The Aerospace Corporation
*An Overview*

Presented by Greg Meholic

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The Aerospace Corporation

- Created in 1960 as a California nonprofit corporation
  - *Attract and retain high quality engineers, scientists, and managers*
  - *Governed by Board of Trustees*
- Operates a **Federally Funded Research and Development Center** (FFRDC) sponsored by the U.S. Air Force

- Work for DOD, NASA, other national and international civil and commercial clients

- A company of 3500 that provides advanced scientific and engineering services for space and related high-technology systems
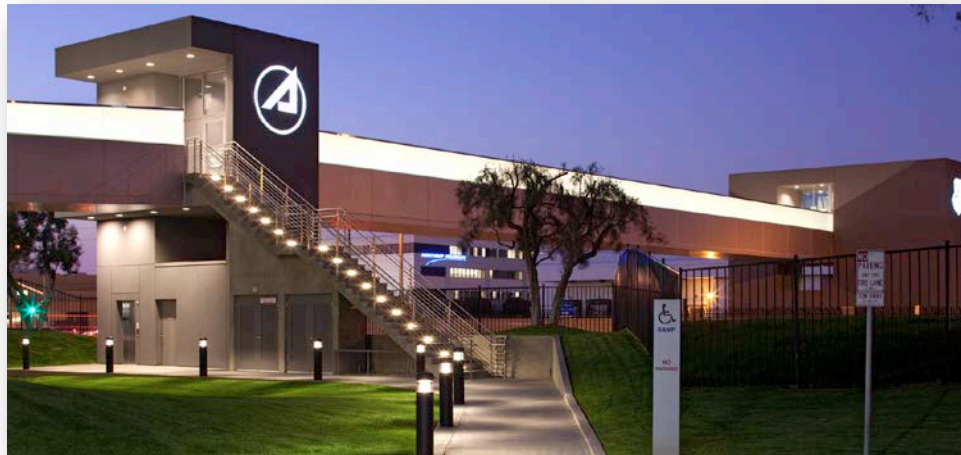
What is an FFRDC?

Federally Funded Research and Development Centers:

- Are sponsored by government agencies (DOD, DOE, IRS, others)
- Provide objective advice and perform research and development activities in highly complex technological disciplines
- Work in the national interest
- Are administered independently to ensure objectivity
- Are dedicated to the success of their sponsors
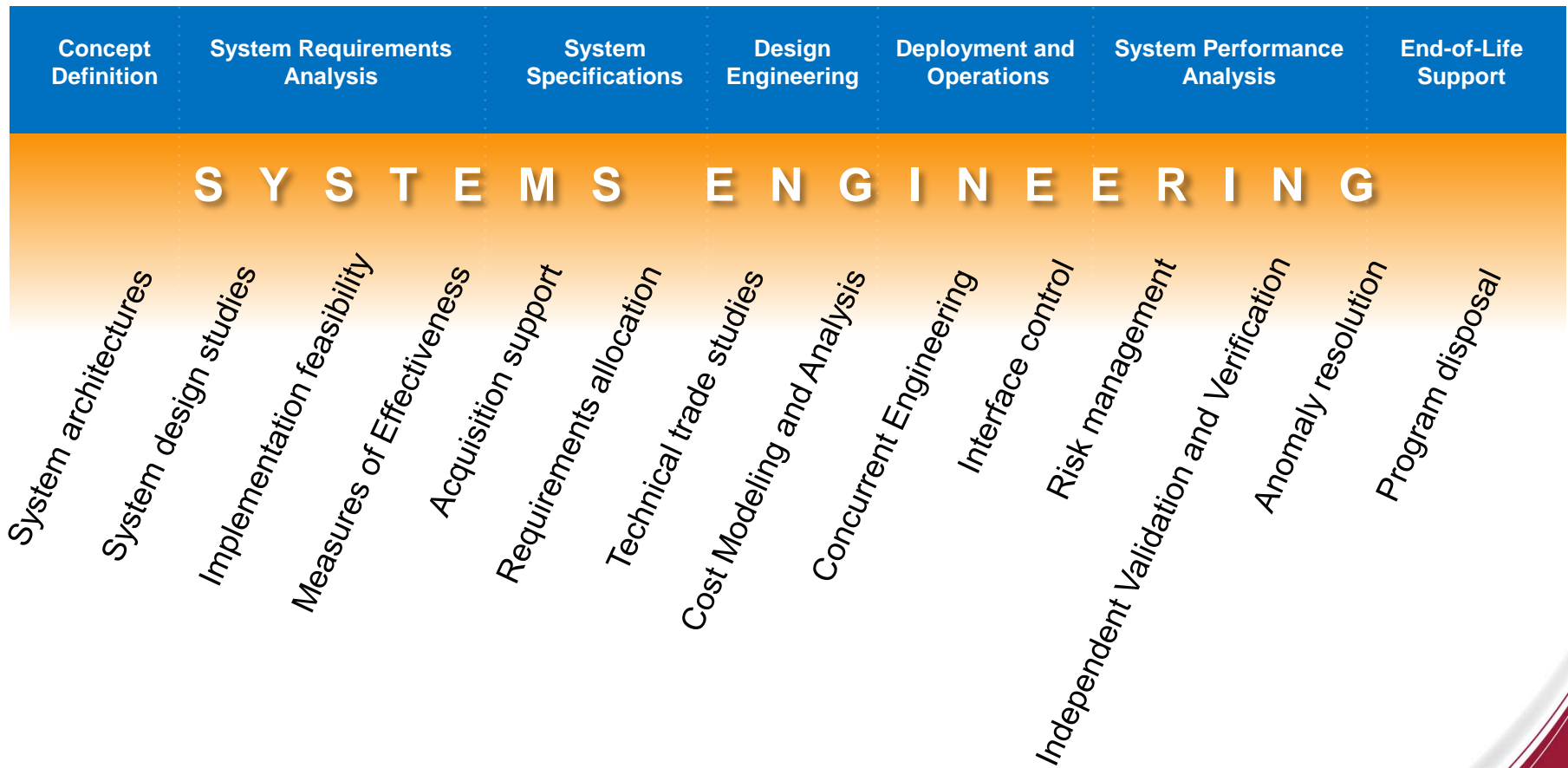
Aerospace Attributes

- Absolutely no organizational conflicts
  - *Go to any company*
  - *Serve on any source selection*
  - *Delve into any technical problem*
- Evaluate innovative space technologies
  - *The nation's corporate memory for space systems*
- Sole interest is the mission success of our customer
  - *Motive is not for profit or business growth*

System Life Cycle Experience

Aerospace Provides Critical Cross-Program Technical Support

Concept Definition	System Requirements Analysis	System Specifications	Design Engineering	Deployment and Operations	System Performance Analysis	End-of-Life Support

SYSTEMS ENGINEERING

- System architectures
- System design studies
- Implementation feasibility
- Measures of Effectiveness
- Acquisition support
- Requirements allocation
- Technical trade studies
- Cost Modeling and Analysis
- Concurrent Engineering
- Interface control
- Risk management
- Independent Validation and Verification
- Anomaly resolution
- Program disposal

The Aerospace Corporation applies rigorous systems engineering processes at all levels of support

Aerospace Technical Organization

Program Offices

- Systems Planning and Engineering
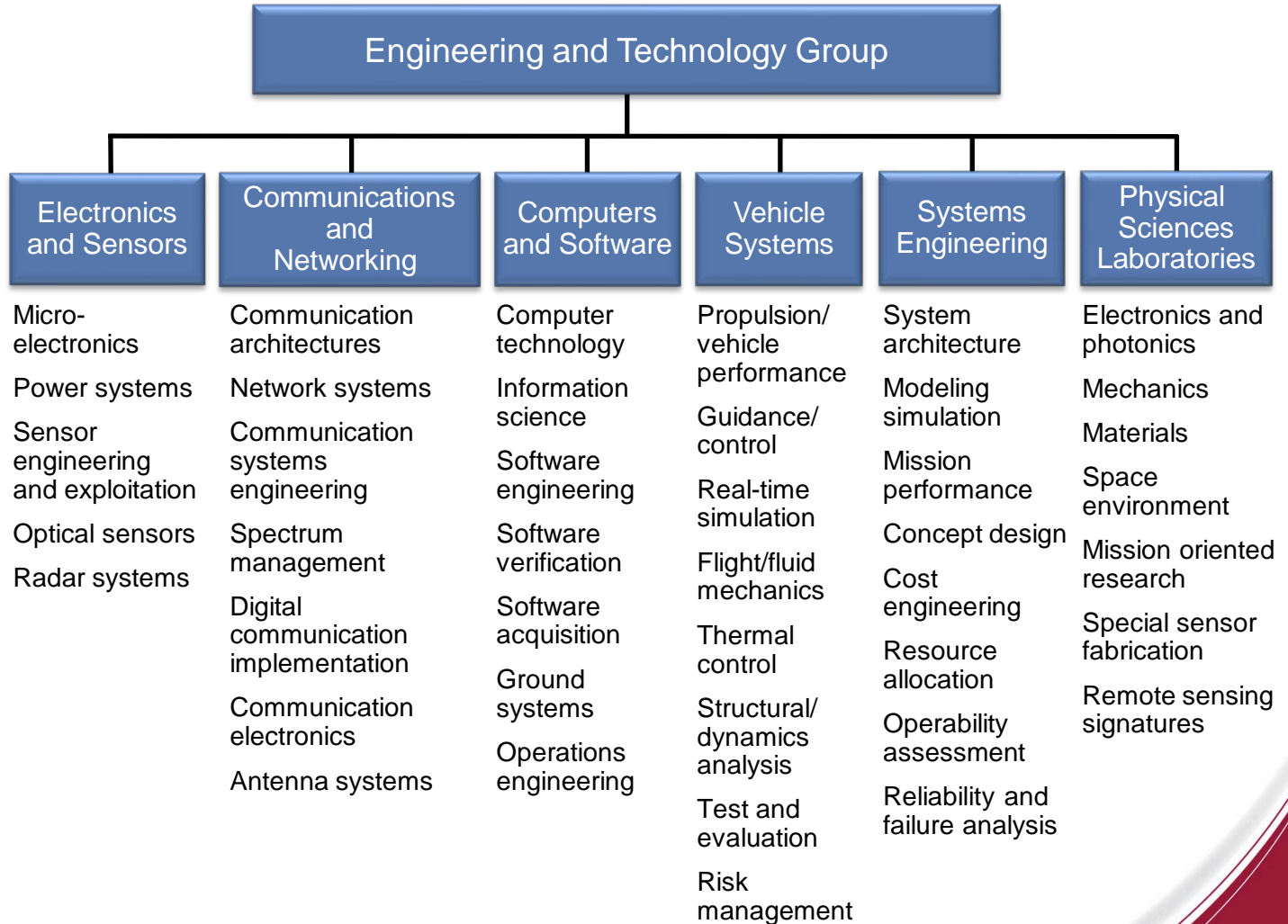- Space Programs
- Space Support
- Space Launch
- Electronic Programs
- Imagery Programs
- Advanced Technology
- Planning and Communications
- Civil and Commercial

Engineering and Technology Group

Electronics and Sensors
- Micro-electronics
- Power systems
- Sensor engineering and exploitation
- Optical sensors
- Radar systems

Communications and Networking
- Communication architectures
- Network systems
- Communication systems engineering
- Spectrum management
- Digital communication implementation
- Communication electronics
- Antenna systems

Computers and Software
- Computer technology
- Information science
- Software engineering
- Software verification
- Software acquisition
- Ground systems
- Operations engineering

Vehicle Systems
- Propulsion/vehicle performance
- Guidance/control
- Real-time simulation
- Flight/fluid mechanics
- Thermal control
- Structural/dynamics analysis
- Test and evaluation
- Risk management

Systems Engineering
- System architecture
- Modeling simulation
- Mission performance
- Concept design
- Cost engineering
- Resource allocation
- Operability assessment
- Reliability and failure analysis

Physical Sciences Laboratories
- Electronics and photonics
- Mechanics
- Materials
- Space environment
- Mission oriented research
- Special sensor fabrication
- Remote sensing signatures

Aerospace expertise spans all areas of space engineering & technologies

Aerospace Launch Mission Assurance
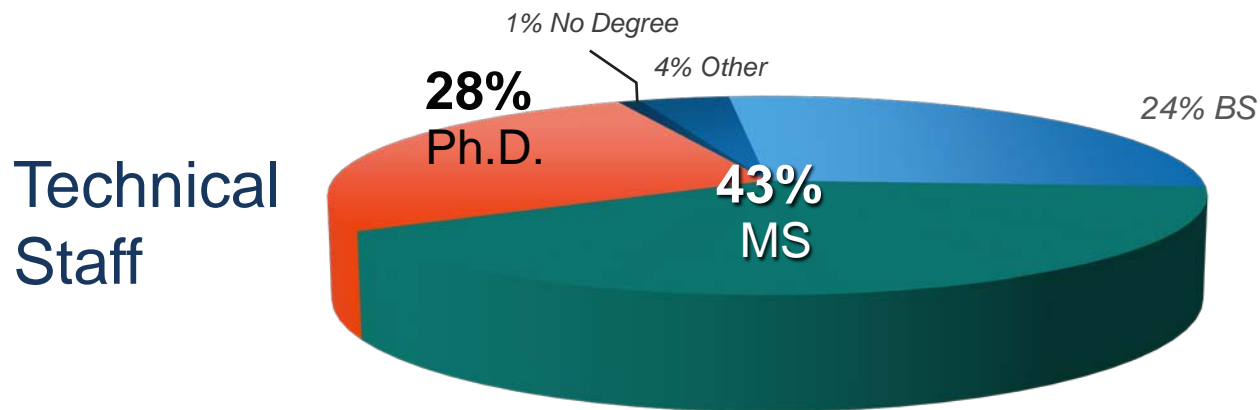## *Launch Readiness Verification Process*

Photo reprinted courtesy of NASA

Launch Process

- Post Flight Review
- Countdown and Launch
- Launch Readiness Review
- Vehicle Readiness Review
- Contractor Readiness Reviews
- Mission Readiness Review
- Launch Site Processing & Vehicle Test
- Component Pedigree Review
- FCA/PCA
- Hardware Acceptance Review (HAR)
- Dev Qual, Accept Test
- Engineering Analyses
- Requirements Development

- Launch
- Aerospace Verification Letter to SMC (L-5 Days)
- Flight Readiness Review to SMC(L-8 days)
- Aerospace President's Review (L-2 wks)
- Aerospace Readiness Reviews

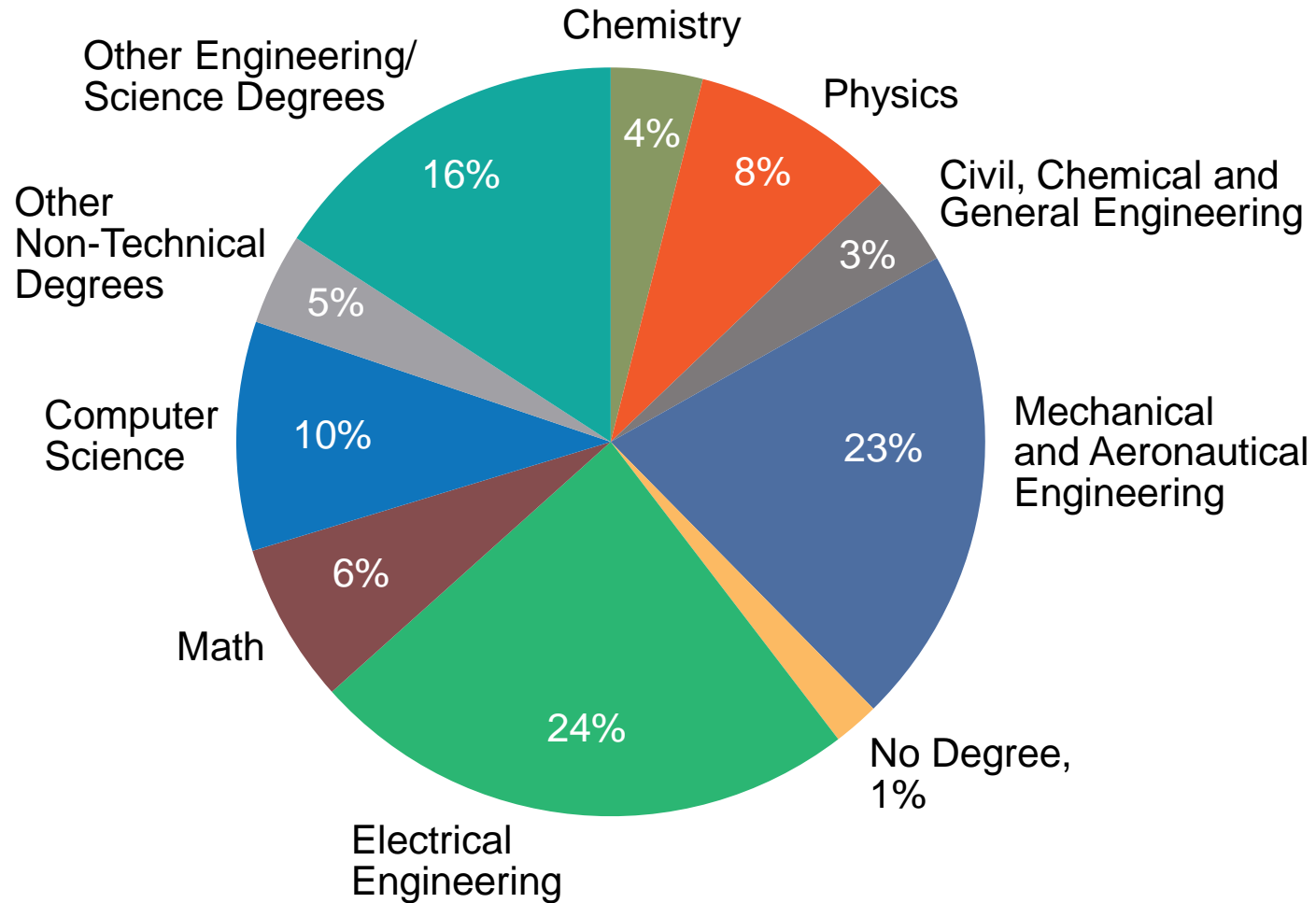**Aerospace Launch Programs Participation**

Previous Affiliation and Degrees of Technical Staff

Employees ~3500 people, ~2500 Technical Staff, ~28% Ph.D. ~43% MS

- *Roughly 73% have prior government, military or industry experience*
- ***Average 25 years of experience (Industry average 18 years)***
- ***Stable workforce, < 2% annual attrition (Industry average 15% attrition)***

Technical Staff

28% Ph.D.

43% MS

24% BS

4% Other

1% No Degree

Discipline of Technical Staff*

Chemistry 4%
Physics 8%
Civil, Chemical and General Engineering 3%
Mechanical and Aeronautical Engineering 23%
No Degree, 1%
Electrical Engineering 24%
Math 6%
Computer Science 10%
Other Non-Technical Degrees 5%
Other Engineering/Science Degrees 16%

* as of December 2012

The Aerospace Corporation Locations*

Co-located with major customers

South Dakota

Omaha

Dayton

Philadelphia

MD/NJ

Chantilly

Rosslyn

Utah

Colorado

Sunnyvale

Vandenberg AFB

Pasadena

El Segundo

Albuquerque

Huntsville

San Diego

Houston

Kennedy Space Center
Cape Canaveral AFS

* as of December 2012