

# ***Industrial Base Supply Chain Lessons Learned***

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INSTITUTE  
FOR DEFENSE  
& BUSINESS



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Logistics Officers Association  
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# ***Sonic Cruiser***

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# A-380 Aircraft



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# ***787 Aircraft***

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# ***A Brilliant Background***

- Developed 8 commercial aircraft previously
  - Many, many more when including “series” types
- Launched all previous development aircraft on time
- Developed many breakthrough innovations
  - First two man cockpit
  - First ETOP’s operations
- Strong customer confidence
  - Nearly 1000 787 orders

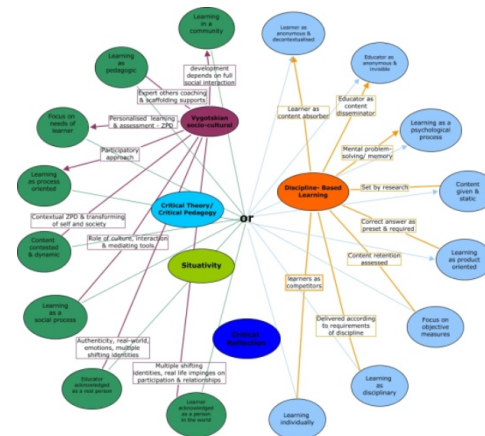


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- 
- A photograph of a large industrial factory floor. In the foreground, a large, white, curved object, possibly a car body part, is visible. Several workers in yellow shirts and blue jeans are standing on the floor. Overhead, there are large yellow cranes and complex metal structures. The floor is marked with yellow and black safety lines. The background shows more industrial equipment and workers.





# *Corporate Actions*

- Pushed responsibility and financial risk lower to suppliers
  - Reduce upfront costs
  - Create better cash flow
  - Pull breakeven forward
- Shifted from design manufacturing model to supply chain model
  - Distributed engineering
  - Created Tier I supplier definitions/structure
- Focused on selective technology development and insertion
- Significantly decreased development time



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<http://theageofaerospace.com/discovery/watch/ep5/ch5>

# Rollout

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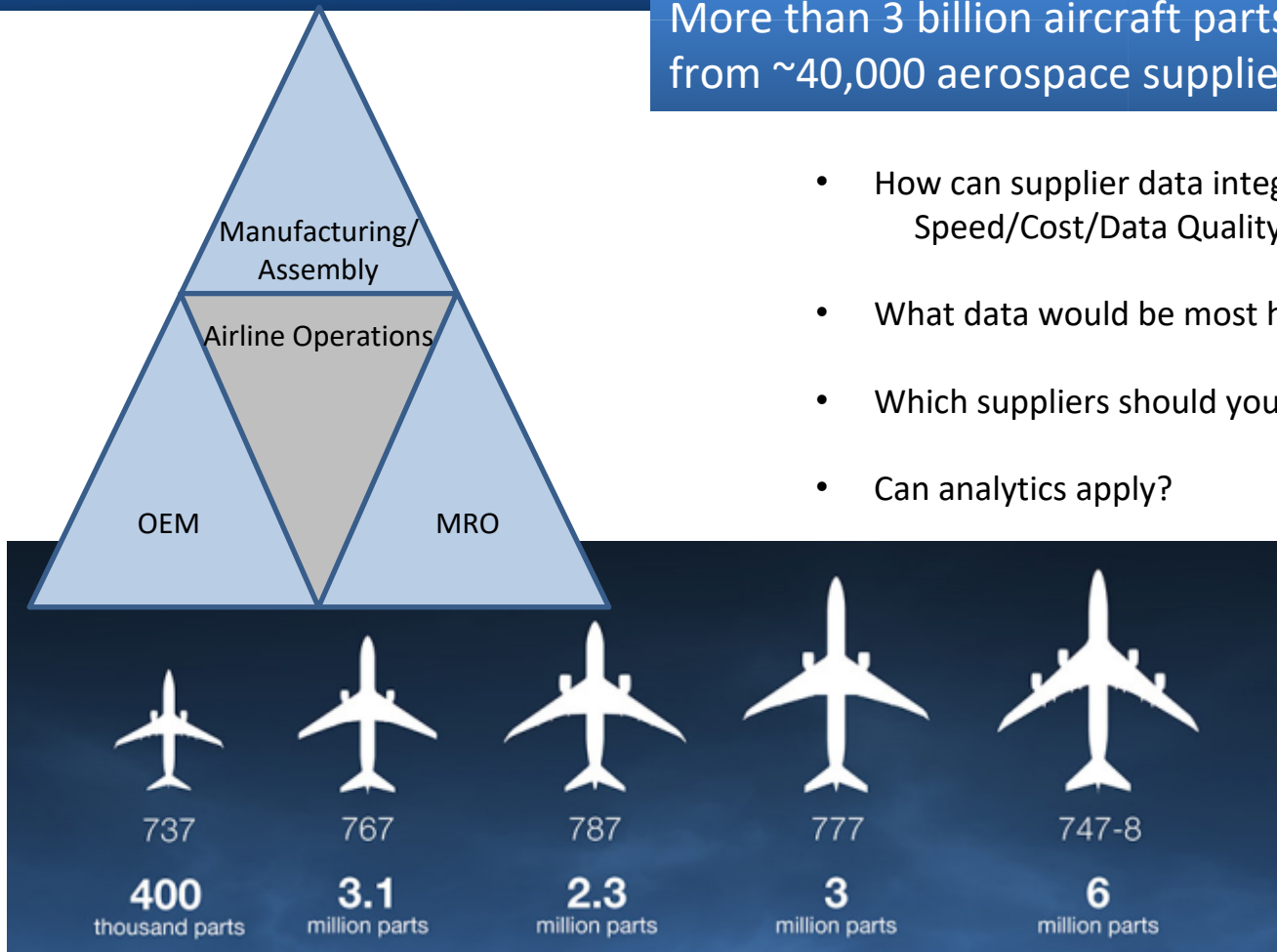
<http://theageofaerospace.com/discovery/watch/ep5/ch6>



# Supply Chain Opportunities

More than 3 billion aircraft parts are procured a year from ~40,000 aerospace suppliers

- How can supplier data integration help you?  
Speed/Cost/Data Quality/Compliance
- What data would be most helpful?
- Which suppliers should you start with?
- Can analytics apply?

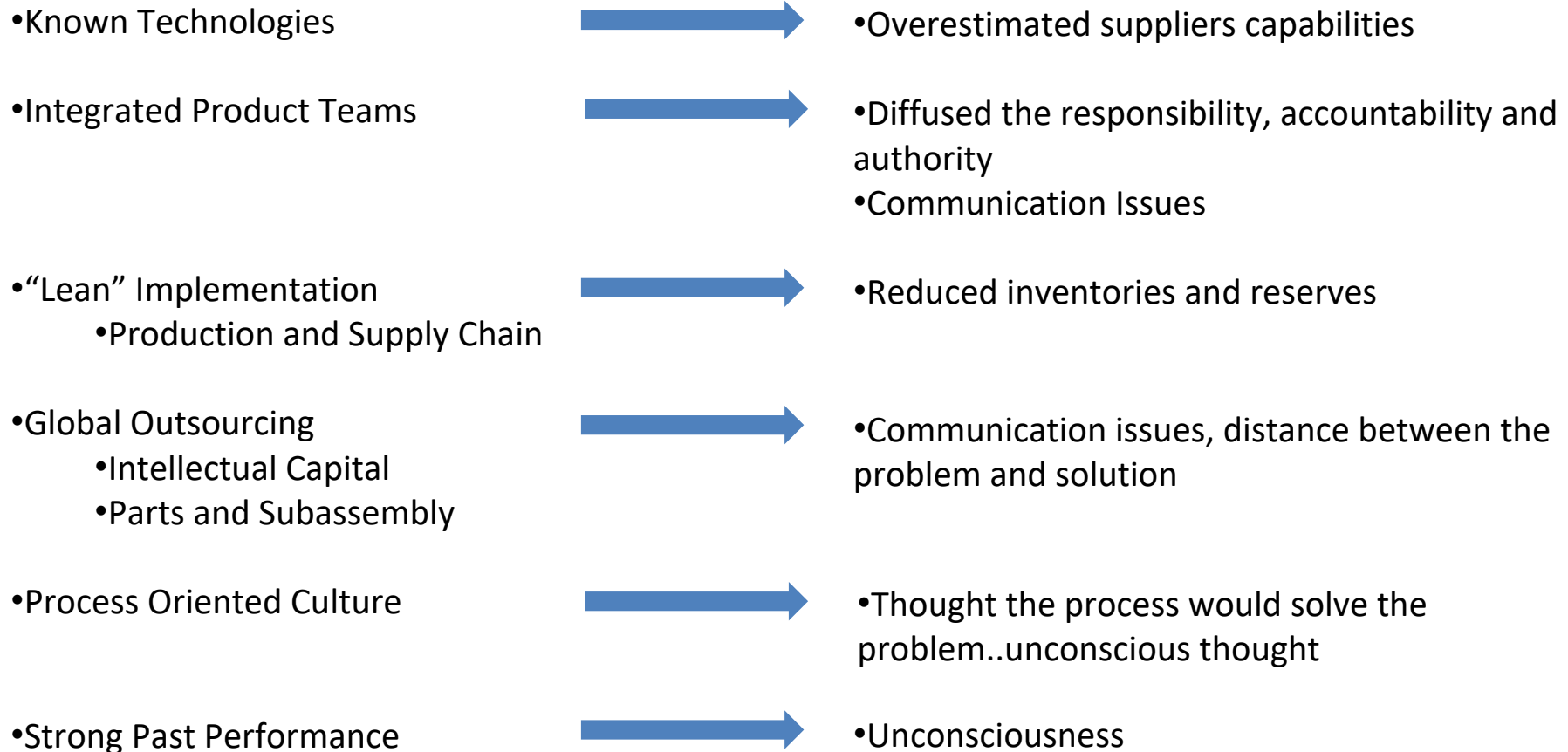


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# ***A Great Plan....But.....***



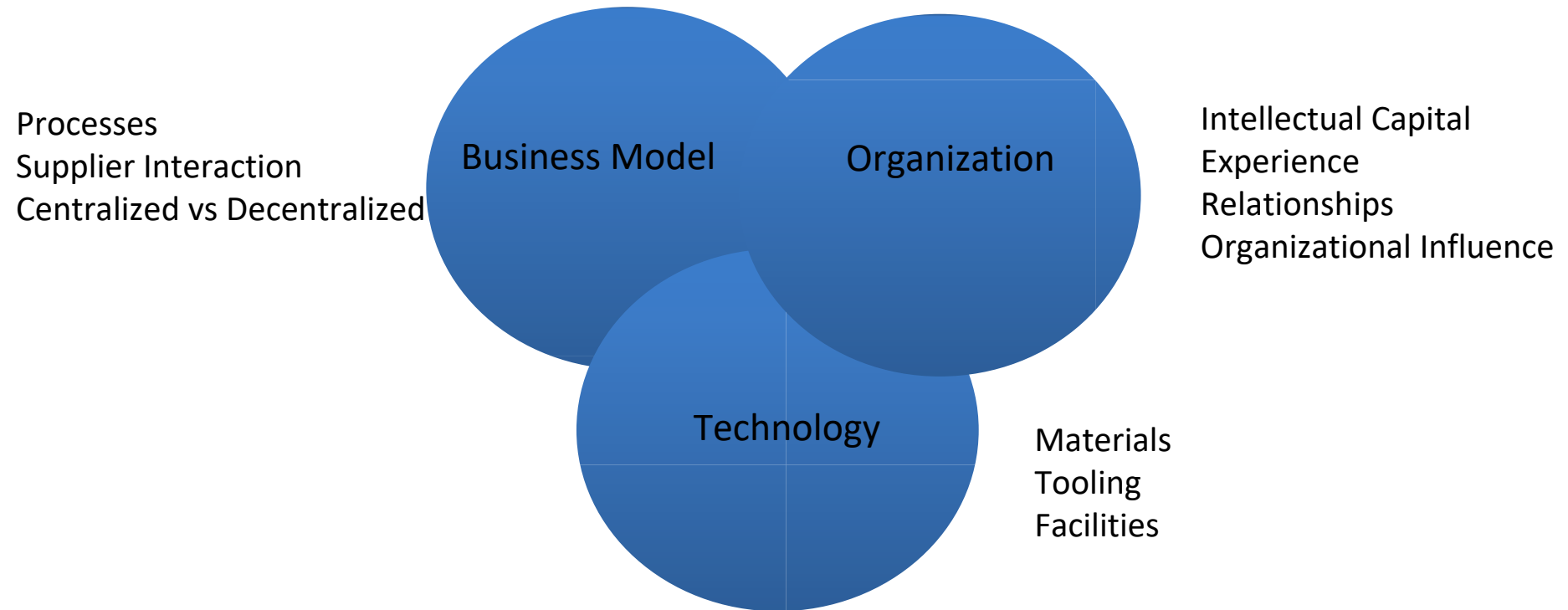
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# Another Way to Look at the Big Levers



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# ***SCM Recommended Practices***

- Develop a complete end to end supply chain strategy early – Include supplier management
- Map out the supply chain at multiple levels to identify key risk points – theory of constraints – critical path analysis
- Assist tier I suppliers to mature their supplier oversight, monitoring and performance metrics reporting processes
- Develop leading supply chain indicators that identify risks
- Build a supply chain organization that can actively monitor and manage multiple networks and linkages across an extended supply chain
- Assure the supply chain organization fully understands all the activities coming through the supply chain



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# *Key Risks to a Supply Chain*

- Blocked or constrained transportation channels
- Unplanned disruptions to information-technology systems
- World-wide shortages of materials and components
  - Political
- Suppliers that are unable to deliver as promised
  - Environmental
  - Labor
- Unreliable, unpredictable customer returns of unserviceable parts and components



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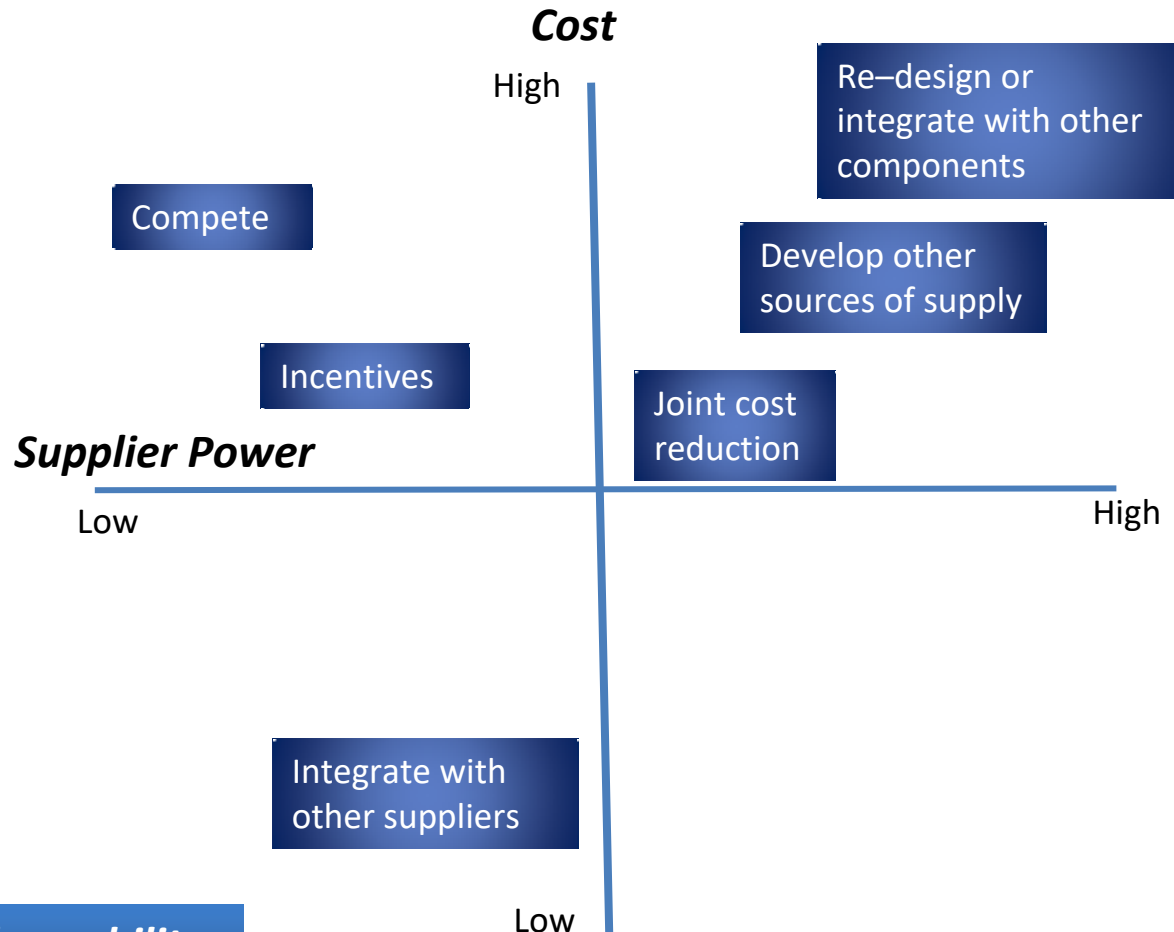
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# Supplier Strategies

## Supplier Power

- High switching costs
- Monopoly
- Long term contracts
- Unique technologies or capabilities
- Regulatory protection
- Political



*Establish a good “should-cost” capability*



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# ***It's All About the Supply Chain***



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# ***Process Recommendations***

- Establish process health metrics for each process
- Establish a review schedule for all processes
  - Review-
    - Effectiveness
    - Efficiency
    - Lessons learned from other processes
    - Process changes in interconnected processes
    - Training and education adequacy
    - Recommendations



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# Focus Areas

- Emphasize technologies that reduce infrastructure or significantly reduce cycle times
- Optimize technical data interfaces
  - Digitize as much as you can
- Focus on maintenance process automation
  - Integrate IVHM into your processes
- Improve probability based planning and modeling
  - Analytics
- Develop methods to automate maintenance on platforms that reduce manpower



Prioritize efforts that can validate cost reductions and productivity gains



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# ***Leadership Lessons Learned***

- No Behavioral strategy
- Enterprise vs individual past performance
- People risk vs technical risk
  - Succession planning placed wrong people in jobs
- Management inserted risks into the program
  - Leadership attributes – Find a way
  - Vocabulary precision
  - Management attention

**Risk is all about the people**



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# ***Strategic Development***

## **Operational Strategy**

- What
- When
- Where
- Why

## **Behavioral Strategy**

- What behaviors and skills are needed to support the strategy?
- How do we measure it?
  - What artifacts or evidence indicate the expectations are occurring?
- Are the management tools and techniques reinforcing the behavior needed?
- What will be rewarded and punished?
  - Is my succession planning consistent with the changes desired?



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- 1207 On Order
- 50 Customers
- 521 Planes Delivered
- 130 New Routes Opened
- 1,300,000,000 Miles Flown } As of 18 August 2016
- 125,000,000 Passengers Flown



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<http://theageofaerospace.com/discovery/watch/ep5/ch7>

# ***Recommended Reading***

The Amazon Way – 14 Leadership Principles Behind the World's Most Disruptive Company  
John Rossman

Outliers  
Malcolm Gladwell

American Icon – Alan Mulally and the Fight to Save Ford  
Bryce Hoffman

Boyd  
Robert Coram

Moneyball  
Michael Lewis

Emily Post's The Etiquette Advantage in Business  
Peggy Post & Emily Post

21<sup>st</sup> Century Jet  
Karl Sabbagh



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# *Questions?*



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