



The Joint Defense Manufacturing Technology Panel (JDMTP)

Why MRLs are Relevant

“Advanced weapon systems cost too much, take too long to field, and are too expensive to sustain”

Discovery Activity (What)

- Manufacturing Readiness Levels (MRLs), and assessments of manufacturing readiness, have been designed to allow for the **identification and management of manufacturing risk**
- Structured approach for identifying, quantifying, and prioritizing manufacturing and quality (M&Q) risks and mitigation efforts
- Increases value to customers by providing M&Q risk information to support decision points in R&D and Systems Acquisition
- Risk Assessment - Not “Pass/Fail” Audit

GAO Cares

- According to GAO, **one** of the three **key contributors** to the cost and schedule growth was **not adequately understanding and addressing Manufacturing/Quality issues** during development and production
- **60% of the total cost growth occurred after programs entered production, when costs should be more stable**
- Over the past 5 years, GAO analyses show that programs that attained certain knowledge at key points were associated with lower cost and schedule growth than programs that did not
- The majority of MDAPs reviewed continue to not fully achieve knowledge to support informed key investment decisions

When (Product Lifecycle)

- **Manufacturing readiness begins before and during the development of systems, continues during production and continues after a system has been in the field for a number of years through the **Maintenance, Repair and Overhaul** (sustainment) process**
- A stable and mature design is a prerequisite for moving into production, where the focus should be on efficient manufacturing
- Leading acquisition practices call for knowledge to be in hand at production start in order to ensure manufacturing processes are repeatable, sustainable, and capable of consistently producing parts within quality standards



Provide insight into current manufacturing maturity and capability



Identify contributing factors & issues driving the “Gaps” in MRL maturity



Identify the type and significance of risks to cost, schedule and performance



Lay the foundation for accurate, time-phased, manufacturing risk mitigation planning and investment

Objective

Success

- Characteristics of successful programs (GAO):
 - Mature technologies, stable designs, production processes in control
 - S&T organization responsible for maturing technologies, rather than program or product development manager

Summary

- Manufacturing considerations are pervasive throughout the Product Life Cycle
- Products made by immature manufacturing processes generally:
 - **Cost more**
 - Are prone to quality problems
 - Experience **schedule delays**
 - **May not perform the same**
 - Are less reliable in service
- **Best Practice** across Defense and Commercial industries