ZERO DEFECT MENTALITY
Unlocking Lasting Value Through Quality Transformation

Collaboration on Quality in the Space and Defense Industries
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LOCKHEED MARTIN AERONAUTICS

• 25,000+ employees
• Nine locations
• Global partnerships

Co-Production

Fort Worth, TX
San Antonio, TX
Palmdale, CA
Meridian, MS
Marietta, GA
Greenville, SC
Pinellas, FL
Clarksburg, WV
Johnstown, PA

Italy
Greece
Turkey
S Korea
Japan
India
Australia

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DISTRIBUTED SUPPLIER NETWORK

• 1,800+ Suppliers
• 24 Countries
• 70% of COGS is sourced material
Government budgets are shrinking

Number of US DOD programs are declining

Our customers' needs and expectations remain high

Accelerating affordability and performing is critical to our customer
Let's Think Analytically; How to Achieve Lasting Value?

Reliability (MTBF) = \( f \) (Technical Solution) \( \times \) (Robust Process)

Zero Defect Results = \( f \) (Reliability) \( \times \) (Personal Accountability)

Lasting Value = \( f \) (Zero Defect Results) \( \times \) (Continuous Improvement)

\[ Y = f(X) \] ....what factors enable us to achieve lasting value?

\[ Y = \text{Lasting Value} \]

\[ X1 = \text{People: Domain and Behavioral Competencies} \]
\[ X2 = \text{Organizational Systems and Structure} \]
\[ X3 = \text{Customer Intimacy} \]
\[ X4 = \text{Innovative Solution} \]
INVESTING FOR SUSTAINED QUALITY IMPROVEMENT

BUILDING BLOCKS
THAT DELIVER ZERO-DEFECT PRODUCTS & SERVICES

Talent Acquisition
Talent Development
Knowledge Retention
Results Based Reward
Empowerment
Ownership
Connection

Vision, Values,
Mission & Goals
QMS / CMMI
Lean / Six Sigma
PM Process
Regulations
Security / EH&S

Customer Needs
End-Users
Partners
Align Suppliers
Community

Error Proofing
Technology Roadmap
Sustainability
Modeling & Simulation
Product Dev Model
Ideas Program
Supplier Innovations

Innovative Solution

People

Organizational Systems & Structure

Customer Intimacy

Innovative Solution

ZERO DEFECT PERFORMANCE

Investments are critical to achieve Zero Defect performance
DELIVERING QUALITY TO DEFENSE INDUSTRY CUSTOMERS

INVESTMENT AREAS
- People
- Org Sys & Struc
- Customer Intimacy
- Innovative Solution

EXECUTION
- Program Management

OUTCOMES
- Zero Defect Performance
- Lasting Value

Lessons Learned

Results Are Measured at Business, Programs, and Individual Levels
ACHIEVE ZERO DEFECT RESULTS

1. Start with defining customer value
2. Identify the right investments
3. Align structures, processes, organizations
4. Innovate relentlessly
5. Measure results and insist on continuous improvement

F-35 IS WINNING THE WAR ON DEFECTS

- 2009-2011 internal defect rates were high, trending flat
- 2011-2015 implementation of “War on Defects” strategy and focused continuous improvement
- 2016 continued momentum yielding high return on investments in people, innovation

96% Reduction of Defects Delivered Over 5 Years (OPQL)
SUPPLIERS ARE OWNING ZERO DEFECT RESULTS

• 2015: Lockheed Martin identified a major supplier with unacceptable, systemic defects
  – Collaboration with supplier led to development of a zero defect strategy
  – Investments made in customer intimacy, org structure, and innovative process control
• 2016: culture of ownership and lasting value evidenced by measured results