

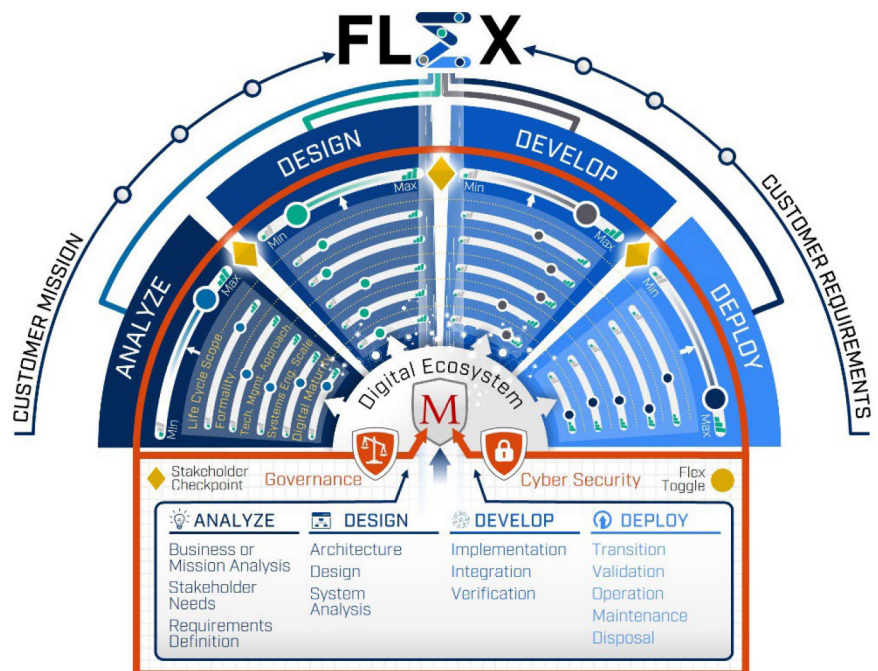
ManTech's flex-engineering® Approach for Systems Development

Organizations today have tremendously greater complexities and challenges with their systems development process — they require seamless integration of existing capabilities with future needs, accelerated delivery of products to market, and implementation of innovative new technologies and approaches while adhering to budget and schedule constraints. ManTech's method for systems development, flex-engineering®, offers a systems engineering (SE) approach that is elastic in nature and adaptable to the work at hand, and is designed to provide customer solutions with speed, rigor, and discipline. Through formalized tailoring, contracts of any size or scope can adopt flex-engineering components.

Tailoring a Structured Development Process from Concept Through Disposal

ManTech's flex-engineering approach consists of four phases—Analyze, Design, Develop, and Deploy—that span the full life cycle SE processes in ISO/IEC/IEEE 15288. Based on this standard, ManTech uses a business process modeling tool to provide detailed process definition and a method to tailor to program needs while maintaining traceability and compliance visibility. This tool links to an extensive Systems Modeling Language (SysML) model to expand the ISO/IEC/IEEE 15288 outcomes into componentized ManTech methods with detailed activities, templates, work instructions, style guides, and validation rules, delivering disciplined and repeatable processes that can be tailored to meet programmatic requirements.

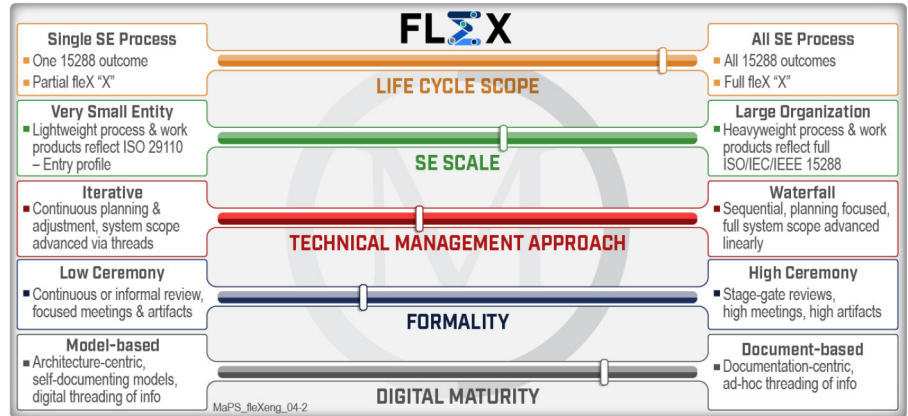
- **Analyze** phase processes provide business or mission analysis; stakeholder needs and requirements definition; and system requirements definition.
- **Design** phase processes provide architecture definition, design definition, and system analysis.
- **Develop** phase processes encompass implementation, integration, and verification.
- **Deploy** phase processes encompass transition, validation, operation, maintenance, and disposal.



An Elastic Approach to Product Development

Each flex-engineering phase has five dimensions of elasticity/flexibility that enable optimal solutions for our customers.

- **Life Cycle Scope:**
Single SE Process to All SE Processes
- **SE Scale:**
Very Small Entity to Large Organization
- **Technical Management Approach:**
Waterfall to Iterative
- **Formality:**
Low Ceremony to High Ceremony
- **Digital Maturity:**
Document-Based to Model-Based



Our flex-engineering provides the structure for an elastic approach to product development, sizing SE processes and digital engineering (DE) strategies to the optimal instantiation for customer needs. In support of continuous improvement activities or advancements to legacy work products or systems, tailoring flex-engineering components allows organizations with Waterfall, document-based, high ceremony SE to incrementally apply Agile, model-based, low ceremony methods. Style guides with corresponding validation rules enable continual, automated model quality checking, resulting in consistent, high-quality SysML models to support program needs.

ManTech vigorously pursues tool-agnostic SE and DE; we reuse the customer's existing processes, code, tools, and systems, organizing and integrating them with new processes to maximize performance and return on investment (ROI) while preventing vendor lockout.

Benefits

Our flex-engineering solution delivers increased speed, adaptability, efficiency, quality, and security while reducing cost and schedule risks to the customer.

- **Elastic digital engineering:** We customize DE solutions and environments to purpose-fit our customer needs and deliver high-quality results quickly and efficiently.
- **Hybrid traditional systems engineering and Agile methodology:** We tailor our SE approach to meet customer requirements, and we provide each solution with the speed needed to keep pace with customer needs and the rigor needed to provide interoperable and highly secure offerings.
- **Integrated quality:** We integrate robust processes into every phase of development and deliver quality and responsiveness to urgent needs in every phase.
- **Integrated collaboration:** We collaborate closely with the customer through reviews and decision points across all phases.
- **Cyber resilience:** We build cybersecurity in at every stage of flex-engineering, not just in development.
- **Model-based process delivery:** We capture process and technical decision rationale in live models that evolve with the system of systems (SoS).
- **DE-accelerated design exploration and validation:** We take a modeling-first approach using a digital engineering environment (DEE) that offers increased interoperability and supportability as well as reduced sustainment costs.
- **Governance, monitoring and assessing changes:** Using the ManTech Model Governance Guide, we establish a solid program model governance plan across the full model ecosystem to realize trust in digital threads.

In business more than five decades, ManTech excels in full-spectrum cyber, data collection & analytics, enterprise IT, systems engineering and software application development solutions that support national and homeland security.

LEARN MORE - mantech.com or contactus@mantech.com

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