Product Development Cycle Time Reduction

Research and Framing
**Cycle Time Structure**

1. **Idea Generation or Need Identification**
2. **Decision to Proceed** (Milestone 1 or Project Launch)
3. **Delivery of First Production Item**

**Flow Chart:**
- Technology Development Cycle Time and Risk Reduction
- Requirements Analysis Cycle Time
- Product Development Cycle Time (Product and Process)
- Production Cycle Time
DoD Product Development Time

All Major Defense Acquisitions Programs. Milestone 1 to First Operational Delivery
Commercial Cycle Time Reduction Efforts

- Reducing Product Development Cycle Time is the Organizing Focus For Improvements in Commercial Product Development Processes
- ‘Key to Making Changes in the System’
- Obvious Commercial/Competitive Advantages
  - Dramatic Decreases in Cycle Time Achieved
  - Increased Quality
  - Decreased Development Costs
  - Dramatic Increases in Number of Products

Leading Metric of Product Development Effectiveness
### Commercial Success at Shortening Cycle Times

<table>
<thead>
<tr>
<th>Industry</th>
<th>Old Time</th>
<th>Current</th>
<th>Goal</th>
</tr>
</thead>
<tbody>
<tr>
<td>Automobile</td>
<td>7 years</td>
<td>2 years</td>
<td>&lt;1.5 years</td>
</tr>
<tr>
<td>Commercial Aircraft</td>
<td>8-10 years</td>
<td>5 years</td>
<td>2 1/2 years</td>
</tr>
<tr>
<td>Commercial Spacecraft</td>
<td>8 years</td>
<td>1.5 years</td>
<td>1 year</td>
</tr>
<tr>
<td>Consumer Electronics</td>
<td>2 years</td>
<td>.5 years</td>
<td></td>
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</table>
**Programmatic Aspects**
- DoD Schedule Process

**Management and Organizational Aspects**
- IPT Effectiveness
- Make/Buy Decision
- Early Supplier Integration in Design
- Design Structure Matrix (Organizations)
- Risk Management

**Engineering Aspects**
- Database Commonality
- Software Factory
- Design Change Reduction
- Key Characteristics
- Design Structure Matrix (Product)
- Architectural Innovation
- Technology Insertion
Research Briefing Overview

- **Programmatic Aspects**
  “The Role of the Schedule Development Process”
  Ross McNutt
  Small group discussions

- **Management and Organization Aspects**
  “Process Redesign and Management Using the Design Structure Matrix Method”
  Tyson Browning and David Grose (Boeing, Seattle)

- **Engineering Aspects**
  “IPPD Process and First Time Capability”
  Mario Vitale (Boeing, St. Louis) and Tim Cunningham