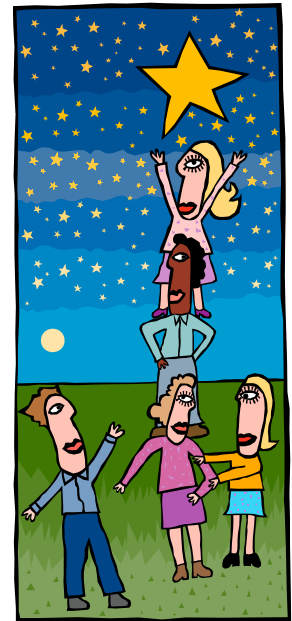


## Workforce Productivity benefits at SWA

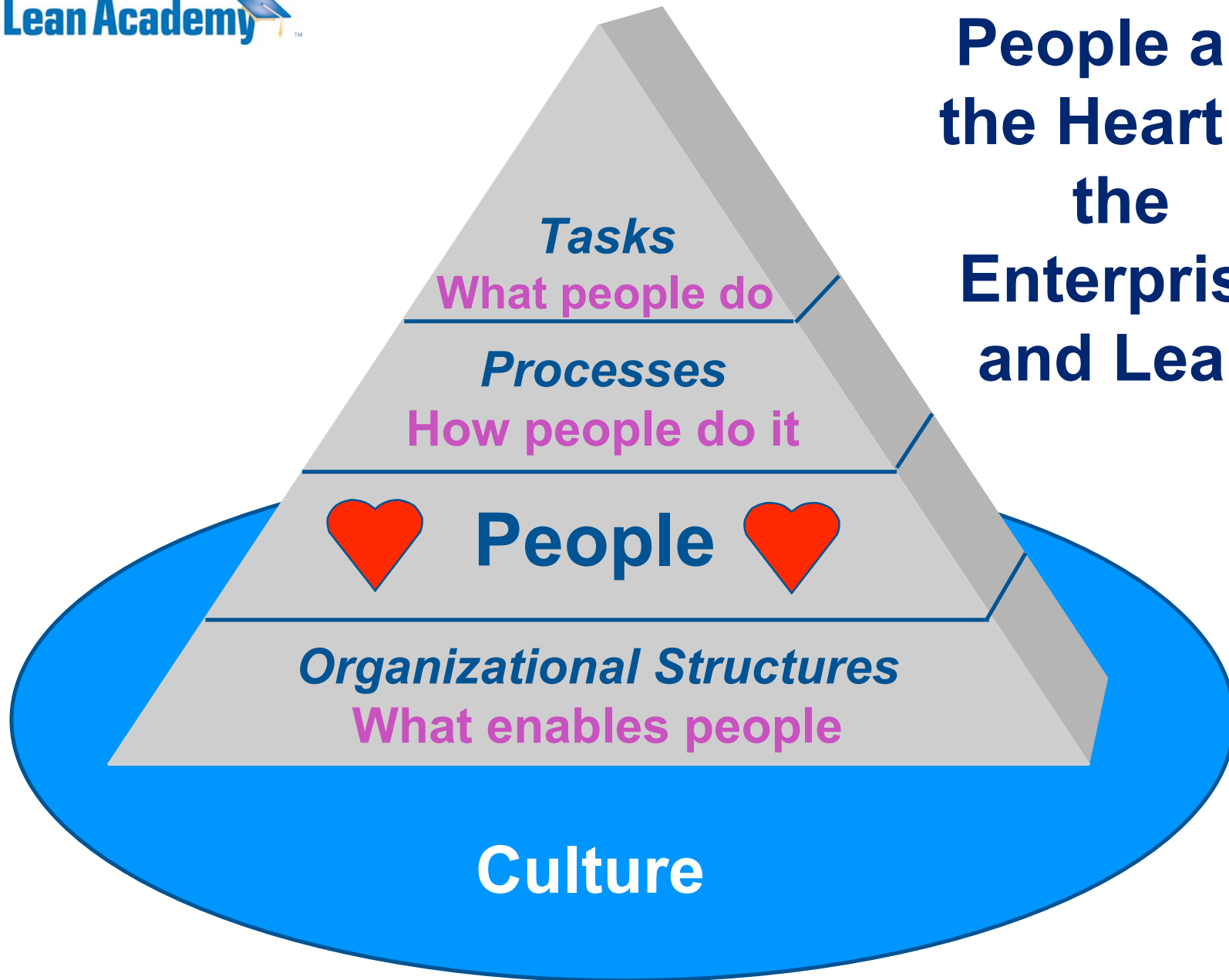
- Revenue generated from satisfied customers
- Revenue generated from airplanes in the air and not on the ground
- Reduced costs from low employee turnover
- Reduced costs from not having employees idle
- Happy, satisfied employees

# How Does This Apply to You?

- **Leadership plays a key role at all levels**
  - What are characteristics of leadership and how they related to management?
  - What are the roles of leadership and management in a lean organization?
- **Teamwork is essential**
  - What are Integrated Product/Process Teams?
  - What factors affect team performance?



**Let us focus on these two topics**



**People are  
the Heart of  
the  
Enterprise  
and Lean**

# Leadership and Management

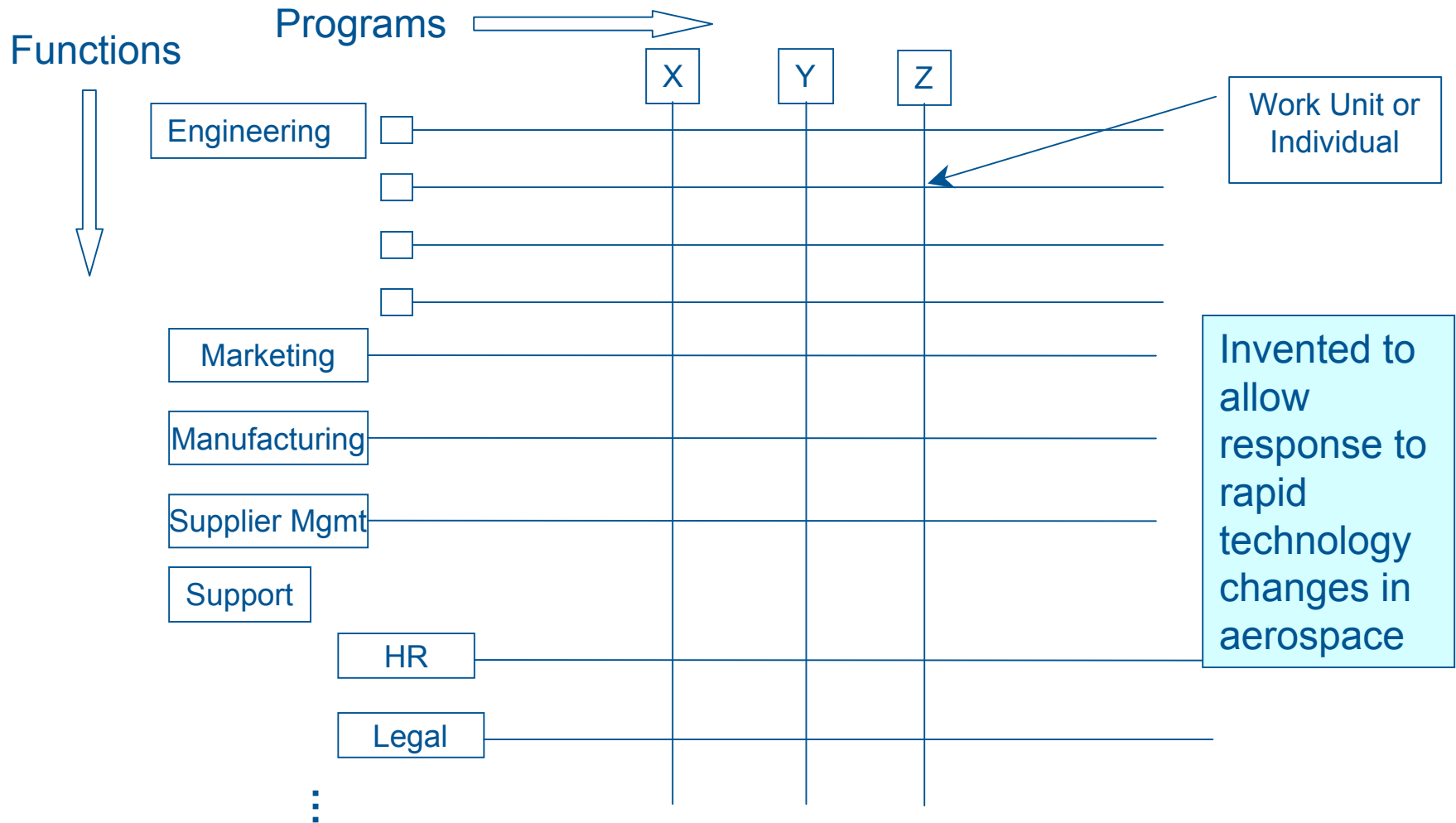
**Leadership Focus in Organizations  
(Doing the Right Thing)**

**Management Focus in Organizations  
(Doing Things Right)**

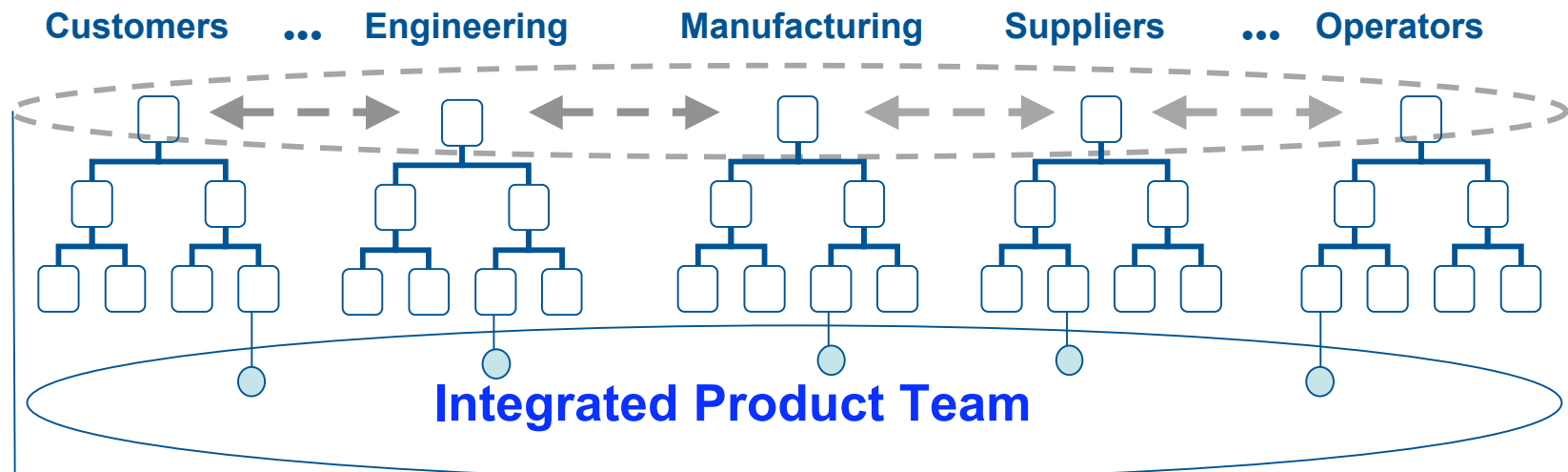


# Matrix Organizations

(From the 1960's)



# Integrated Product/Process Teams



**Before IPT's**

- Linkages occurred here
- Coordination meetings
- Traditional networks
- Grapevine-type communication

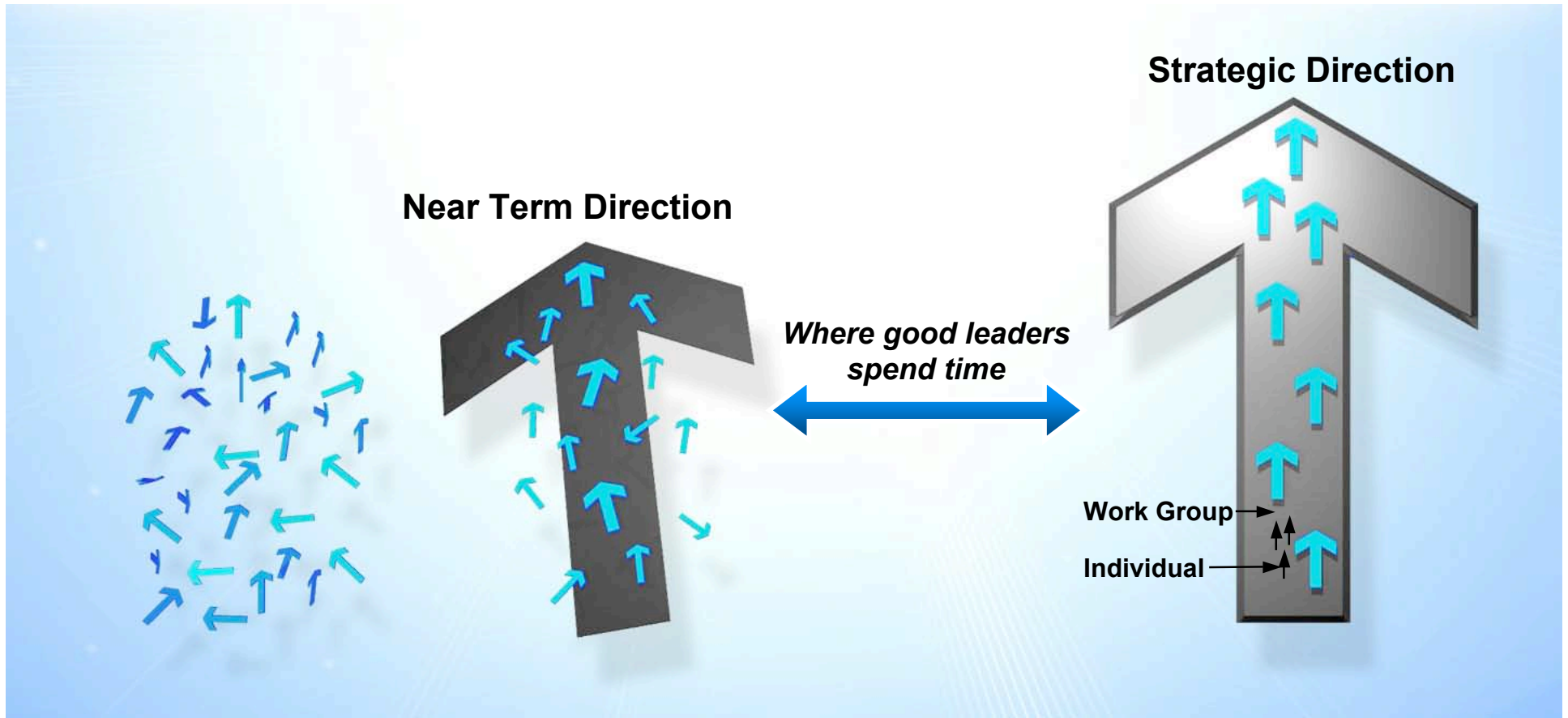
**New Way**

- Linkages occurred here
- Regular IPT meetings
- Defined members & leaders
- Every member keeps functional leadership informed

**IPT leaders must be good leaders and good managers!**



# Aligning the Focus



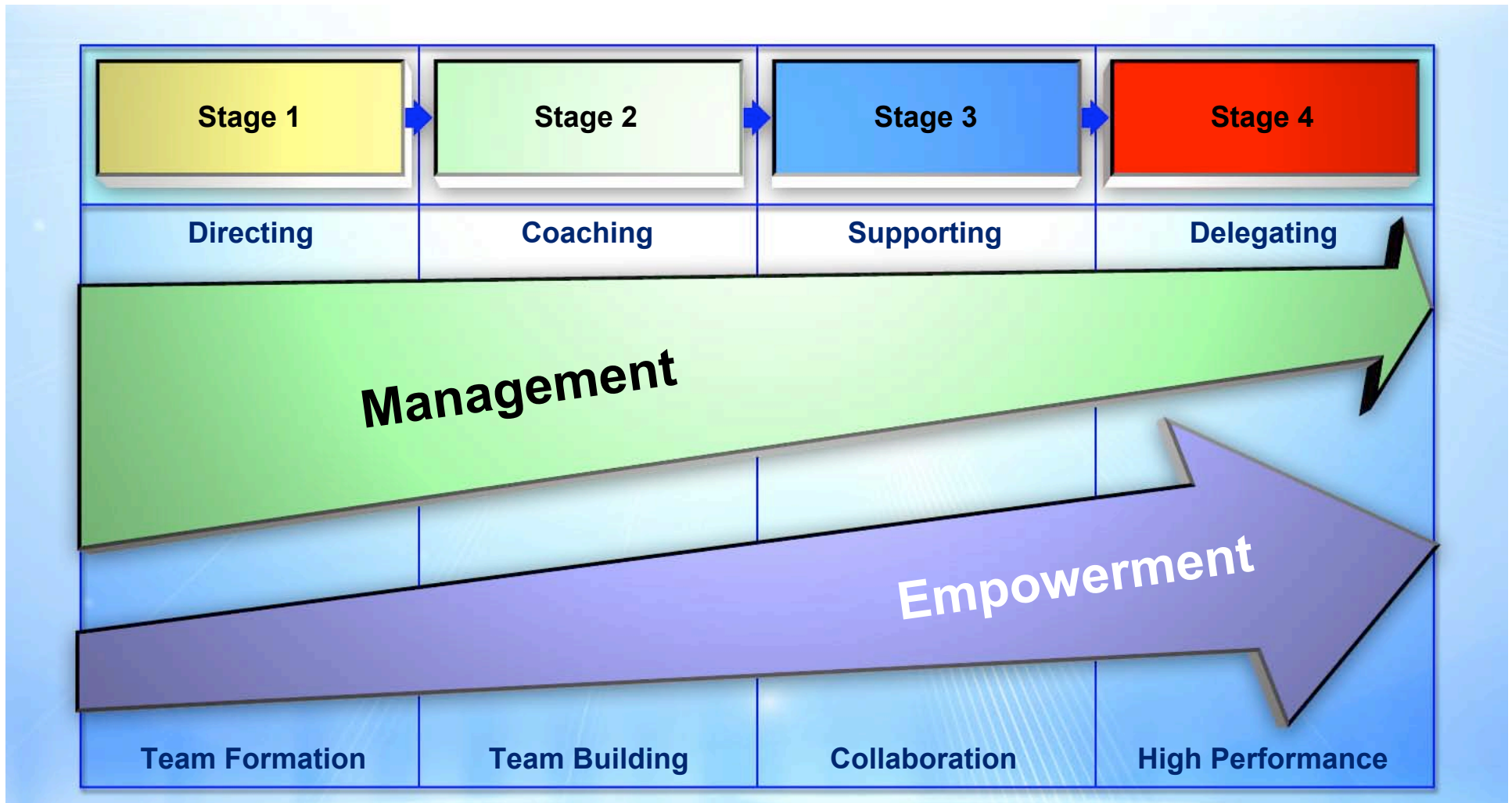
**Unaligned Goals/  
Projects**

**Sound Business Principles  
and Involved Employees**

**Planned  
Journey**

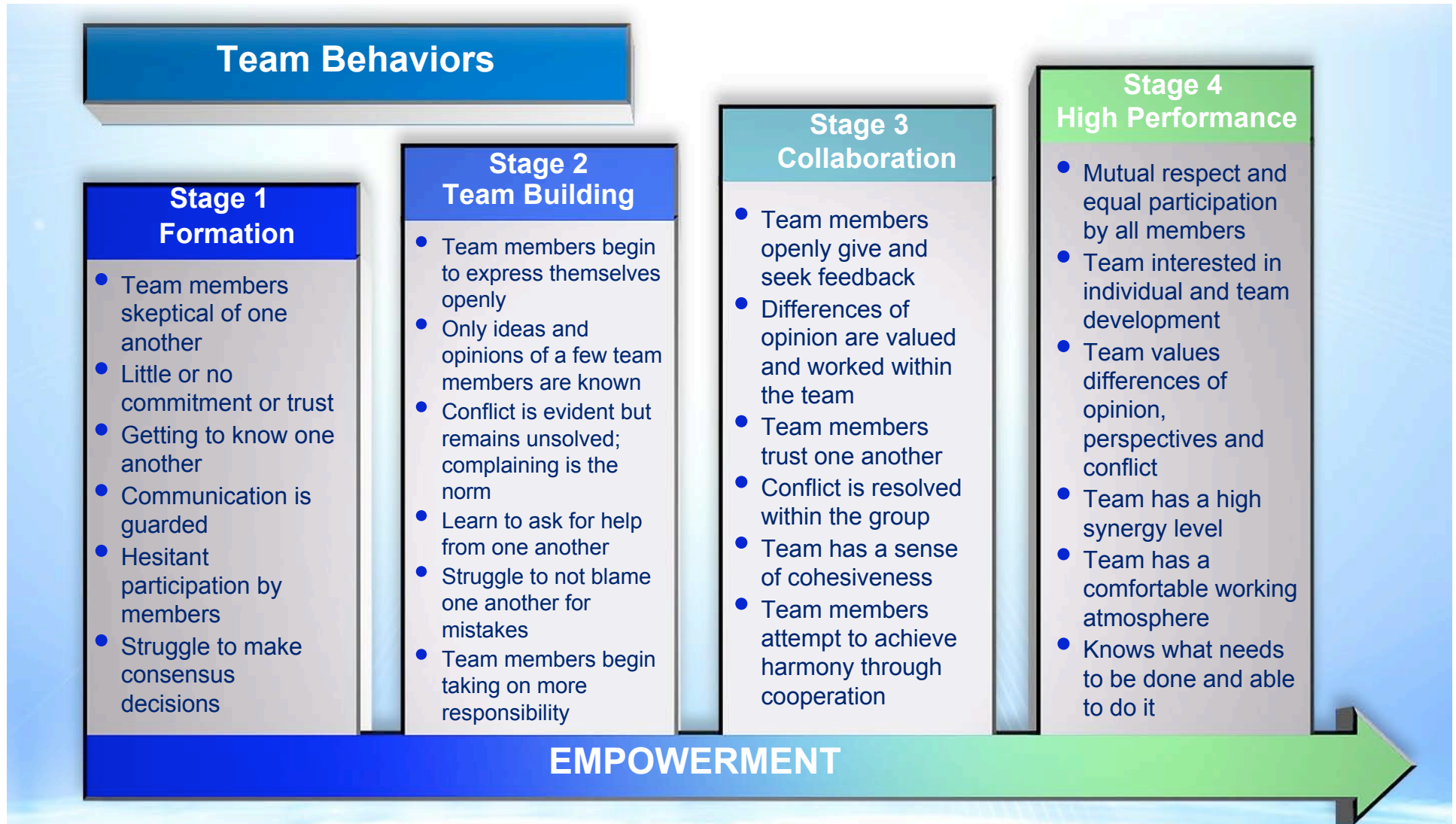
Courtesy of Boeing. Used with permission.

# Integrated Product/Process Teams

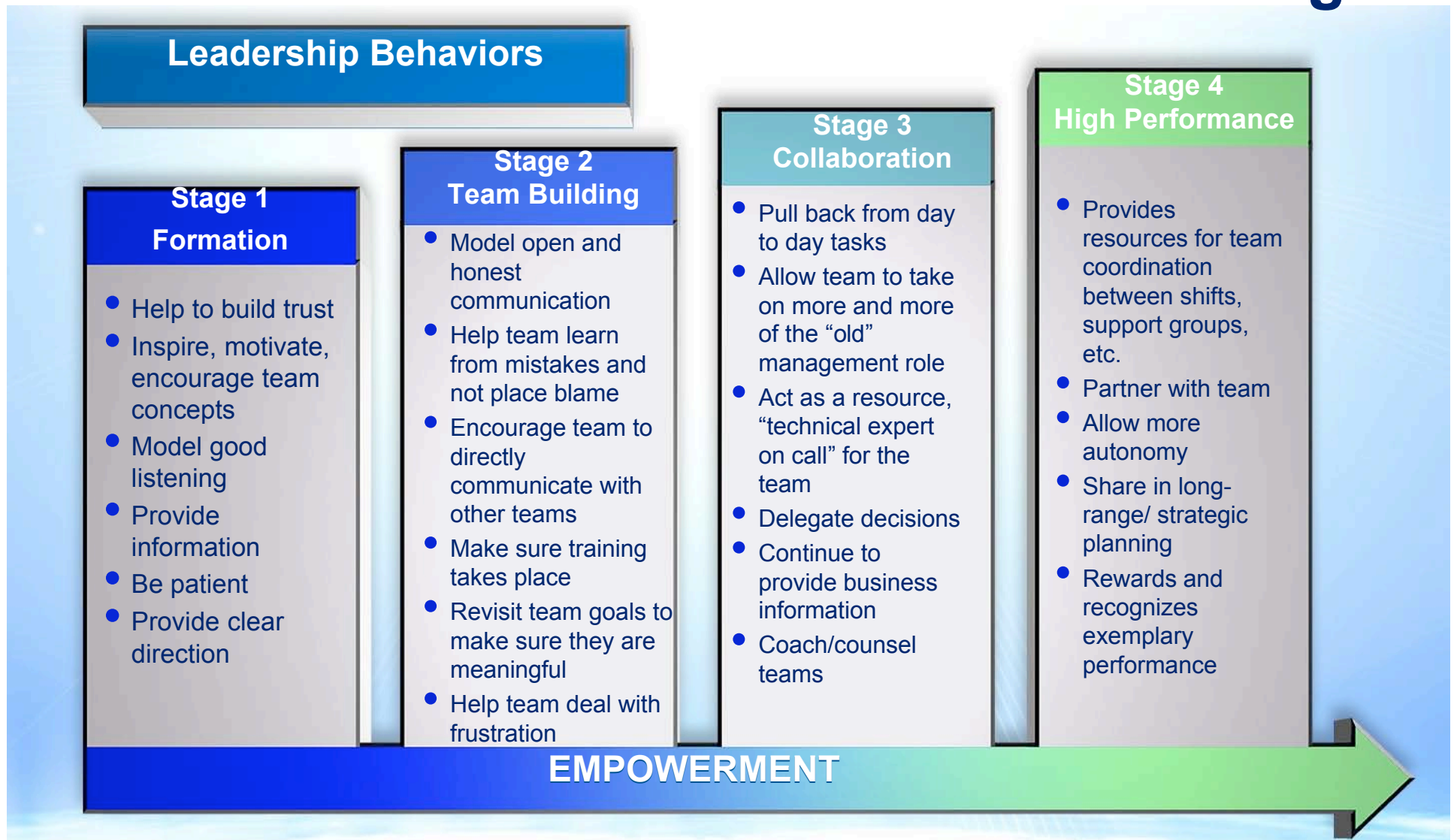


Courtesy of Boeing. Used with permission.

# Team Behaviors by Stage

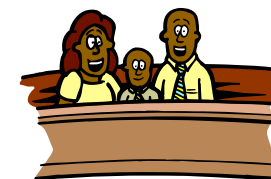


# Leadership Behaviors by Stage



# Personal Values Exercise

- **Get the sheet from your packet; spend 5 min to:**
  - **Grade your personal values**
    - **A = most important**
    - **B = important**
    - **C = least Important**
  - **Then rank values using the grade as a first sort**
- **Form 3-4 groups; Each group will arrange these values in rank order; take no more than 10 min.**
- **Each group will give a 2 minute debrief**
- **Class discussion**





# Collaboration in Teams

## Benefits

- More ideas and new ideas
- Multiple areas of expertise
- Shared workload
- Stronger problem solving
- Improves design work



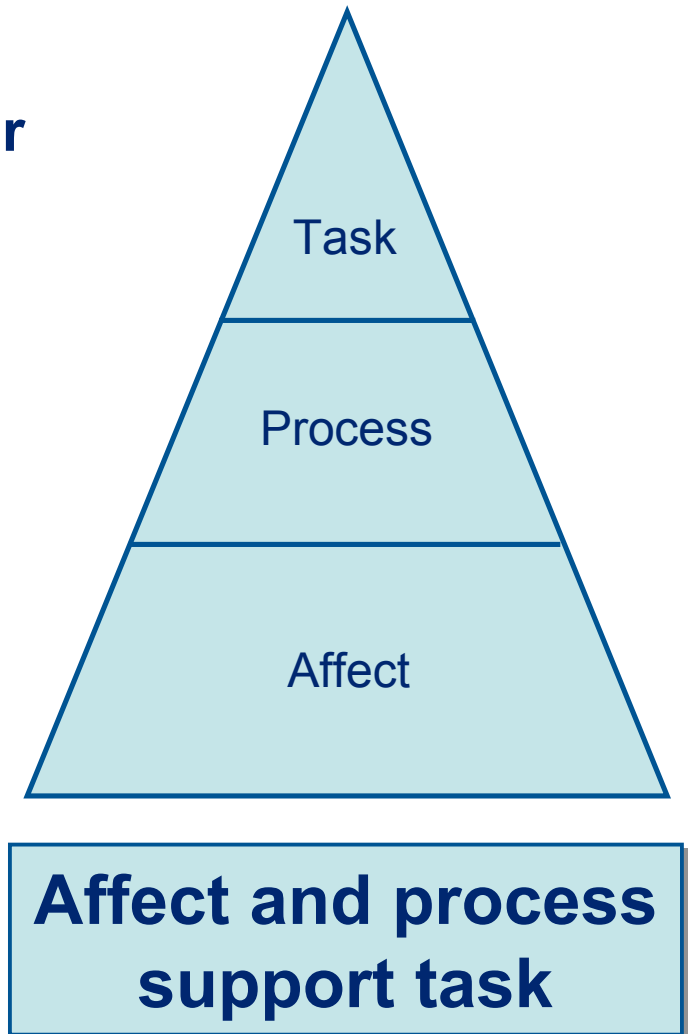
Photo by Hugh McManus

## Challenges

- Different goals and values
- Not being skilled or practiced in it
- Defensive about work (ego)
- Preconceived Notions
- Different work styles
  - “lone wolf”
  - “I’ll do it”
  - “me, mine”
- Previous unsuccessful collaboration

# Three Elements of Collaboration

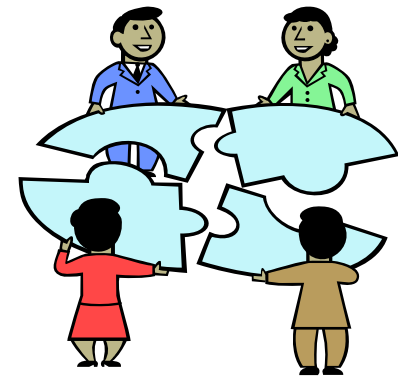
- **Task - What is being done together**
  - Conceptualizing, problem solving, implementing
- **Process - How the task will be accomplished**
  - Division and scheduling work, coordination, managing time and meetings, draft and revisions
- **Affect - Feelings about the work based upon:**
  - Prior experiences, culture, biases
  - Current experience



Courtesy of Jennifer Craig. Used with permission.

# How to Meet the Challenges of Collaboration

- **Elaborate key ideas in writing and verbally**
- **Consider alternate ideas/solutions**
  - **Don't jump to consensus prematurely**
- **Pay careful attention to process**
- **Voice disagreements constructively, directly, and explicitly**
- **Give positive feedback directly and explicitly**



Courtesy of Jennifer Craig. Used with permission.



# People are the Heart of Lean



**What is the most important thing you learned from this module?**



**Write a short answer on a 3 x 5 card**

# Reading List

**Cutcher-Gershenfeld, J., et. al., *Knowledge Driven Work*, Oxford University Press, New York, 1998**

**Fischer, R. and Urey, W., *Getting to Yes: Negotiating Agreement Without Giving In*, 2<sup>nd</sup> Ed, Penguin Books, New York, 1991**

**Gittel, J.H., *The Southwest Airlines Way*, McGraw Hill, New York, 2003**

**McGregor, D., *The Human Side of Enterprise*, Updated with commentary by Joel Cutcher-Gershenfeld, McGraw Hill, New York 2006**

**Senge, P., *The Fifth Discipline*, Doubleday, New York, 1990**

**Whyte, D., *The Heart Aroused – Poetry and the Preservation of the Soul in Corporate America*, Doubleday, 1994**

# Acknowledgements

- **Ron Bengelink - ASU, Boeing (ret.)**
- **Jennifer Craig - MIT**
- **Greg Harris – The University of Alabama in Huntsville**
- **Jody Hoffer Gittell - Brandis University**
- **Richard Lewis - Rolls Royce Indy (ret)**
- **Ted Mayeshiba - University of Southern California**
- **Earl Murman - MIT**
- **Ed Schaniel - Boeing, IDS**
- **Elaine Seat - University of Tennessee at Knoxville**



# Notes