Payload Integration Capabilities

Space Shuttle, International Space Station, Expendable Launch Vehicles

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The Payload Integration Process is complex, requiring coordination with multiple organizations.

MEI Technologies, Inc. has the experience and personnel to maximize your science return while meeting all integration requirements.
MEI Technologies, Inc.

- Incorporated January 1992
- Service-Disabled Veteran-Owned Small Business
- NAICS Code
  - 541712 Research & Development
  - 517110 Telecommunications
- Prime and Subcontracts with NASA and Department of Defense
- Over 800 employees

- ISO 9001:2000
- AS9100
- CMMI Level 3
- OSHA VPP Star Designation

Annual Revenue

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Year
M$
96 97 98 99 00 01 02 03 04 05 06 07 08
M$ 120 110 100 90 80 70 60 50 40 30 20 10 0
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MEI Experience

– MEI has been the sole provider of integration and operations support for all DoD experiments flown on the Space Shuttle and ISS for the past 17 years.
– MEI has successfully integrated more than 125 payloads.
– Payload carriers and destinations have included Space Shuttle middeck, payload bay Cargo Bay Hitchhiker, Get Away Special (GAS), and Cross-Bay Carrier, Spacelab, Spacehab, Phase I - Shuttle/Mir, International Space Station (ISS), Progress, HTV, and ATV.

MightySat installed in the orbiter cargo bay (above) and ejected during STS-88 (right)

The Lightweight Flexible Solar Array Hinge (LFSAH) experiment being operated in the orbiter middeck on STS-93

Miniature Satellite Threat Reporting System (MSTRS) installed on Spacehab rooftop in preparation for STS-107

Photos courtesy of NASA
Our Personnel Supporting Recent Missions

Perform Payload Development, Testing, Integration, and Operations

- Mechanical and electrical engineers for payload design
- Safety engineers
- Payload integration engineers

- Crew training instructors
- Test and verification personnel
- Real-time console operators

CAPE free-flyers being installed into STS-116 Shuttle payload bay by DoD and MEI Team

MEI personnel supporting DoD Team during STS-126 operations

Photos courtesy of DoD Space Test Program
Newly Awarded DoD Human Exploration Payloads (DHEP) Contract

- Define and document payload requirements
- Obtain safety certification for payload flight and ground hardware
- Support manifesting and flight assignment
- Technical and schedule guidance to payload developer during hardware design and integration
- Verify compliance with SSP and ISS requirements
- Perform payload element testing and engineering analyses
- Train crew and console support team
- Pre-launch and post-landing hardware processing
- Maintain the DoD Payload Operations Control Center
- Provide console flight operations support to payloads
- Gather post-flight data from the SSP and/or ISS
- Maintain DoD document library and hardware vault
- Transition to future launch systems with NASA

MISSE 6 deployed on Columbus module during STS-123

Photos courtesy of NASA
Other Shuttle/ISS Integration-Related Contracts

MEI also supports development and delivery of flight hardware to NASA on several subcontracts relating to payload integration

- **Engineering and Science Contract (subcontract to JACOBS)**
  - Provide design, safety, quality, and test

- **Bioastronautics (subcontract to WYLE)**
  - Provide design, build, and test

- **Boeing Engineering Services**
  - Provide systems integration support

- **Lockheed Martin**
  - Provide systems integration support

- **NASA Johnson Space Center Engineering Directorate (BETA Contract)**
  - Integrated DragonSat picosats for STS-127 deployment via MEI-built ejection system
Multinational Vehicle Integration

Launch and Space Operating Vehicles
- *Space Shuttle, Mir and International Space Station*
- *Progress*
- *HTV (H-II Transfer Vehicle)*
- *ATV (Automated Transfer Vehicle)*

Launch Integration Experience
- *Systems and Payload Integration*
- *Mission Planning and requirements definition*
- *Requirements Implementation, Verification and Certification*
- *Flight and Ground Crew Training*
- *Trainer and Simulator Design, Acquisition and Operations Support*
- *Technical Interchange and Action Item / Conflict Resolution*
- *Integration Documentation*
- *Safety Certification*
- *Pre-launch Processing and Checkout Support*
- *Real-Time Mission Operations Support*
Summary

MEI has extensive payload integration experience

- **Author payload requirements documentation**
- **Perform testing, verification, and safety certification**
- **Support payload manifesting, operations and logistics support**
- **Lead payload organizations to successfully utilize chosen vehicle and carrier**
- **Navigate the requirements and processes of several launch vehicles and associated carriers**
  - Space Shuttle
  - International Space Station
  - ELVs (Expendable Launch Vehicles)
    - Progress,
    - HTV,
    - ATV
    - and COTS

Photos courtesy of NASA