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Continuous Process Improvement to Achieve Logistics Transformation

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By

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The Issue at Hand

1. **Why do we need to continually improve an existing supply chain?**
   - **Requirements change (unforeseen)**
   - **Dynamics in supply base**

2. **Why are we concerned about the supply base?**
   - **Increased subcontract effort by OEM**
   - **Suppliers must function in a global market**
     - **DoD smaller percentage of business base**
     - **Cost of working on Government projects**
   - **Numerous single point failures**

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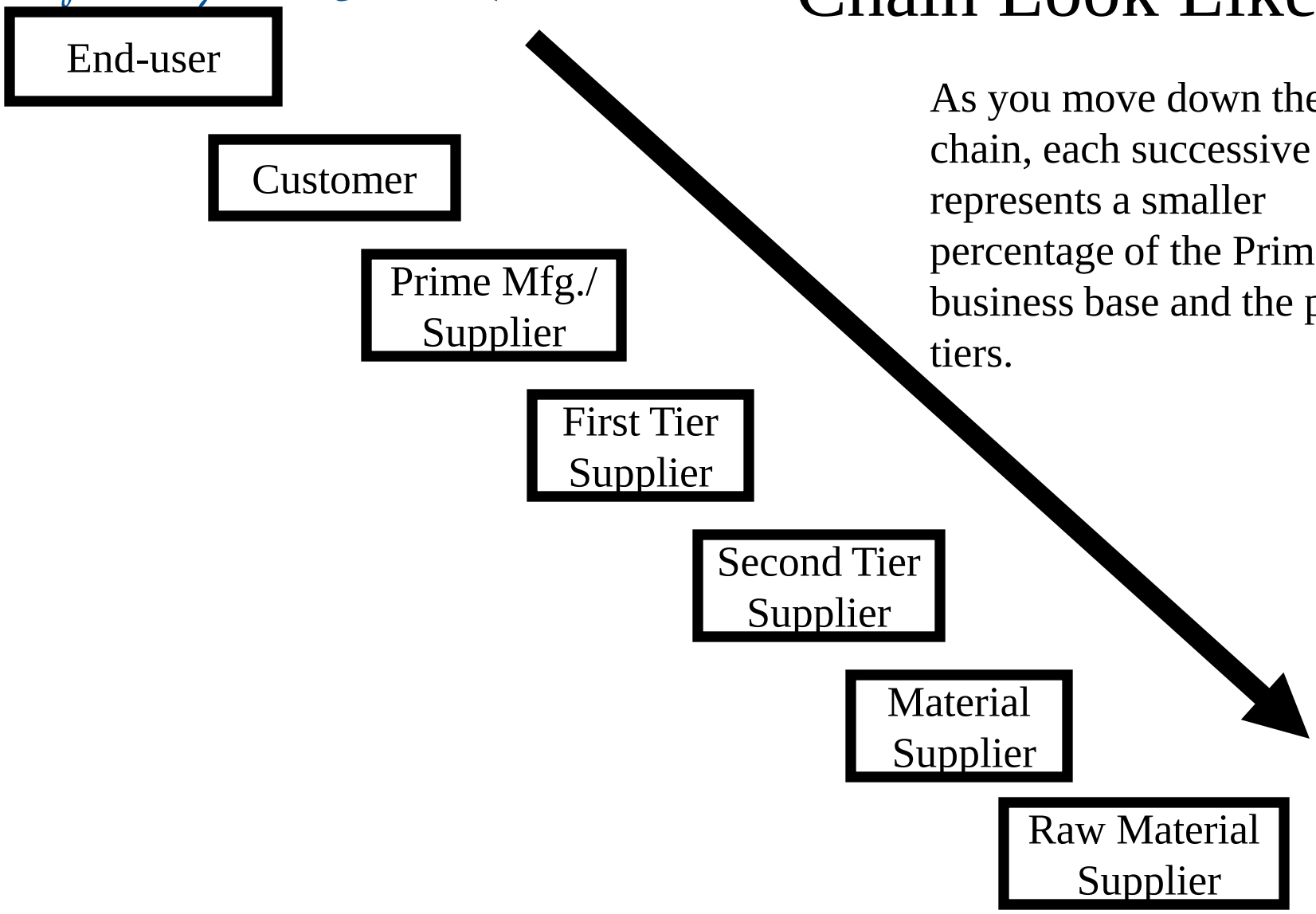
What Does a Supply Chain Look Like?



As you move down the supply chain, each successive tier represents a smaller percentage of the Prime's main business base and the previous tiers.

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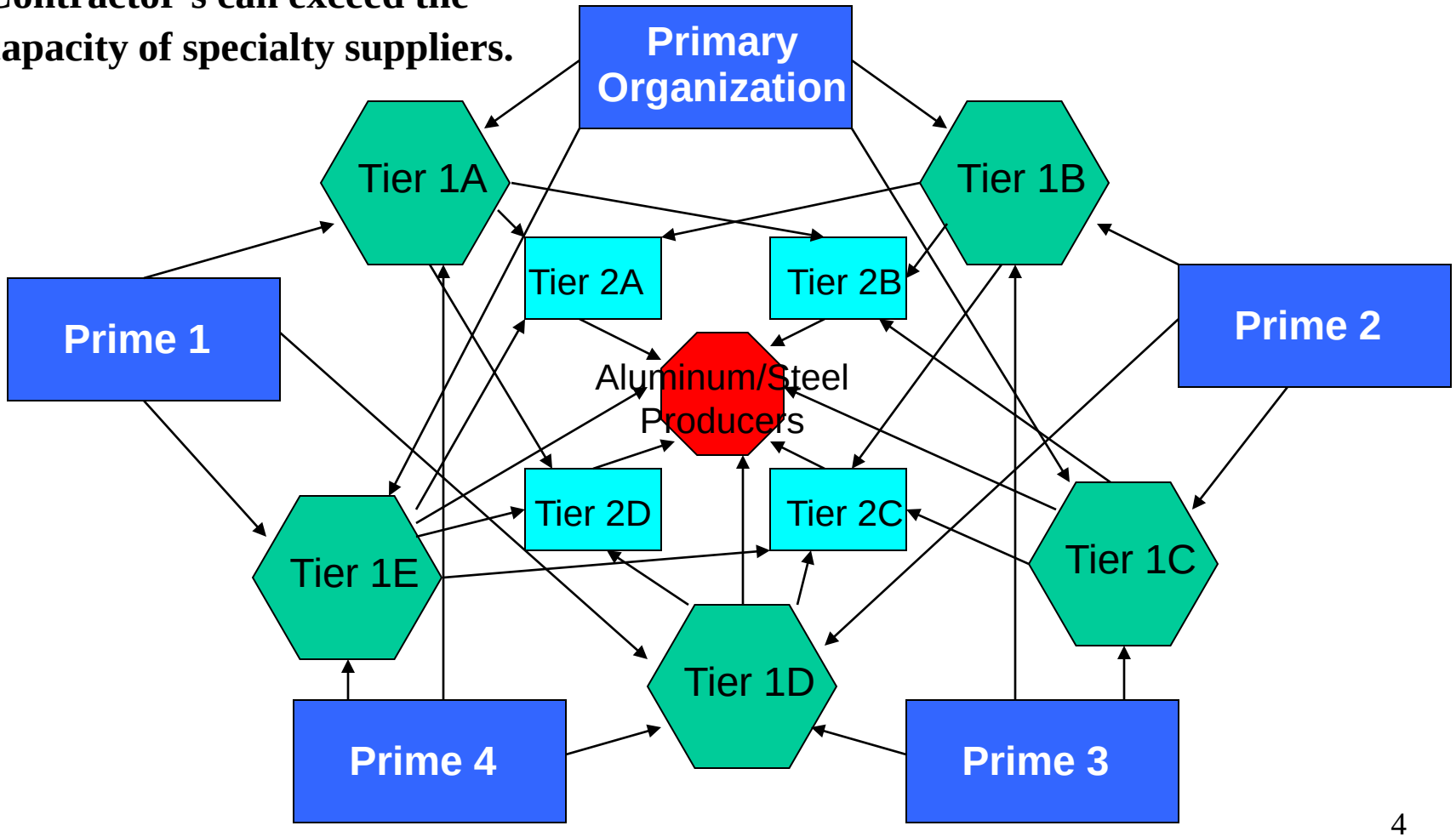
The reality of the situation

Limited providers place stress upon the Aerospace Supply Chain

Demand from multiple Prime Contractor's can exceed the capacity of specialty suppliers.



Steps in Designing the Appropriate Supply Chain for DOD Aviation

- Mapping the Existing Supply chain
- Capturing the Information and Funding Supply Chains
- Identifying and Removing Production and Administrative Constraints and Bottlenecks
  - Value Stream Mapping
  - Enterprise Value Stream Mapping
  - Kaizen Events
- Determining Optimal Inventory Strategies

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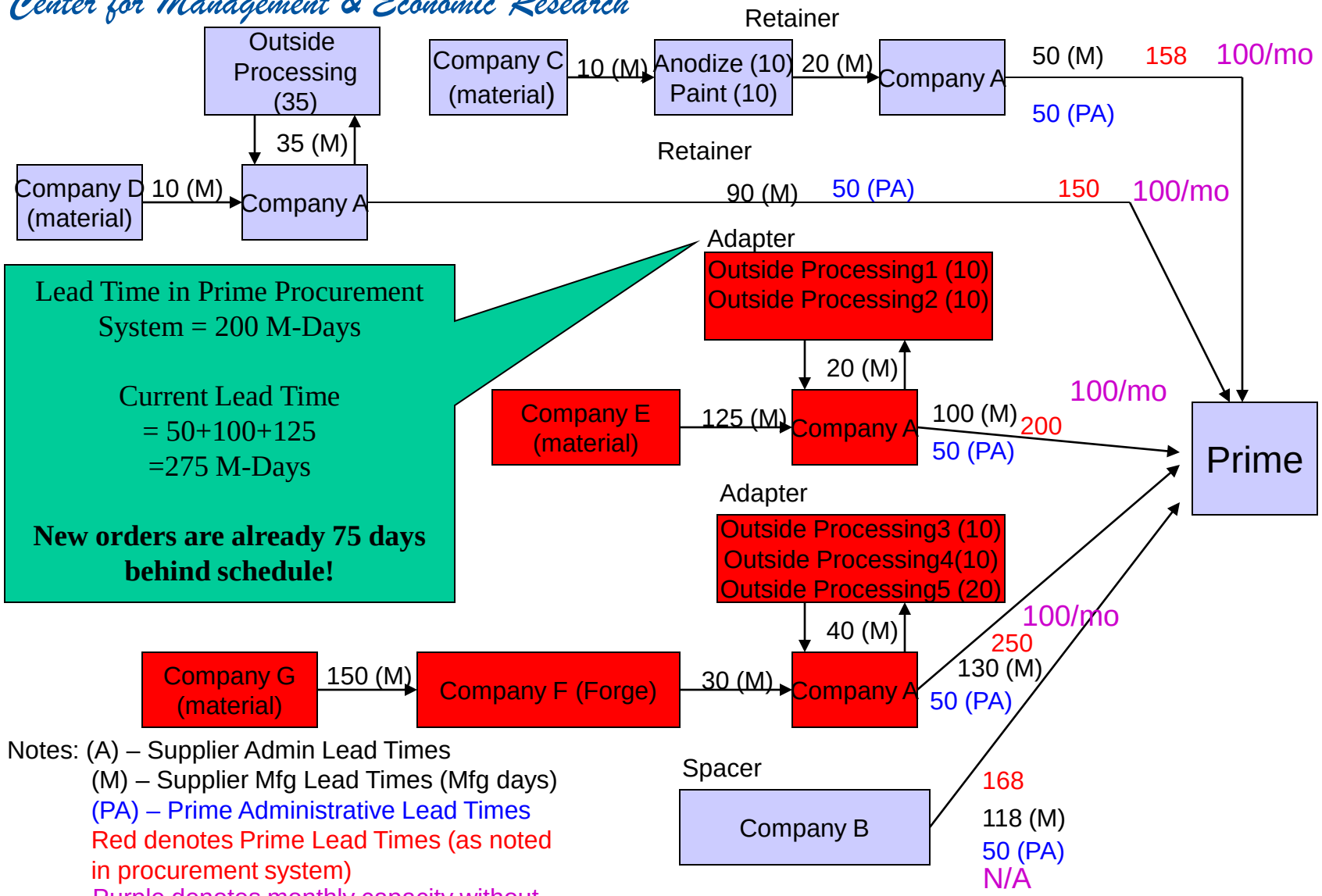
Example Supply Chain Map



Lead Time in Prime Procurement System = 200 M-Days

Current Lead Time
= 50+100+125
=275 M-Days

New orders are already 75 days behind schedule!

Notes: (A) – Supplier Admin Lead Times
(M) – Supplier Mfg Lead Times (Mfg days)
(PA) – Prime Administrative Lead Times
Red denotes Prime Lead Times (as noted in procurement system)
Purple denotes monthly capacity without impact to normal through put

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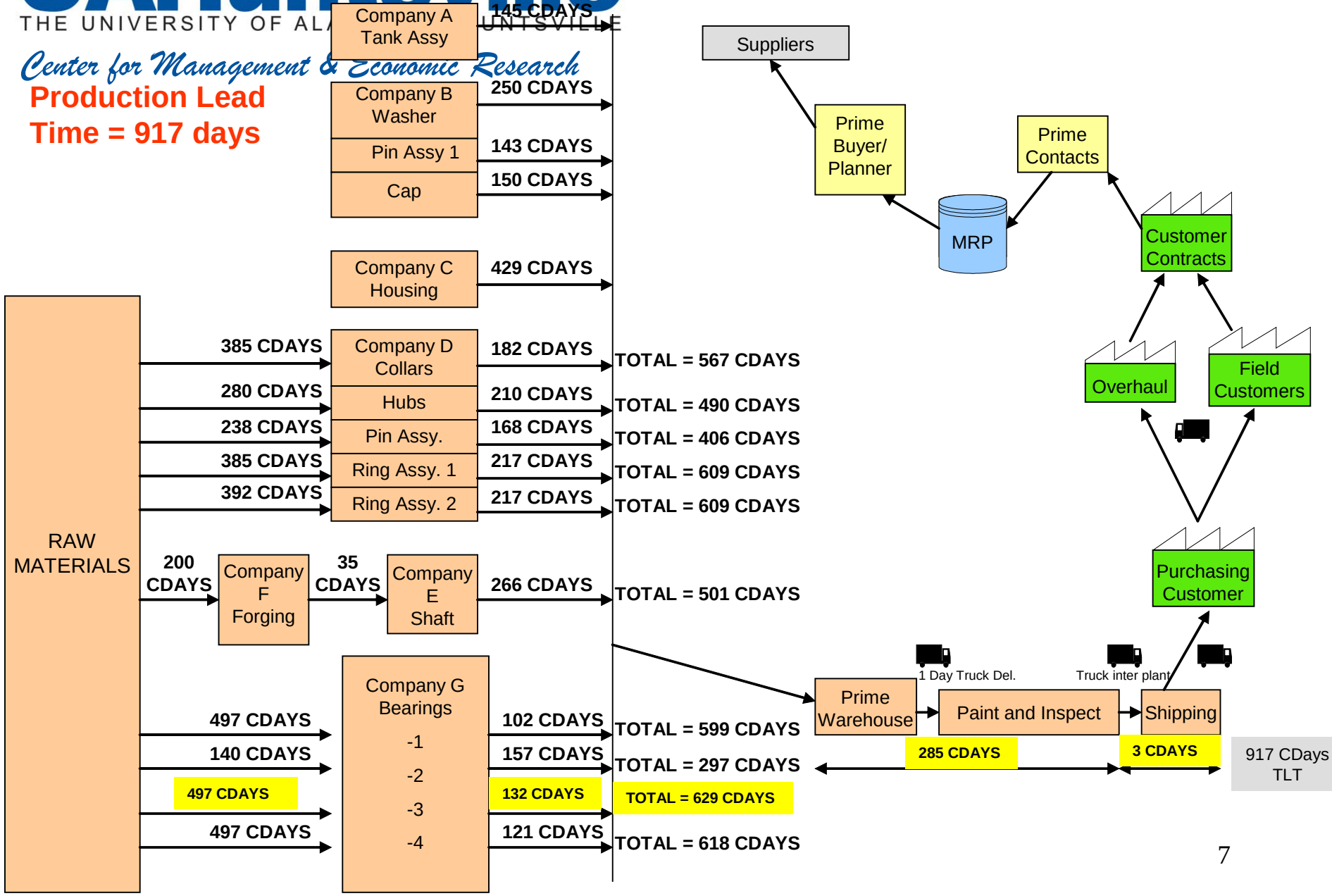
Current State Enterprise VSM

Production Lead Time = 917 days



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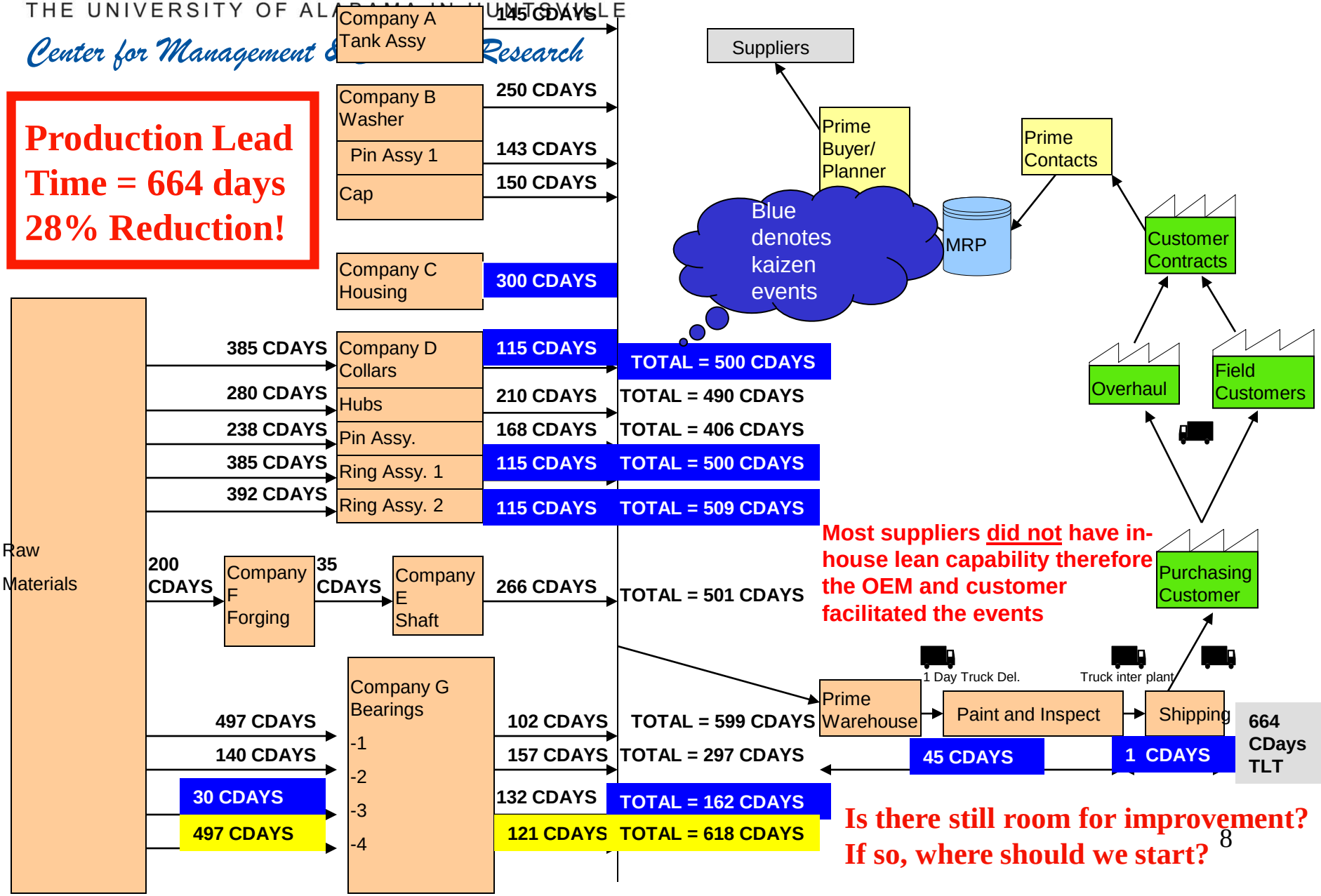
Future State Enterprise VSM

Production Lead Time = 664 days
28% Reduction!



Is there still room for improvement?
If so, where should we start?

Two Key Questions

1. Who owns the supply chain?
   (hint: who's name is on the aircraft or rocket?)

or

   - Who gets fired?
   - Who goes to jail?
   - Who has to testify?

2. How do you want it to behave?
   - Customer and owner of supply chain must define this!
   - Are we rewarding A while hoping for B?

A final thought – implementing continuous improvement in the DoD environment

- Roadblocks?
  - Legislation
  - Policies and Procedures
  - Folklore
- Culture?
  - Interpretation of roadblocks
  - "Not invented here" mentality?
  - Proactive versus reactive

Must focus on the value add to the war fighter!

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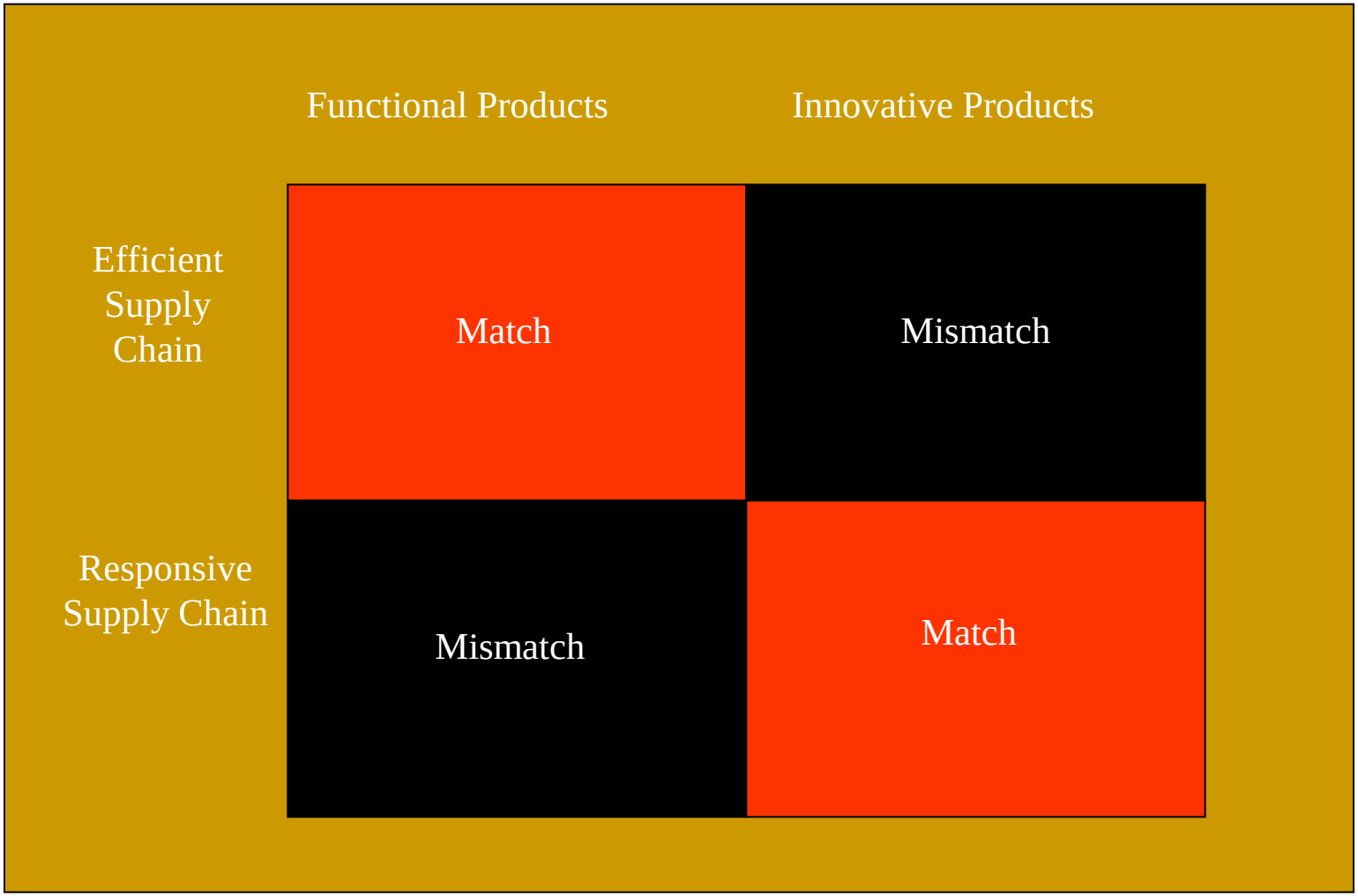
Contact Information

Back-up

Fisher's Framework



Marshall L. Fisher, Harvard Business Review, March-April 1997

So why not let the OEM design the supply chain in a vacuum? It's part of their contract?

1. Approximately 70% of the parts assembled by the OEM are purchased/manufactured from suppliers
2. Recent research has proven that the OEM and their suppliers do not necessarily agree on the product characteristics to design the supply chain(s)

Source: MIT Forum for Supply Chain Innovation

Problems that have Plagued the Aerospace Industry

- Long and growing lead times (raw material driver)
- Few long term contracts exist in the supply chain
- Essentially no visibility of demand in the supply chain
- Continuous improvement programs are focused on localized manufacturing processes
- Many issues cut across multiple aerospace platforms
- Reduction in the aerospace industrial base

Best Practices/Strategic Areas of Research

- Matching Products with Supply Chain
  - Inventory Positioning/Push-Pull Boundaries
  - Product Demand and Technology Characteristics
- Product Development and Life-Cycle Design
  - Integral vs. Modular Design
  - Product Clockspeed
  - Make vs. Buy
  - Portfolio Management

Source: MIT Forum for Supply Chain Innovation

Best Practices/Strategic Areas of Research

- Supplier and Customer Relations
  - Contracts: Risk and Profit Sharing
  - Collaboration in Forecasting, Planning & Execution
  - Communication; Supplier Committees
  - Purchasing and Supply Management
- Visibility, Identification, and Sensor Networks
  - RFID, Wireless Networks
  - Interoperability
  - Sensors, GPS

Source: MIT Forum for Supply Chain Innovation

Best Practices/Strategic Areas of Research

- Risk Management in Global Supply Chains
  - Supply Risks
  - Demand Risks
  - Network Design: Manufacturing & Distribution Centers and Customer Location
  - Development of Mitigation Strategies
- Environmental Issues in Supply Chains

Source: MIT Forum for Supply Chain Innovation

Integration and Adaptability Via Structure of Contracts

- **Balance long term contracts with flexibility and adaptability;**
- **Incorporate provisions for volatile energy and commodity prices**
  - **Reduce risk to small businesses with long term contracts**
  - **Reduce risk of late deliveries due to funding**
- **Delivery Performance Incentives**