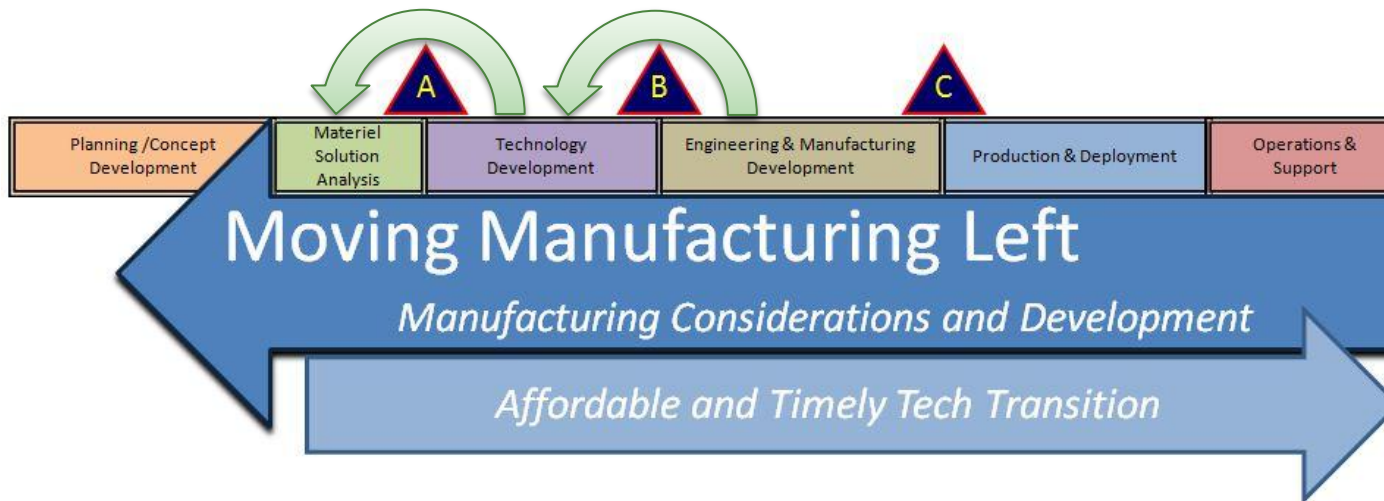




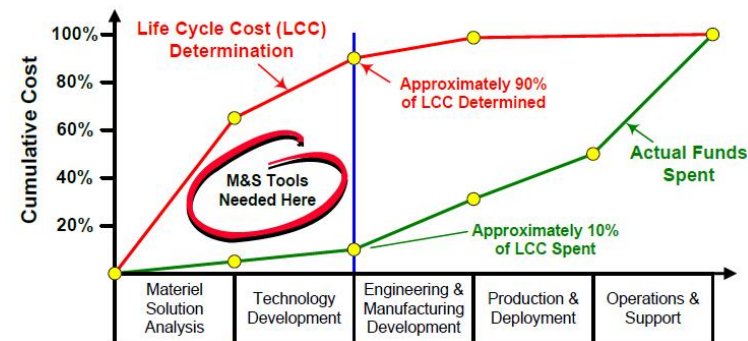
Moving Manufacturing Left: Consideration of Manufacturing and Producibility Earlier in the Product Design Process



Why should manufacturing/producibility be considered early?

▪ According to the GAO, products made by immature manufacturing processes generally:

- Cost more
- Are prone to quality problems
- May not all perform the same
- Are less reliable in service
- Have a hard time delivering on schedule



• Moving Manufacturing Left Strategic Thrust fosters greater awareness of manufacturing risks and opportunities early in the design cycle, when it is easier and less expensive to make changes.





Moving Manufacturing Left: Consideration of Manufacturing and Producibility Earlier in the Product Design Process



Reduce mfg technical risk ↔ Reduce cost ↔ Reduce schedule slip



*Research
Community*



*System
Engineering and
Acquisition
Community*

Early Consideration of
Manufacturing During Science &
Technology Development

- Develop manufacturing technologies critical for successful future Air Force systems *concurrently* with game-changing science and technology
- Anticipate and close critical gaps in manufacturing technology
- Develop a body of knowledge to understand manufacturing risk
- Create processing and manufacturing models integrally with materials and product research & development

Early Consideration of
Manufacturing During Design &
Acquisition

- Extend use of Manufacturing Readiness Assessment tools to earlier in the research cycle to identify risks
- Develop and validate quantitative tools to predict producibility
 - Science/math based measures
 - “Virtual manufacturing” modeling
 - Reveal previously hidden costs due to design features
- Transform “Design for Manufacturing” into a science