

SPACE AND MISSION ENGINEERING



Today's space environment is increasingly more contested, populated and complex. Maintaining our national security and advantage in space requires adaptable capabilities and exceptional expertise. With four decades of experience integrating space and mission systems and developing innovative technology solutions, Arcfield is uniquely positioned to solve our nation's most challenging security and intelligence problems.

ENTERPRISE SYSTEMS ENGINEERING

Our enterprise systems engineering approach provides the optimal balance between technology, mission expertise and analysis to ensure the envisioned enterprise is achievable, reliable and successful. Through close collaboration with our customers, we deliver mission-based outcomes from capability acquisition, to deployment, to disposal at end of life.

- Trade studies
- Requirements and interface definition

- Operations concept development
- Independent verification, validation and testing
- Operational transition

MISSION ENTERPRISE INTEGRATION

We take a holistic approach to understanding the complex architecture of interconnected systems to meet mission objectives. We assess cost and schedule interdependencies spanning the full portfolio of projects and programs, the performance of the systems and their components, and the impact of system performance on the overall enterprise.

- Integrated architectures
- Portfolio planning and optimization
- Enterprise schedules
- Acquisition strategy and support
- Technology insertion planning

COMMUNICATIONS SOLUTIONS

Arcfield's communications expertise includes technologies and solutions from undersea cables to deep space networks. We combine leading-edge applied research with rigorous engineering to deliver solutions for our customers' most challenging communications needs.

- Quantum communications
- Cognitive networks
- Next-generation standards
- Adaptation of terrestrial standards to space applications
- Spectrum management
- Space and ground architecture definition and trade studies
- Ground terminal location, environmental and atmospheric analytics
- Protection and resiliency
- Smart recapitalization
- Communications system operations

SOFTWARE SOLUTIONS

We develop complex real-time systems for command and control and data reporting applications. From man-rated launch control activities to real-time threat reporting, our software solutions deliver mission-critical capabilities on time and on budget.

- Traditional and agile development techniques
- Scalable, cloud-based solutions
- Rapid prototyping and early risk reduction
- Complex scientific algorithms and critical methods
- Real-time big data analytics and visualization
- Diagnostics and forensics
- Mission operations and field support

ENTERPRISE READINESS AND TRANSITION

Delivering new and enhanced missions require broad expertise and excellent communication between mission partners, acquisition offices, contractors and facility owners. We apply corporate best practices for managing complex acquisitions and delivering mission initial operating capability on schedule and within cost requirements.

- Project management
- Integration planning and test event definition and orchestration
- Schedule and dependency management
- Progress metrics and corrective actions
- Conflict resolution

MISSION MODELING, SIMULATION AND ANALYSIS

Mission modeling, simulation and analysis (MS&A) plays a key role in all system phases and enables data-driven decision-making that supports the acquisition and development of large-scale system-of-systems mission enterprises. We offer a suite of MS&A capabilities developed using our expertise in mission and technical spaces that spans the end-to-end mission chain.

- Space, air and terrestrial platform dynamics

- Remote sensing performance
- Communications and networks performance
- Functional availability
- End-to-end performance and mission effectiveness

MISSION ANALYTICS

We use mission analytics to quantify the facts, figures and trends necessary for designing solutions that meet the needs of system users. Our people, processes and tools set the industry standard for delivering relevant and timely decision support data.

- Constellation, spacecraft and ground system design
- Enterprise, system and subsystem models and simulations
- Navigation, estimation and orbit control plans
- Mission performance and system/subsystem prediction
- Space situational awareness, resiliency and protection capability development
- Reliability and availability

LAUNCH SUPPORT

Maintaining government and commercial access to space requires the reliable and successful operation of launch vehicles. Arcfield provides comprehensive, integrated support for launch vehicles—from business and administration solutions to engineering and launch operations.

- Program management support
- Mission integration and control
- Safety and mission assurance
- Spacecraft integration operations
- Communications and telemetry operations and management
- IT and systems engineering solutions
- Facility design, construction, operations and management subsystem prediction

MISSION ASSURANCE

Arcfield provides support in all areas of mission assurance. We apply systems engineering, risk management, quality and management principles to successfully

execute design, development, testing, deployment and operations processes.

- Parts and materials
- Risk management
- Quality assurance
- Safety

MISSION OPERATIONS

Our support services include tracking and trending operational performance to optimize operations. We prudently manage and protect your assets and create opportunities to turn margin into mission.

- Constellation management, orbit maintenance and propellant management
- Satellite and subsystem telemetry analysis, models and simulations
- Precision navigation, position and attitude determination
- Mission performance and system/subsystem trending
- Anomaly resolution support
- Product quality engineering and assurance
- Tactics, techniques and procedures development
- Life estimation, reliability and availability
- Prototyping

PROGRAM MANAGEMENT AND CONTROL

We provide program management and control services to ensure our systems engineering and integration services meet customer cost, quality and schedule requirements. We apply learned and industry best practices to deliver quality technical, engineering and programmatic support services.

- Integrated program control
- Configuration management
- Risk and opportunity management
- Cost and schedule management
- Decision review boards