

# Intelligent Systems Engineering

## Intelligent Systems Engineering (ISE)

In the global contest for technological dominance, one of the top challenges is ensuring seamless integration of complex systems to ensure delivery of capability in the speed of relevance.

Whether for Defense, Intelligence or Federal Civilian agencies, meeting emerging requirements or integrating emerging technology is crucial to enterprise success. ManTech's decades of experience in systems engineering and leadership in Intelligent Systems Engineering (ISE) ensure solid results on or ahead of schedule every time.

Five Technology Focus Areas		
	Cognitive Cyber for Physical and Digital Platforms	Cognitive Cyber
	Mission & Enterprise Information Technology	M/EIT
	Analytics, Automation, and Artificial Intelligence	A <sup>3</sup>
	Intelligent Systems Engineering	ISE
	Data at the Edge	D@tE

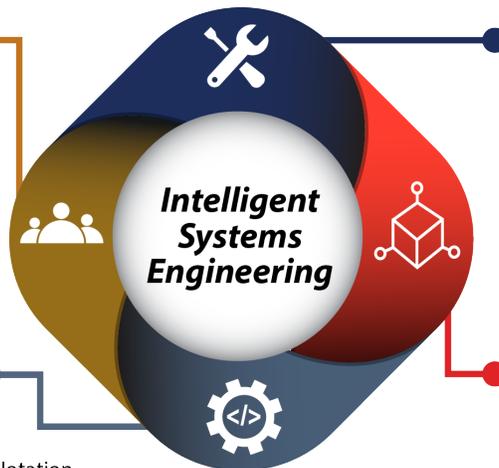
ISE is the modernization of Systems Engineering practice using computational technologies to enhance decision-making and capturing the authoritative source of knowledge. ISE is grounded on systems engineering fundamentals covering activities from conceptualization through operations and sustainment. It is powered by an end-to-end data driven environment where modeling, simulations, analytics, automation and artificial intelligence can be leveraged to augment an engineer's understanding of the system of interest and gain efficiencies and quality in the process execution. This paradigm shift is aligned with the digital transformation to Industry 4.0 in particular within the Department of Defense (DoD) – the push to transform to a Digital Engineering Enterprise.

### Organizational Transformation

- Team Enablement
- Training Approach
- Acceptance and Adoption
- Management
- Governance and Policy

### Semantics and Knowledge Representation

- SysML: Systems Modeling Language
- UML: Unified Modeling Language
- BPMN: Business Process Model and Notation
- UPDM: Unified Profile DoDAF/MODAF
- Ontologies
- Knowledge Graphs



### Infrastructure and Technologies

- Cloud/IT Modernization
- Computer Aided Design (CAD)
- Computer Aided Engineering (CAE)
- Automation, Analytics and AI/ML
- High Performance Computing
- AR/VR

### Methods, Processes and Frameworks

- Acquisition Engineering
- Innovation and Technology Portfolio Management
- Enterprise Architecture
- Digital Mission Engineering
- Model-Based Systems Engineering (MBSE)
- Model-Based Design
- In-Service Engineering/Model Based Logistics
- Technology Risk Analysis

Using ManTech's core competencies, ISE will leverage capabilities and solutions developed in the M/EIT, Cognitive Cyber, A<sup>3</sup>, and D@tE TFAs.

### Our focus:

- A culture and workforce that adopts and supports Digital Engineering across the lifecycle.
- Processes and methods to formalize the development, integration and use of models to inform enterprise and program decision making.
- A supporting corporate infrastructure and environments to perform activities, collaborate and communicate across stakeholders.

### Our goals:

- Becoming the trusted provider of Cyber-Physical Digital Twins with a path to integrate to the physical twin through the Internet of Everything.
- Becoming the trusted digital thread and systems integrator of choice.

ManTech is an industry leader in Intelligent Systems Engineering/Digital Engineering and will continue to evolve through strategic partnerships and technologies. Taken together, our focus, methods and tools mean ManTech's workforce will be fully enabled to make the company the trusted provider of choice for Digital Twins and Digital Thread System Integration.

ManTech is prepared to meet customers where they are in their digital engineering (DE) transformation to clearly define the next steps to realize benefit and enhance program success. The transformation approach covers five categories essential for sustainable digital engineering success: Transform, Provision, Model, Integrate, Sustain. This holistic view enables customers to incrementally improve targeted, priority areas with a clear vision of how the DE evolution fits together. Whether a customer helped write the Systems Modeling Language (SysML) standard or is not familiar with the term, ManTech is prepared to provide value to customers. Working at the right level of scale and understanding, state-of-the-art concepts can be employed, or rudimentary functions supported. Most importantly, ManTech takes the anxiety out of digital engineering implementation, so customers can improve what makes sense for their context to achieve concrete results.

Any organization's ability to execute its mission depends on the quality and training of its people. The ISE TFA is working with various training-focused groups such as ManTech University (MTU) to ensure the training we provide our employees and customers is current and relevant. Content is curated under a Capability Academy.

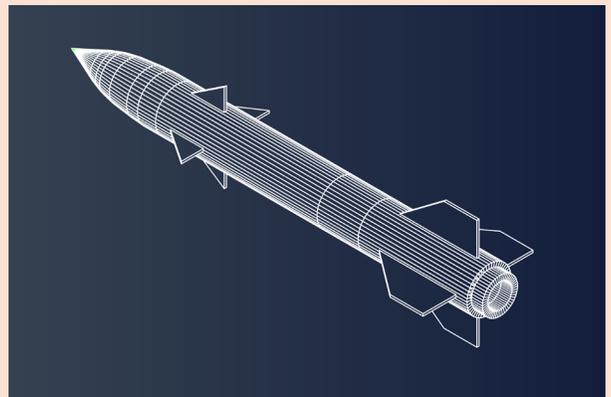
Through strategic partnerships with university and industry providers, such as Purdue University, MIT, University of Detroit Mercy, Skillsoft, and more, ManTech offers multiple programs to build skills and capabilities at all development levels and at no out-of-pocket cost to employees. This ISE Capability Academy is a corporate investment in our employees' future and aligns directly to our culture of career engagement. More than a program, this is a corporate investment in our employees' future and aligns directly to our culture of career enablement.

### ISE: Intelligent Systems Engineering

Next Generation Systems Engineering Capabilities and Solutions:

- Reduce Cost, Time, and Development Cycles using Virtual Environments
- Deliver Connected Platforms, Sensors and Digital Interfaces
- Perform Testing, Mission Integration and Training

***Durable architecture + agile applications innovation***



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**ManTech**