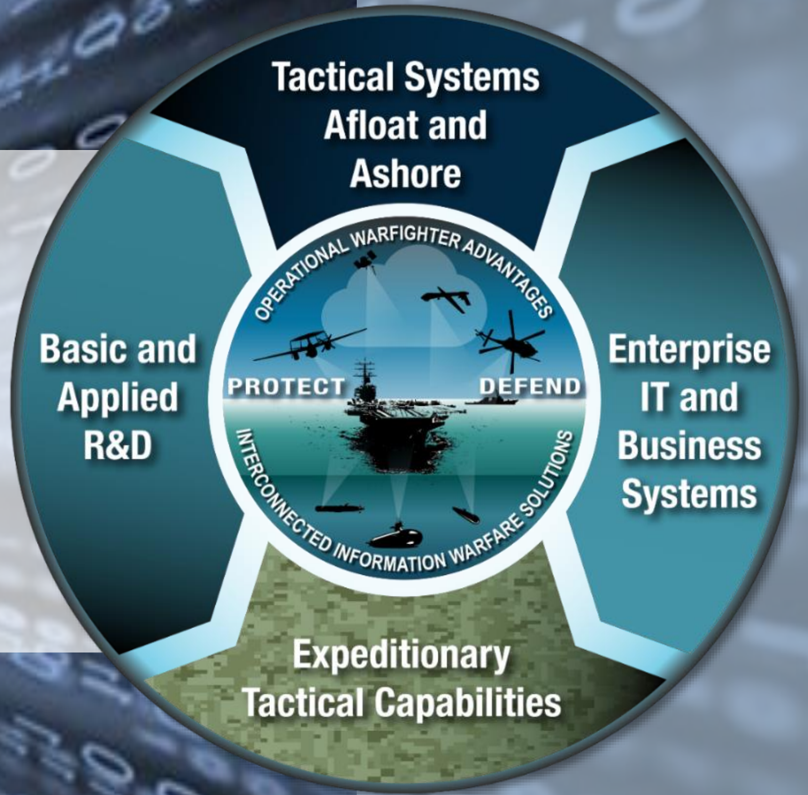
Naval Information Warfare Center ATLANTIC

Naval Information Warfare Center Atlantic

SE Vision 2035 & NAVWAR/NIWC Atlantic Digital Engineering & Technology Strategies

18 January 2024

Mr. Peter C. Reddy, SES
Executive Director



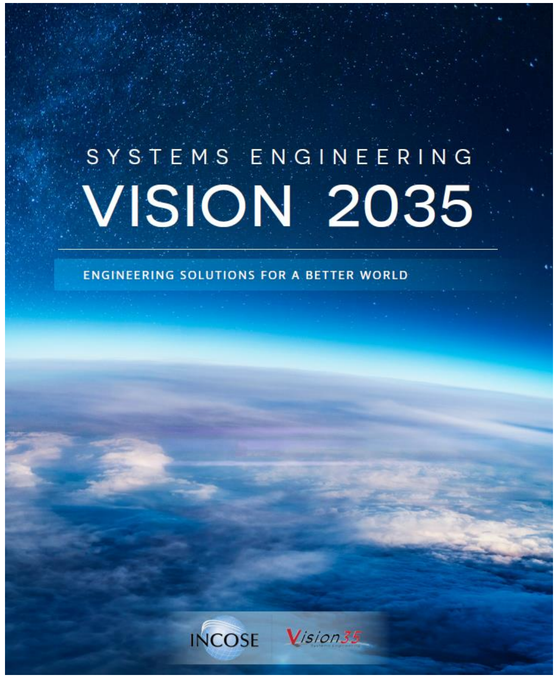
INCOSE

CHARLESTON, SC LOWCOUNTRY CHAPTER

SE IN SC

ENGINEERING SOLUTIONS FOR A BETTER WORLD

SE VISION 2035



www.incose.org/IW2022

The purpose of the Systems Engineering Vision 2035 is to ***inspire and guide*** the strategic direction of systems engineering across diverse stakeholder communities, which include:

- ENGINEERING AND EXECUTIVE LEADERSHIP
- ENGINEERING PRACTITIONERS
- PROFESSIONAL ORGANIZATIONS
- RESEARCHERS, EDUCATORS, AND STUDENTS
- STANDARDS BODIES
- TOOL VENDORS
- POLICY MAKERS

ADDRESS

FUTURE SYSTEMS ENGINEERING CHALLENGES

BROADEN

THE BASE OF SYSTEMS ENGINEERING PRACTITIONERS

ALIGN

SYSTEMS ENGINEERING INITIATIVES

PROMOTE

SYSTEMS ENGINEERING RESEARCH, EDUCATION, AND PRACTICE

A web-based version of this vision is available from the INCOSE website at https://www.incose.org/sevsion

CONTENTS

1

THE GLOBAL CONTEXT

THE GLOBAL CONTEXT

- Social & Economic changes influence on systems & SE
- Global Megatrends
- Technology Trends
- Enterprise & Stakeholder Concerns impact on SE & SE Education

Global Megatrends

MEGATRENDS expected to influence systems engineering through 2035.

Technology Trends Affect Systems

Quantum Information Science

Edge Computing

Energy Generation, Storage, Conversion & Distribution

Big Data Analytics

Bio/Life Sciences & Nano

Materials & Manufacturing

Geospatial/Geo-location

Autonomy & Artificial Intelligence

Communication Technologies

Simulation, Modeling & Virtualization

Growing Stakeholder Expectations

- SIMPLE
- TIMELY
- SAFE
- SECURE
- STABLE AND PREDICTABLE
- SMART
- SUSTAINABLE
- MAINTAINABLE
- SCALABLE
- AFFORDABLE

Enterprise & Education Environment

Globalization & Diversity

Sustainability Ethics

Systems Thinking

Anticipation of Technology

Supply Chain Integration

Enterprise Intelligence, Decision Making, & Learning

Automation & Digital Transformation

Education Systems of the Future

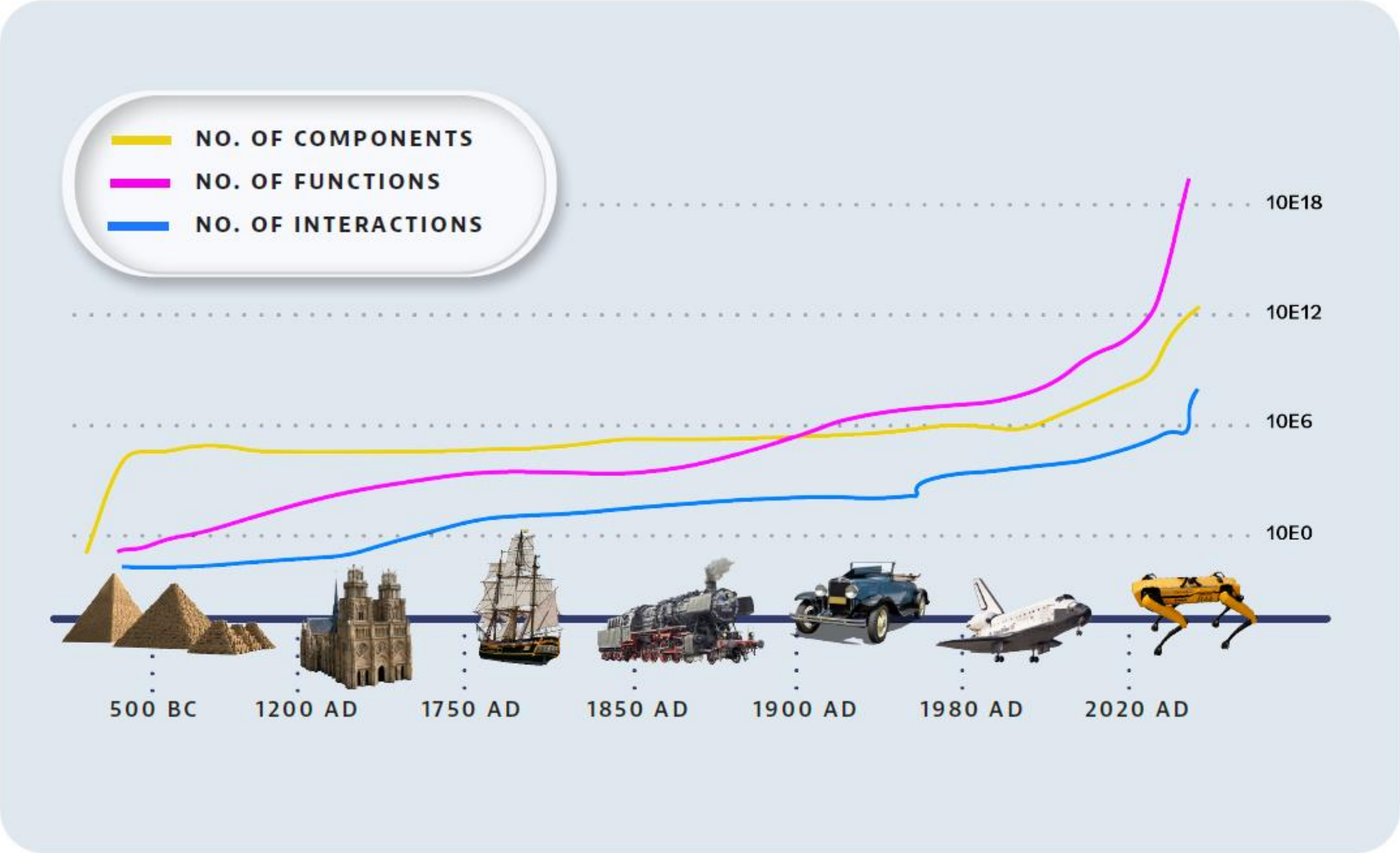
… will recognize that information will be readily available to the workforce via digital search, and much routine work will be accomplished by robots and AI. Training must concentrate on human skills, creativity, leadership, reading and comprehension, and analytical skills. Education systems must support this workforce transition by breaking down the traditional barriers between STEM and social science/humanities curricula.

2

THE CURRENT STATE

OF SYSTEMS ENGINEERING

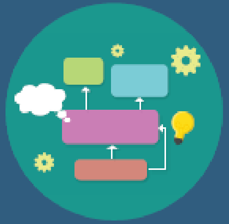
Historical Perspectives



SE Competency Areas

SYSTEMS ENGINEERING COMPETENCY AREAS

Core Systems Engineering Principles

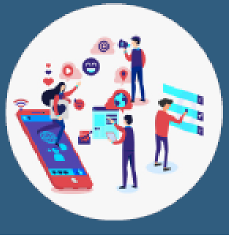


- Systems Thinking
- Life Cycles
- Capability Engineering
- General Engineering
- Critical Thinking
- Systems Modelling and Analysis

Technical Competencies

- Requirements Definition
- Systems Architecting
- Design for...
- Integration
- Interfaces
- Verification
- Validation
- Transition
- Operation and Support

Professional Competencies



- Communications
- Ethics and Professionalism
- Technical Leadership
- Negotiation
- Team Dynamics
- Facilitation
- Emotional Intelligence
- Coaching and Mentoring

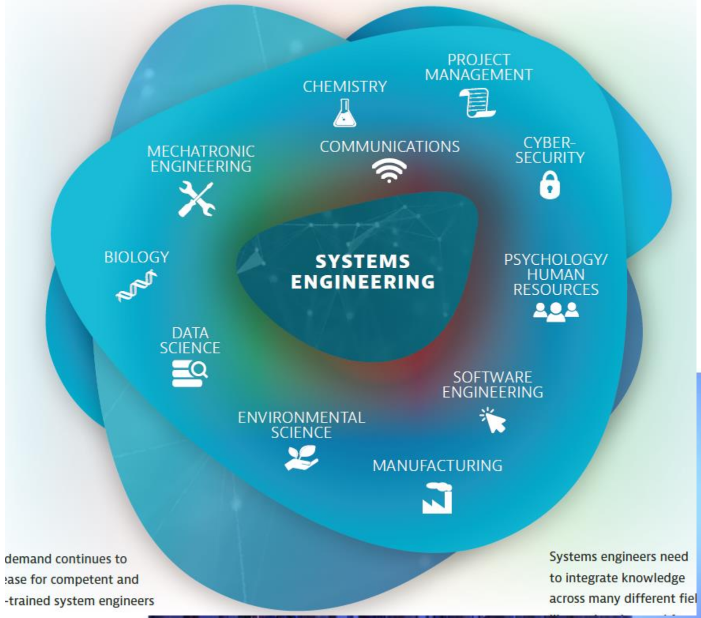
Systems Engineering Management Competencies

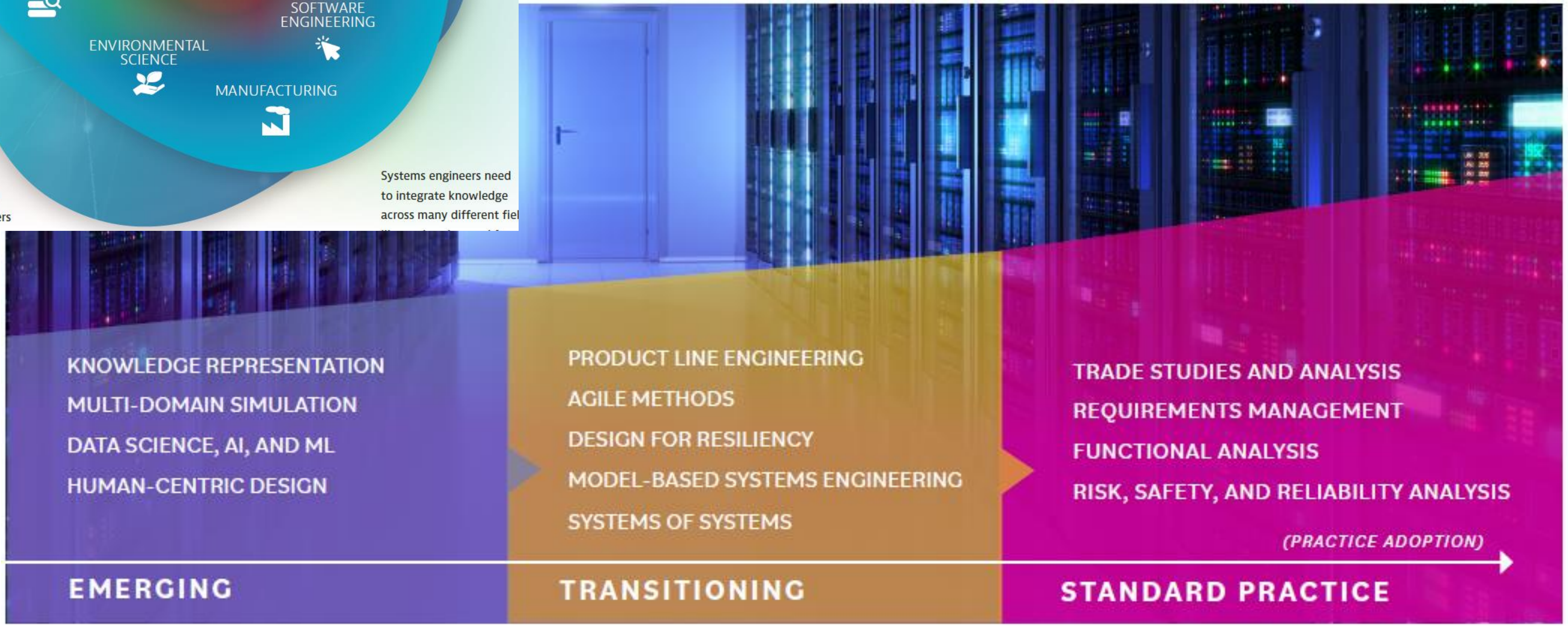
- Planning
- Monitoring and Control
- Decision Management
- Concurrent Engineering
- Business and Enterprise Integration
- Acquisition and Supply
- Information Management
- Configuration Management
- Risk and Opportunity Management

Integrating Competencies

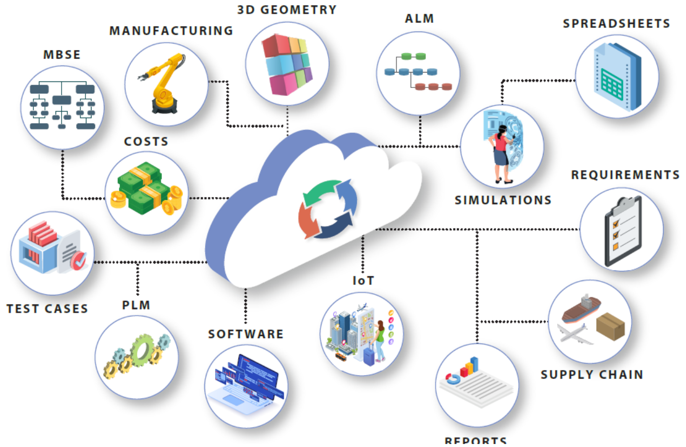
- Project Management
- Finance
- Logistics
- Quality

Evolving Practices, Foundations, & Education & Training





Challenges



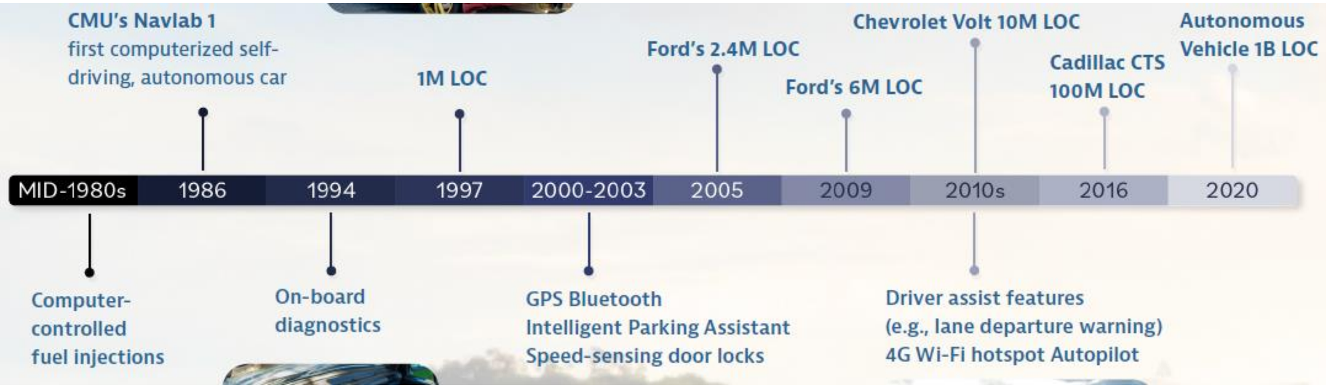
- Tools and Data Integration

MULTIPLE SPECIALIZED TOOLS FOR EACH DISCIPLINE

PROPRIETARY DATA FORMATS

LIMITED STANDARDIZATION

- Software Complexity, Agility, and Scale



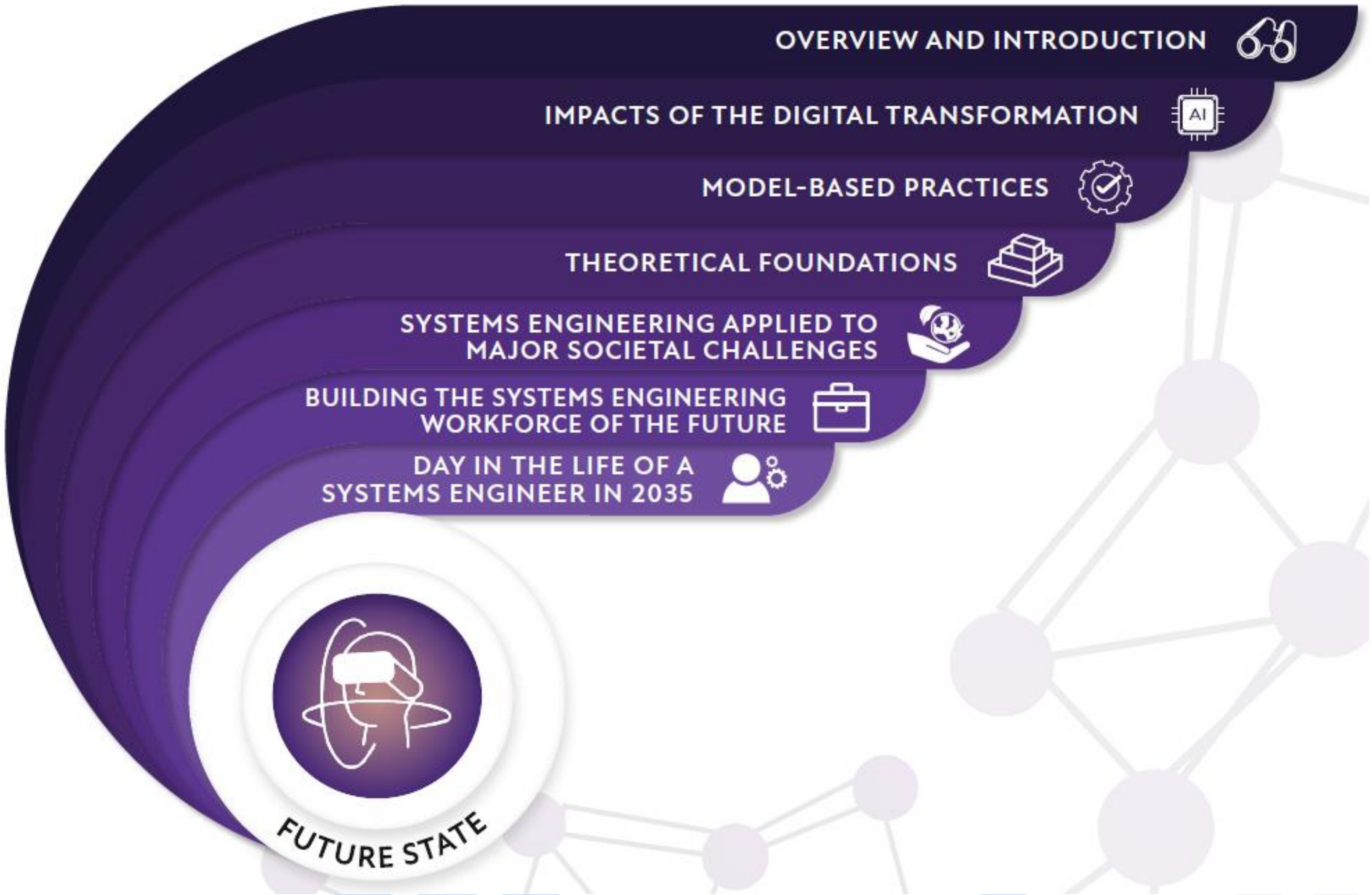
- Impact of AI and Autonomous Systems

3

THE FUTURE STATE

OF SYSTEMS ENGINEERING

The Future State of SE



Major Trends in the Evolution of Systems Engineering

- The future of systems engineering is model-based, leveraging next generation modeling, simulation, and visualization environments powered by the global digital transformation, to specify, analyze, design, and verify systems. High fidelity models, advanced visualization, and highly integrated, multi-disciplinary simulations will allow systems engineers to evaluate and assess an order of magnitude more alternative designs more quickly and thoroughly than can be done on a single design today.

- Artificial Intelligence, powered by large data sets and expert domain knowledge will drive major changes in systems engineering methods and tools, and within systems themselves, as algorithms are developed to assist the systems engineer be more efficient and effective to deliver solutions.

- Data science techniques will be infused into the systems engineering practice to help make sense of large-scale data sets and assess complex systems. Further, the rapidly expanding set of data science tools will be an important part of an integrated analytic framework for systems engineering.

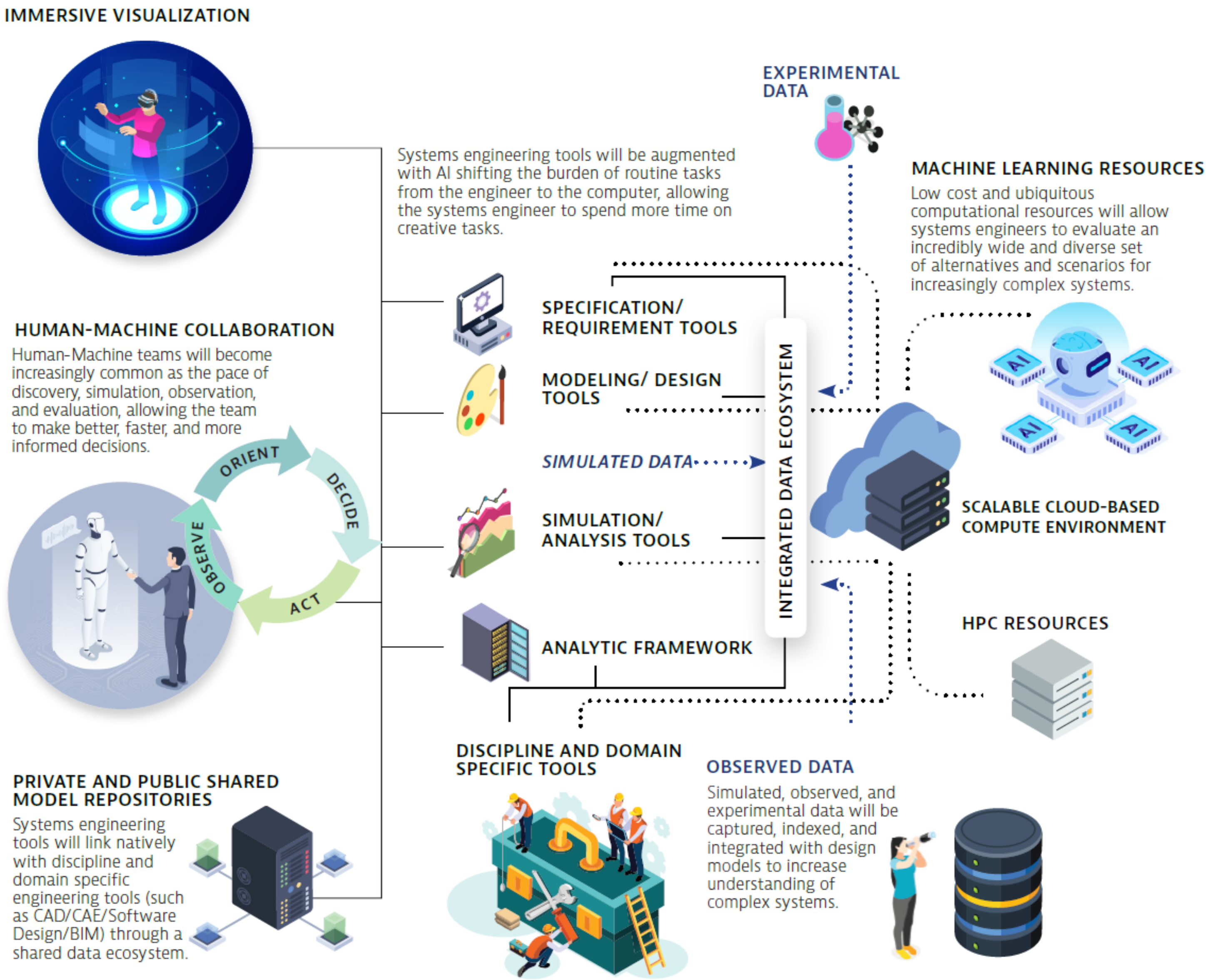
- Human-systems integration practices will become essential to design smart systems that can effectively interact with humans, and account for increasing levels of systems complexity and autonomy.

- The theoretical foundations for systems engineering will be based on established science and mathematics that characterize systems phenomena and stakeholder value, and provide the basis for systems education and evolving methods and tools.

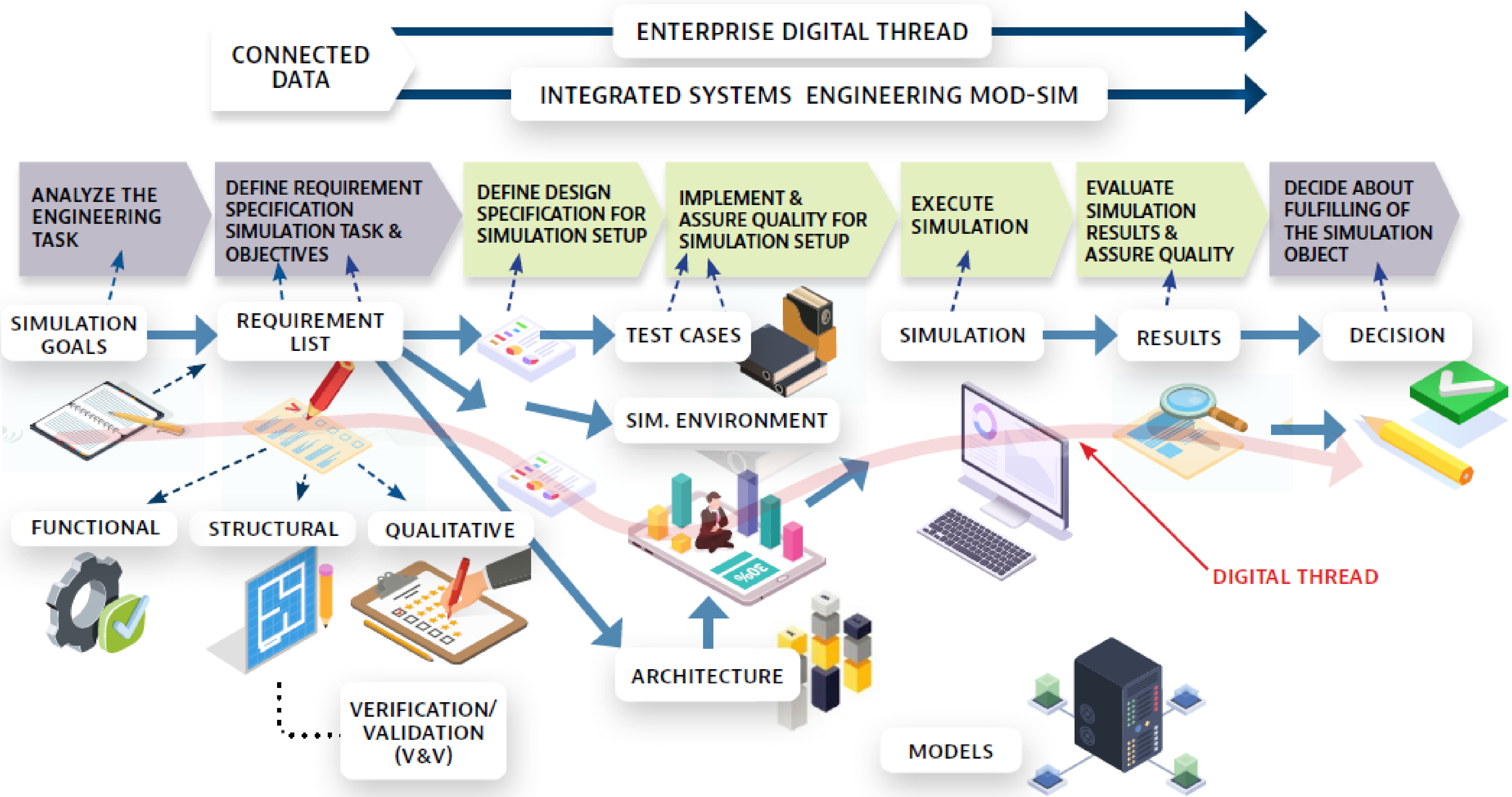
- Ongoing education and training of systems engineers and the infusion of systems thinking across a broad range of the engineering and management workforce will meet the demands for a growing number of systems engineers with the necessary technical and leadership competencies.

- Systems engineering will be embraced by a greater number and broader range of small and medium enterprises and will be continually adapted to manage systems complexity while also driving incremental market value.

Digital Transformation Impact to Systems Engineering



The Future of Systems Engineering is Predominantly Model-Based



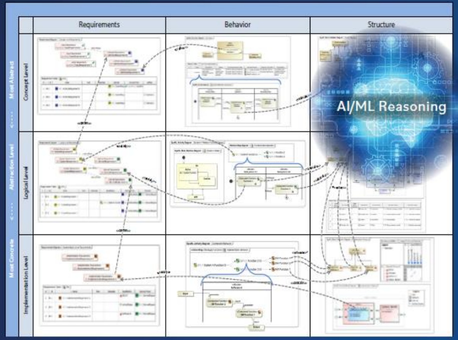
Modeling & Simulation Framework

CONNECTED DATA

Highly connected data with integrated AI/ML-based data segmentation, object labelling, and temporal scenario – ontology mapping supports automated digital twin creation, model correlation, verification and validation and seamless systems engineering trade studies.

MODEL-BASED SYSTEMS ENGINEERING

MBSE Descriptive models created using semantically rich modeling standards provide systems abstraction, data traceability, separation of views, and leverage AI/ML-based reference model reuse at both systems and product realization levels.



INTERACTIVE HMI VIRTUALIZATION

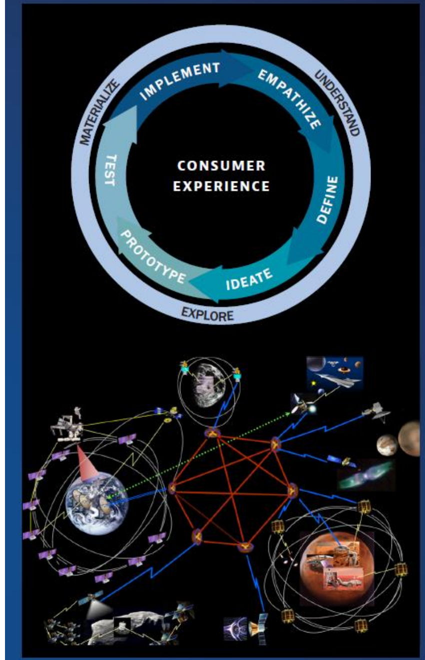
Interactive customer HMI experiences with virtualized connected services, real-time control algorithm, and CPU emulation providing real-time system response parameter exploration.

INCREASING FIDELITY AND COMPLETENESS SUPPORTING EXTENDED REALITY

Layered simulation models at multiple levels of abstraction allowing real-time simulation at multiple scales (single vehicle to multi agent traffic to city infrastructure fleet to regional/cross country simulations)

DETAILED SCENARIO ANALYSIS WITH PHOTO-REALISTIC VISUALIZATION

Photo-realistic simulation and visualization enable detailed scenario analysis.



SYSTEMS OF SYSTEMS

Real-world Systems of Systems, operational design domain customer experience data into cloud-data-lakes providing instantaneous opportunities for action-oriented information extraction.

GAMING ENGINE PHOTO REALISM AND EXPLORATION

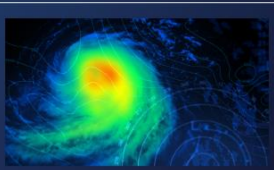
Extended Realities: (xR) Augmented, Virtual, and Mixed.

MASSIVE PARALLEL COMPUTE

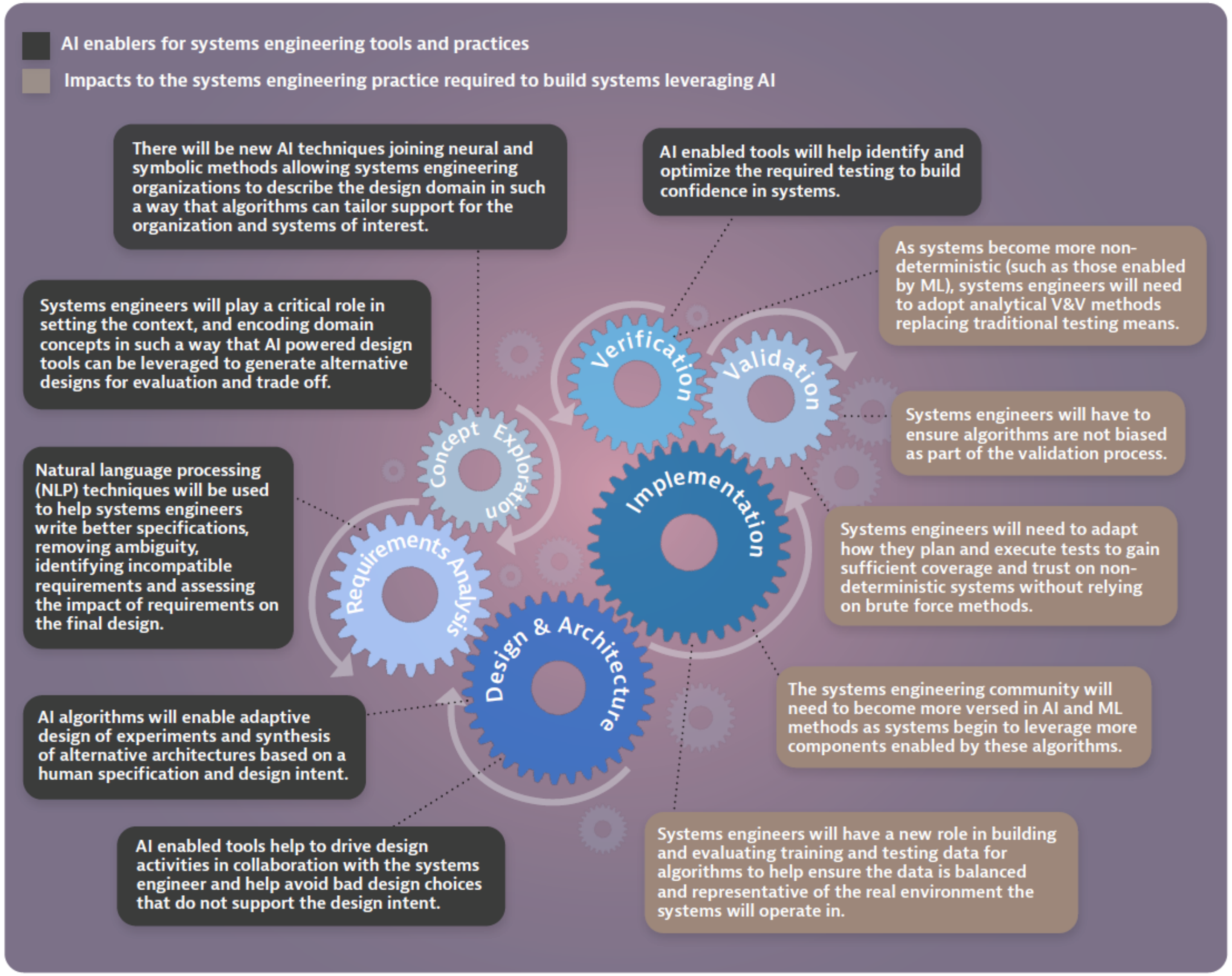
High-Capacity Parallel Compute supporting advanced AI/ML augmented data visualization providing synthetic data generation, and deep learning-based edge case exploration for performance, safety-risk, and security-threats.

ENVIRONMENTAL CONDITIONS, TOPOGRAPHIES, SCENE GENERATION, AND MAPS

High fidelity 3D maps, road topologies, scenes, weather and traffic conditions.

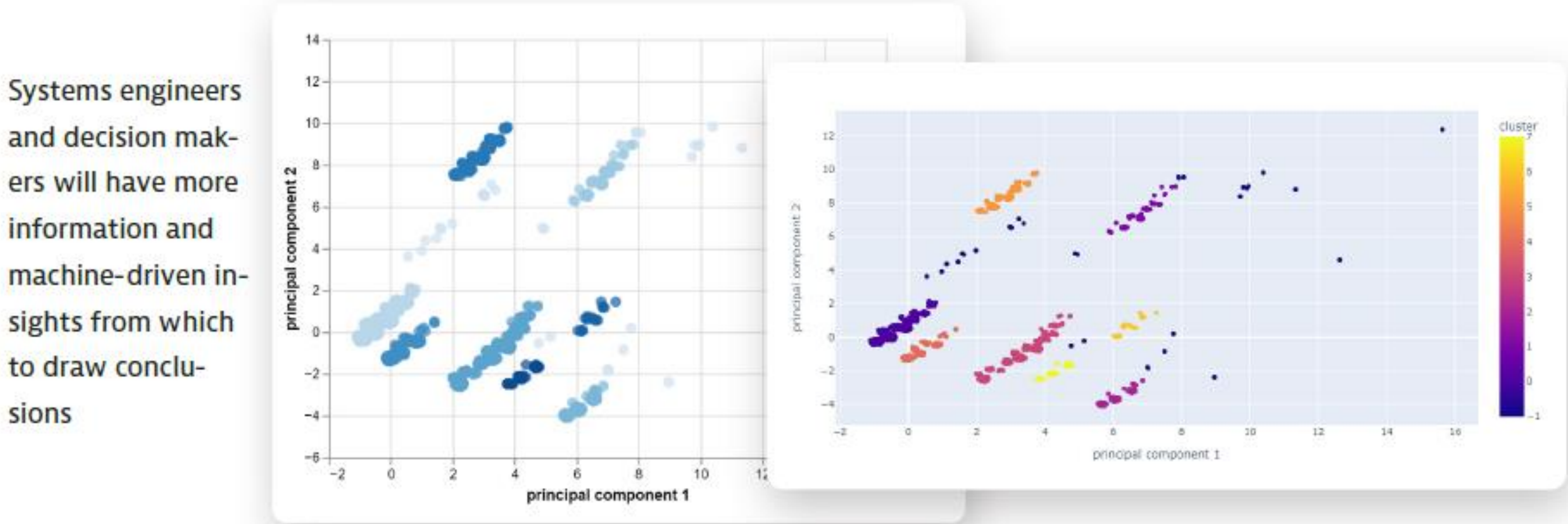


Systems & SE Tools/Practices Impacted by AI



Increasing Overlap between SE & Data Science

- Systems Engineering will begin formally infusing Data Science methods and analysis practice to better understand complex systems behavior



Establishing Trust Is Increasingly Critical to the Design of Systems

TRANSPARENCY AND CORPORATE ETHICS

System properties only make up one portion of the trust equation; system developer behavior and country of origin also contribute to how users feel about systems. By 2035 corporate ethics, reputation and transparency – especially regarding use of personal data will be central to how users determine what systems to trust, and which to avoid.

CYBER-SECURITY

The cyber landscape is ever evolving with new threats emerging daily, including a wider variety of nation-state actors forming attacks for political, strategic, and economic gain. As our digital infrastructure becomes increasingly connected and we begin to rely more heavily on autonomy, cyber-security is increasingly a major tenet of systems safety and forms a foundation of trust.

By 2035, cyber-security will be as foundational a perspective in systems design as system performance and safety are today. The systems engineering discipline will grow to become even more interdisciplinary, embedding cyber expertise into the team to ensure cyber is considered through the full system life cycle. Additionally, modeling and simulation tools to help test and evaluate cyber aspects of the system will be increasingly prevalent, providing a holistic picture of system security that is too often only considered late in the development life cycle today.

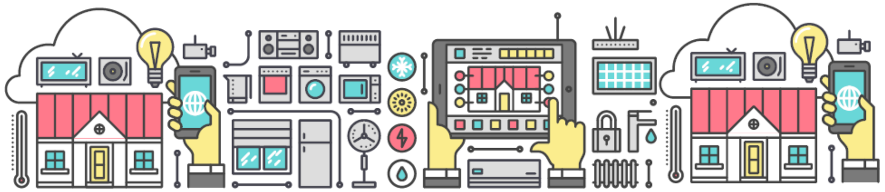
Design for cyber-security will extend beyond the components of the system to include analysis of the supply chain and sourced parts to eliminate any weak spots in the system.

DATA AND PERSONAL PRIVACY

Systems are increasingly reliant on collected data to operate. Data is critical to the functionality of autonomous systems, and other systems that learn and adapt to user preferences and behaviors. Users will increasingly trust system providers that are responsible with user data, transparent, and have mechanisms for data minimization and protection surrounding any and all collected data that is personal in nature.

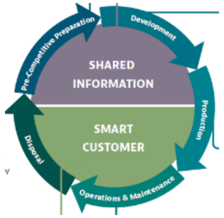
Additional Future SE Trends

- Architecting Flexible & Resilient Systems



- Model Based SOS Practices
- Understanding Socio-technical Complex Systems with Human Integration Methods

- Shift in Acquisition Towards Collaborative Processes



- Theoretical Foundations
  - Systems Phenomenon, Value Selection Phenomenon, Model Trust by Groups Phenomenon

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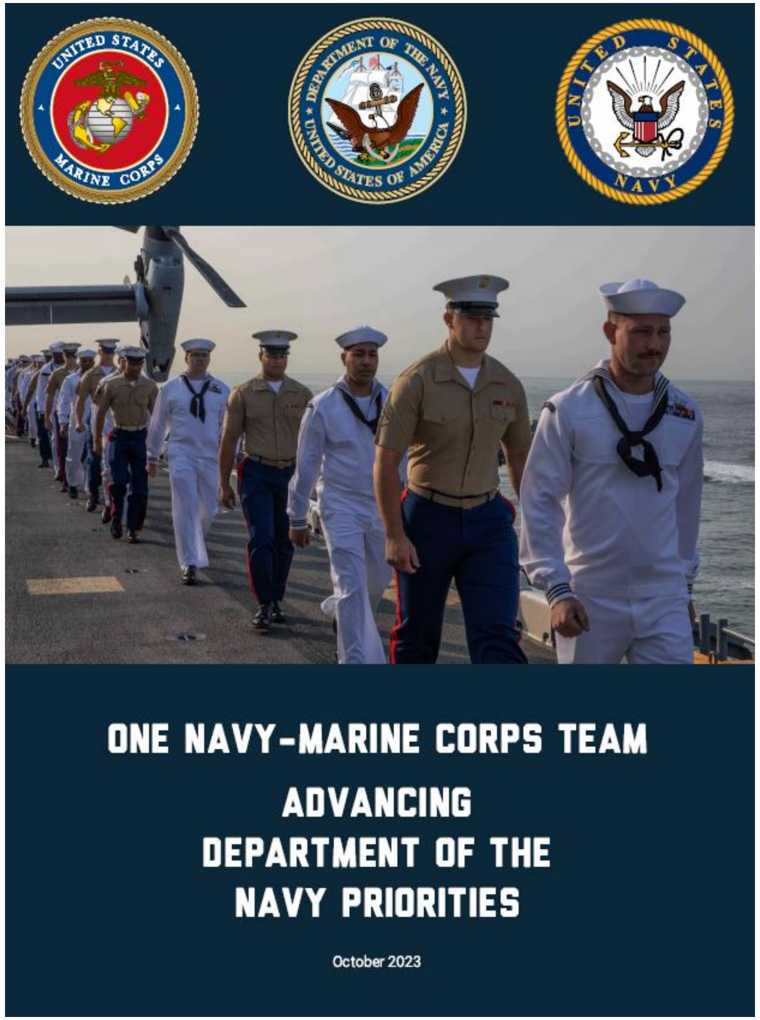
SECNAV — One Navy-Marine Corps Team: Advancing DON Priorities *October 2023*



Mission: DON will recruit, train, and organize to deliver combat ready naval forces to deter and, if necessary, win conflicts and wars through sustained forward naval presence in support of the joint force.

Vision: All Sailors, Marines, and Civilians in the Navy-Marine Corps Team, from the Pentagon to the front lines will operate as one to protect the American people and our interests in the most effective and efficient way possible. We will invest in force health, readiness, and capability, maintain forward maneuverability, build our maritime advantage and strengthen partnerships across the government and joint force, with industry, and around the world.

Strengthening Maritime Dominance
- Industrial Base
- Climate
- Uncrewed Technology
- Rearm, Refuel, Repair, Revive, Resupply

Building a Culture of Warfighting Excellence
- Taking Care of People
- Education
- Research, Development, Science, and Technology

Enhancing Strategic Partnerships
- Naval Diplomacy
- Defense Ecosystem
- Congress
- National Call to Service

Naval Leadership and Priorities

Chief of Naval Operations
Admiral Lisa Franchetti
America's Warfighting Navy
Jan 2024

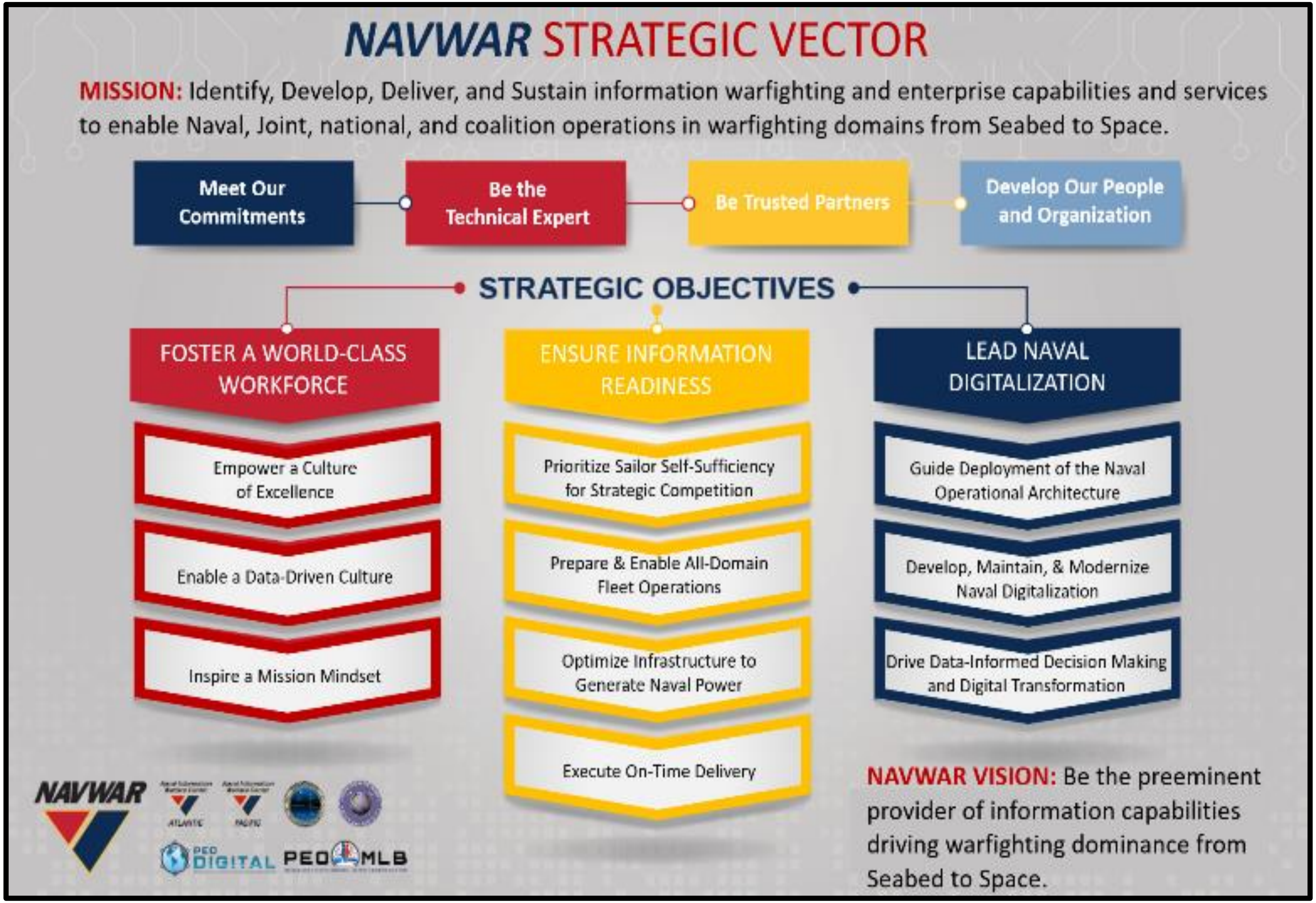
- Focus areas:
  - **Warfighting: Deliver Decisive Combat Power**. Warfighting lens, Prioritize readiness & capabilities to fight & win at sea; & shore support. Naval integration with Marine Corps. Align with Joint Force, Allied interoperability.
  - **Warfighters: Strengthen the Team**. Mission command, empower leaders. Build strong teams thru recruiting & retention. World class T&E. QoS standards. Support to families.
  - **Foundations: Build Trust, Align Resources, Be Ready**. Trust & confidence of American people. Work with Congress. Team with industry & academia, interagency cooperation. Align ashore activity to warfighting needs of the Fleet.
- Deter aggression, defend national security interests, preserve our way of life.
- WF Excellence: tools, winning mindset, integrity, safety. **ALL AHEAD FLANK!**

Commandant of Marine Corps
General Eric Smith
Jun/Oct 2023

- Focus areas:
  - **Marines**. Recruiting and retaining the high-quality Marines required to fight and win the nation's battles. Our greatest asset is and always will be the individual Marine.
  - **Lethality**. Formations & weapons systems from very best America has to offer. Long-range fires, sense/make sense/target, RXR, MLR.
  - **Mobility**. Our unique ability to organically move ourselves is vital because it enables remainder of the joint force.
- Force Design & Campaign of Learning will continue.

Commandant of Coast Guard
Admiral Linda Fagan
USCG Commandant's Intent
2022

- Transform our Total Workforce
  - Deliver you the tools, policy, training, and support to succeed across our missions and operating environments.
- Sharpen our Competitive Edge
  - Empower you with reliable, cutting-edge assets, systems, infrastructure, and decision advantage to remain the world's best Coast Guard.
- Advance our Mission Excellence
  - Enhance the way we provide maritime safety and security, protect resources, and respond to crises to deliver exceptional service to the Nation


NAVWAR STRATEGIC VECTOR
MISSION: Identify, Develop, Deliver, and Sustain information warfighting and enterprise capabilities and services to enable Naval, Joint, national, and coalition operations in warfighting domains from Seabed to Space.
Meet Our Commitments
Be the Technical Expert
Be Trusted Partners
Develop Our People and Organization
STRATEGIC OBJECTIVES
FOSTER A WORLD-CLASS WORKFORCE
Empower a Culture of Excellence
Enable a Data-Driven Culture
Inspire a Mission Mindset
ENSURE INFORMATION READINESS
Prioritize Sailor Self-Sufficiency for Strategic Competition
Prepare & Enable All-Domain Fleet Operations
Optimize Infrastructure to Generate Naval Power
Execute On-Time Delivery
LEAD NAVAL DIGITALIZATION
Guide Deployment of the Naval Operational Architecture
Develop, Maintain, & Modernize Naval Digitalization
Drive Data-Informed Decision Making and Digital Transformation
NAVWAR VISION: Be the preeminent provider of information capabilities driving warfighting dominance from Seabed to Space.
NAVWAR
ATLANTIC
PACIFIC
PEO DIGITAL
PEO MLB

OUSD(R&E) CRITICAL TECHNOLOGY AREAS

- The OUSD(R&E) ensures DoD science and technology strategy addresses the key national security challenges- from rising seas to a rising China- that the United States faces today and will face in the future.
- Three categories of technology areas recognize the more varied and complex environment
- There are 14 critical technology areas vital to maintaining the United States' national security grouped into three categories.
- While many technologies may cross between these categories, these groupings represent the broad and different approaches that are required to advance technologies crucial to the Department.
- By focusing on 14 critical technology areas, the Department will accelerate transitioning key capabilities to the Military Services and Combatant Commands.

OUSD(R&E) CRITICAL TECHNOLOGY AREAS

Seed Areas of Emerging Opportunity

Biotechnology • Quantum Science • Future Generation Wireless Technology (FutureG) • Advanced Materials

Effective Adoption Areas

Trusted AI and Autonomy • Integrated Network Systems-of-Systems • Microelectronics • Space Technology

Renewable Energy Generation and Storage • Advanced Computing and Software • Human-Machine Interfaces

Defense-Specific Areas

Directed Energy • Hypersonics • Integrated Sensing and Cyber

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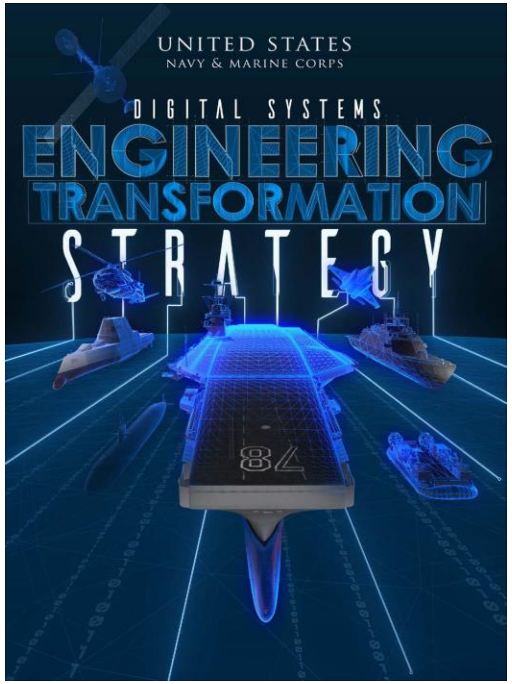
Navy and Marine Corps Digital Systems Engineering Transformation Strategy – June 2020



OBJECTIVE 1 – Formalize the development, integration and use of models

- This objective will be coordinated with the Chief of Naval Operations, Commandant of the Marine Corps and the Naval Chief Information Office in consonance with their digital transformation plans. Immediate tasks include identifying where to implement models for near-term acquisition program efficiency, improved systems interoperability, operational effectiveness and cost savings. Primary goals are to provide integrated, networked, upgradeable capability to the fleet faster, and to build an enduring research and development infrastructure that will enable future digital capability across the enterprise.

OBJECTIVE 2 – Provide an enduring authoritative knowledge source

- This objective will establish a single, accessible, authoritative source of knowledge. “Knowledge” is inclusive of data, models, engineering information, capabilities, requirements, and allocations of functions to existing programs of record or to emerging science & technology efforts. It also includes an enduring historical record of investment and prior technical decisions. Knowledge is accessed and used by all team members to develop, design, and validate operational capabilities, connecting disparate data sources within a common data framework. The vision for this knowledge source includes secure access and use by Navy, Marine Corps, and industry partners, using both unclassified and classified networks.

OBJECTIVE 3 – Incorporate technological innovation to improve the engineering practice

- This objective will institutionalize, expand, and accelerate the use of Digital Engineering to support computational analysis of numerous alternatives early in the design process, and to enable greater speed and utilization of Artificial Intelligence (AI) and Machine Learning (ML) in software development, deployment and sustainment. This enables near-real-time application software revisions, while maintaining appropriate authority to operate (ATO) and configuration control.

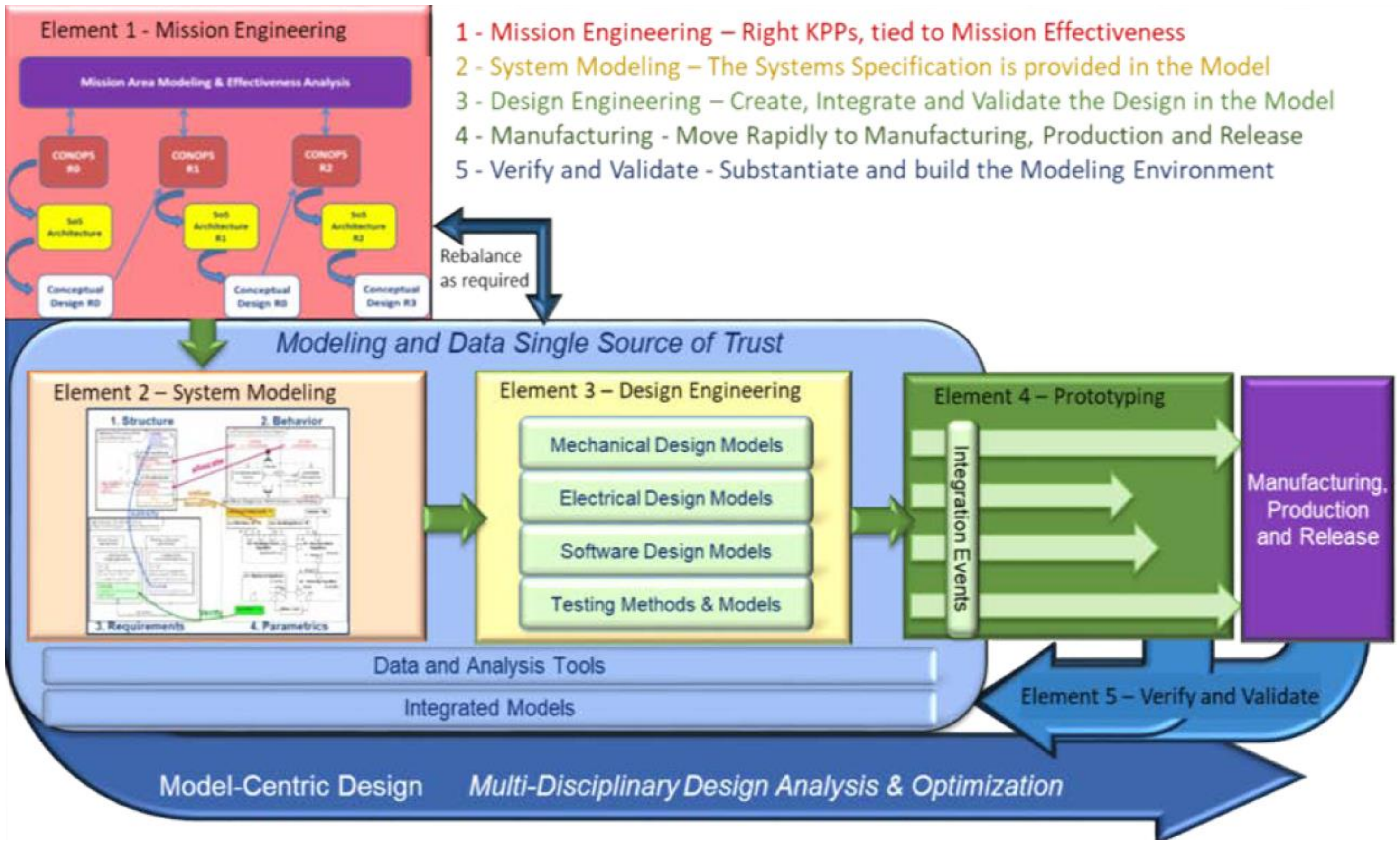
OBJECTIVE 4 – Establish the supporting infrastructure and environments for the Digital Engineering practice

- This objective will modernize and connect digital environments readily available across the research and development enterprise. The digital environment must support secure system modeling, design, development, and live, virtual and constructive simulation and testing. Accomplishment will require connecting users across a high bandwidth network, linking the government workforce to tools, data and test venues across the enterprise, providing a digital environment necessary to perform the engineering business of the Navy and Marine Corps.

OBJECTIVE 5 – Transform the culture and workforce to adopt and support Digital Engineering across the lifecycle

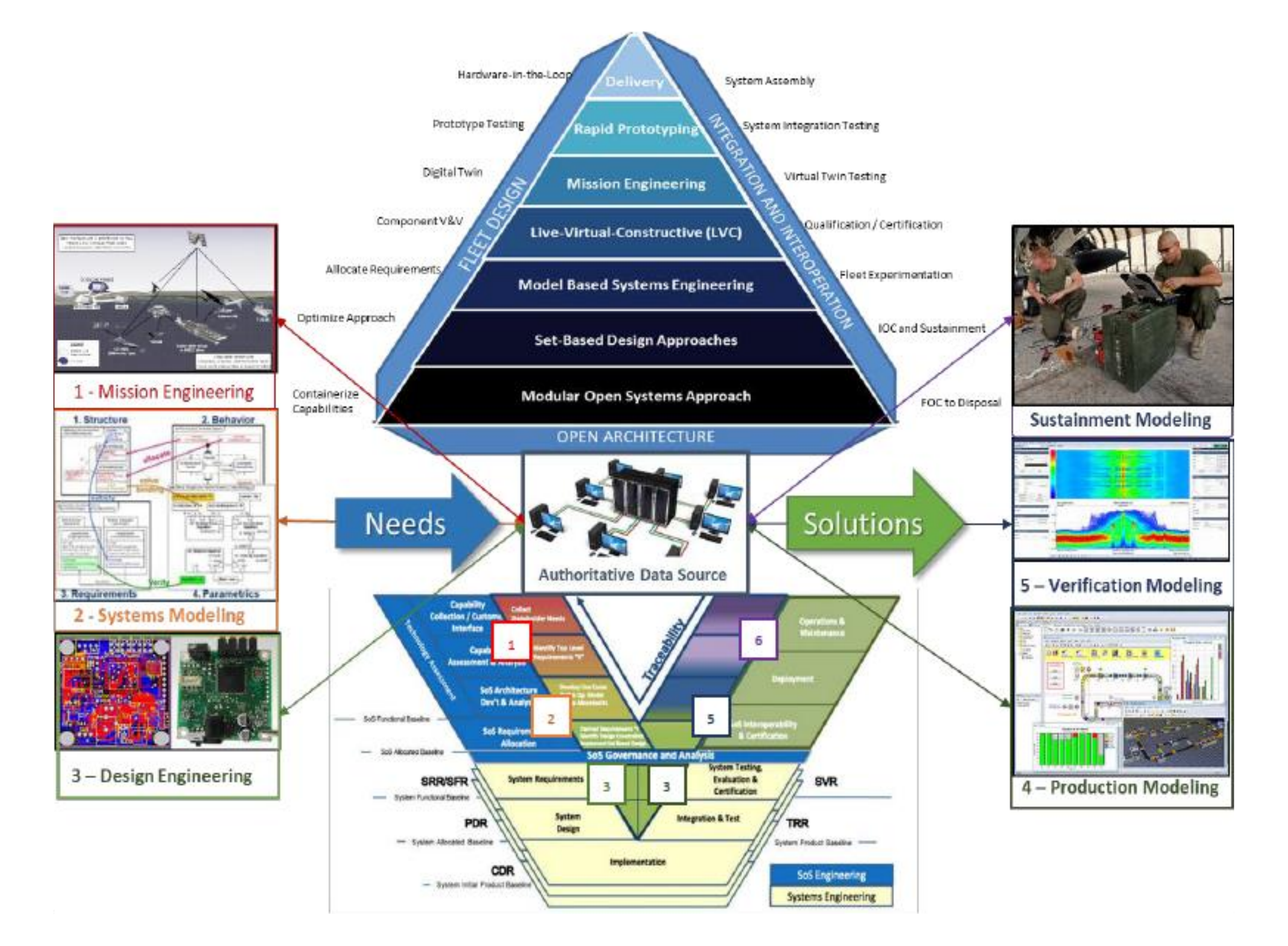
- Digital Engineering is a paradigm shift requiring new skills, proficiency, knowledge, and practice across the engineering competency, as well as other supporting technical and acquisition functions. Leadership must provide the tools, processes, methods, training and the connective, collaborative environment necessary for Digital Engineering to succeed. They must also coordinate development and training of personnel with timely application of acquired skills in support of program priorities. This will accelerate delivery of benefit, support continued application of new skills, and prevent atrophy through lack of use.

Model-Based Approach to Systems Engineering Accomplishment



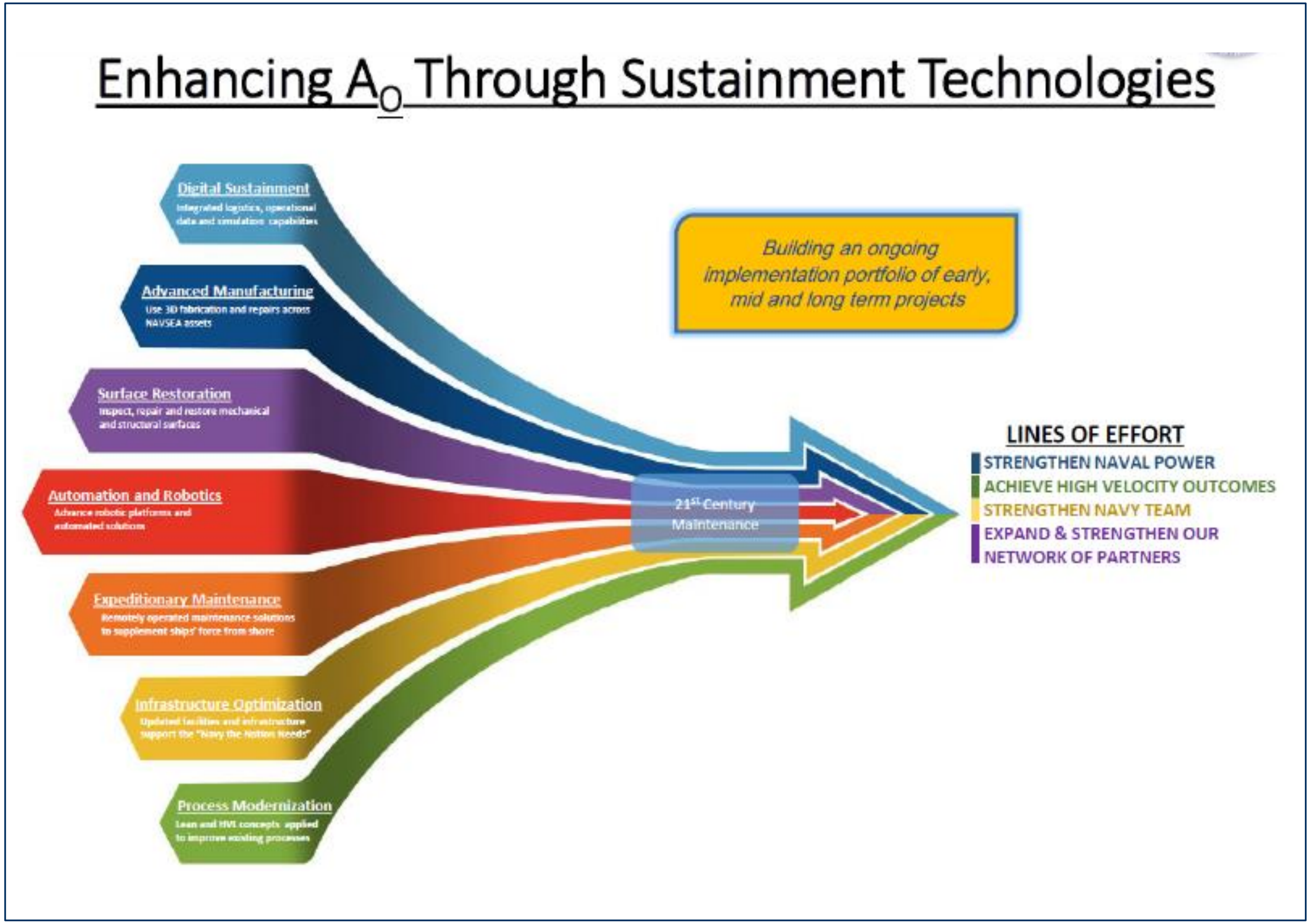
- Transition from a document-centric approach to a digitally-centric approach will allow us to:
  - Trace allocated system requirements to validated stakeholder mission capabilities
  - Model system functional behavior(s) required to accomplish desired capabilities
  - Generate a functional system hierarchy directly from the model
  - Develop performance requirements for each functional element with consideration for external constraints such as programmatic, safety, cyber and security requirements imposed by statutes, regulations, standards and policy
  - Develop verification requirements for each performance requirement, including system of systems interoperability requirements
  - Review, monitor, assess, and approve system and program compliance using the Digital Engineering framework

Role of Digital Models connecting System of Systems Analysis, Standards, and Model Based Systems Engineering



- End-to-end digital enterprise will incorporate a model-based approach in a connected environment in order to conduct full lifecycle activities from concept to disposal.
- Digital Engineering provides this full understanding of all capabilities, requirements and integration paths for each system through development, design, production, deployment and sustainment.
- Digital Engineering also enables rapid and informed trades regarding new missions or insertion of innovative capabilities, providing confidence in integrity and consistency of function to all affected systems.

Digital Engineering Role in Sustainment and Enhancing Ao



- Digital Engineering also allows for efficient introduction of upgrades and product improvements.
- Using a Digital Engineering approach, the feasibility of upgrades can be determined quickly, prototypes created rapidly, and modifications installed with fewer initial errors.

Naval Enterprise Integrated Modeling Environment

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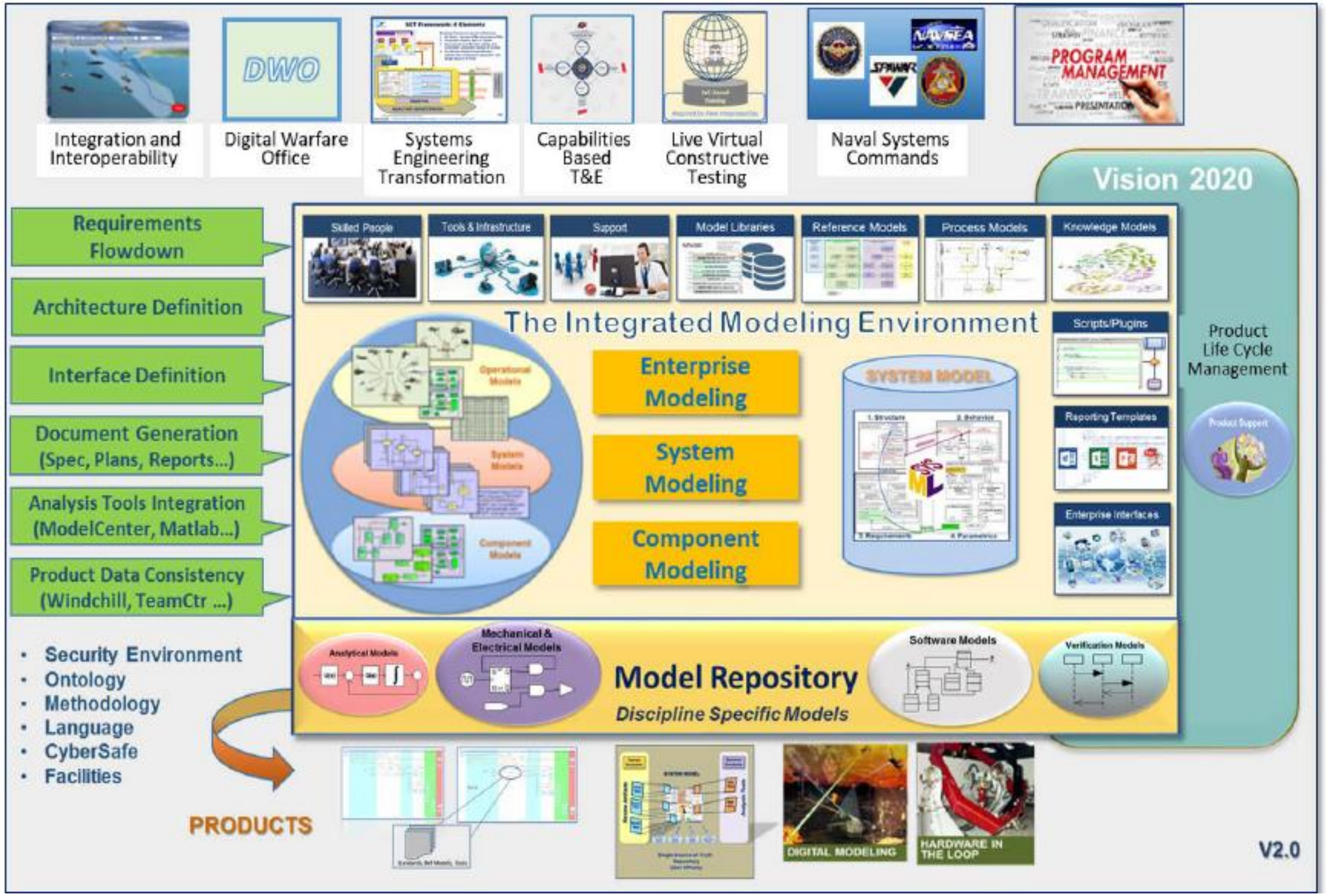
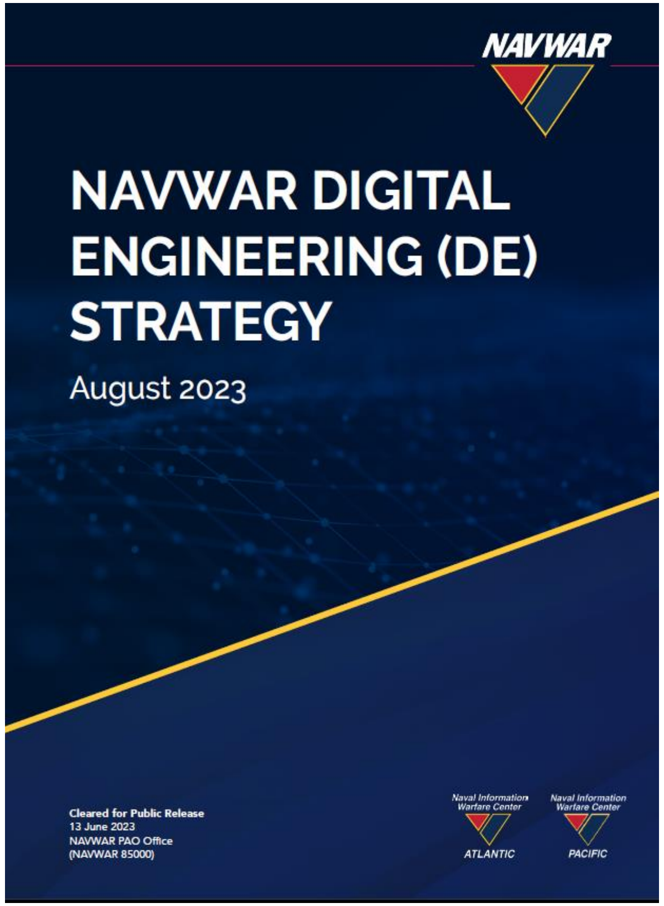


- Tools sets support MBSE processes using Systems Modeling Language (SysML) and Unified Modeling Language (UML).
- Tool and model users at the model level to support design, configuration management, requirements management, and the creation and satisfaction of Contract Data Requirements List (CDRL) items.
- IME provides access to MBSE systems models, platform models, operational threads and webs, and cyber models.
- Models support mission engineering, systems conceptual design, modeling, simulation and analysis, all phases of the systems engineering acquisition, and test and evaluation enabled by live-virtual constructive builds.

NAVWAR Digital Engineering Strategy



- Digital Engineering addresses two key challenges critical to Naval superiority for the Nation.
  - Our ability to leverage technology at the pace of change in our methods and practices & in the products we provide at speed to the Navy.
  - As a method of managing the complexity associated with interconnectivity of our information and warfighting systems which continue to grow at an exponential rate.
- IW mission complexity is growing faster than our ability to manage or address it using traditional engineering methods. IW requires the coordination of traditional warfare areas with the addition of cyber effects to create and close kill chains or disrupt adversaries' kill chains faster than our adversaries can disrupt our kill chains.
- Projects deal with interdependent systems that were not envisioned to be connected when they were first designed and built.
- Experience substantial knowledge and investment losses between projects and at project life cycle phase boundaries.
- Lose valuable time trying to locate and maintain technically accurate and relevant documentation and make it available to the warfighters and policy makers when and where they need it.
- Results in significant waste and a reduced ability to deliver and sustain IW solutions that will enable warfighter mission success.

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Digital Engineering Wheel – MBE Disciplines

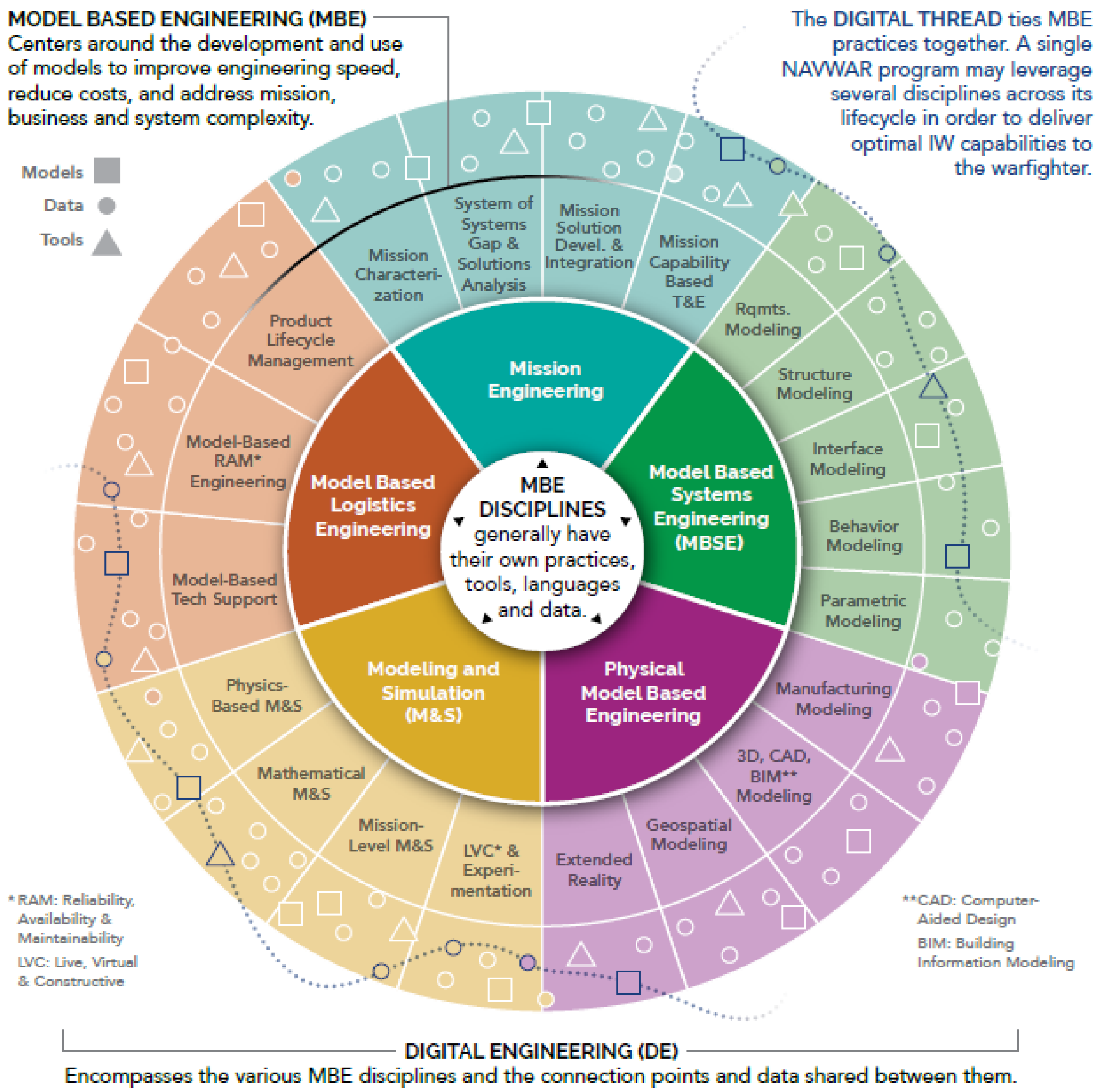
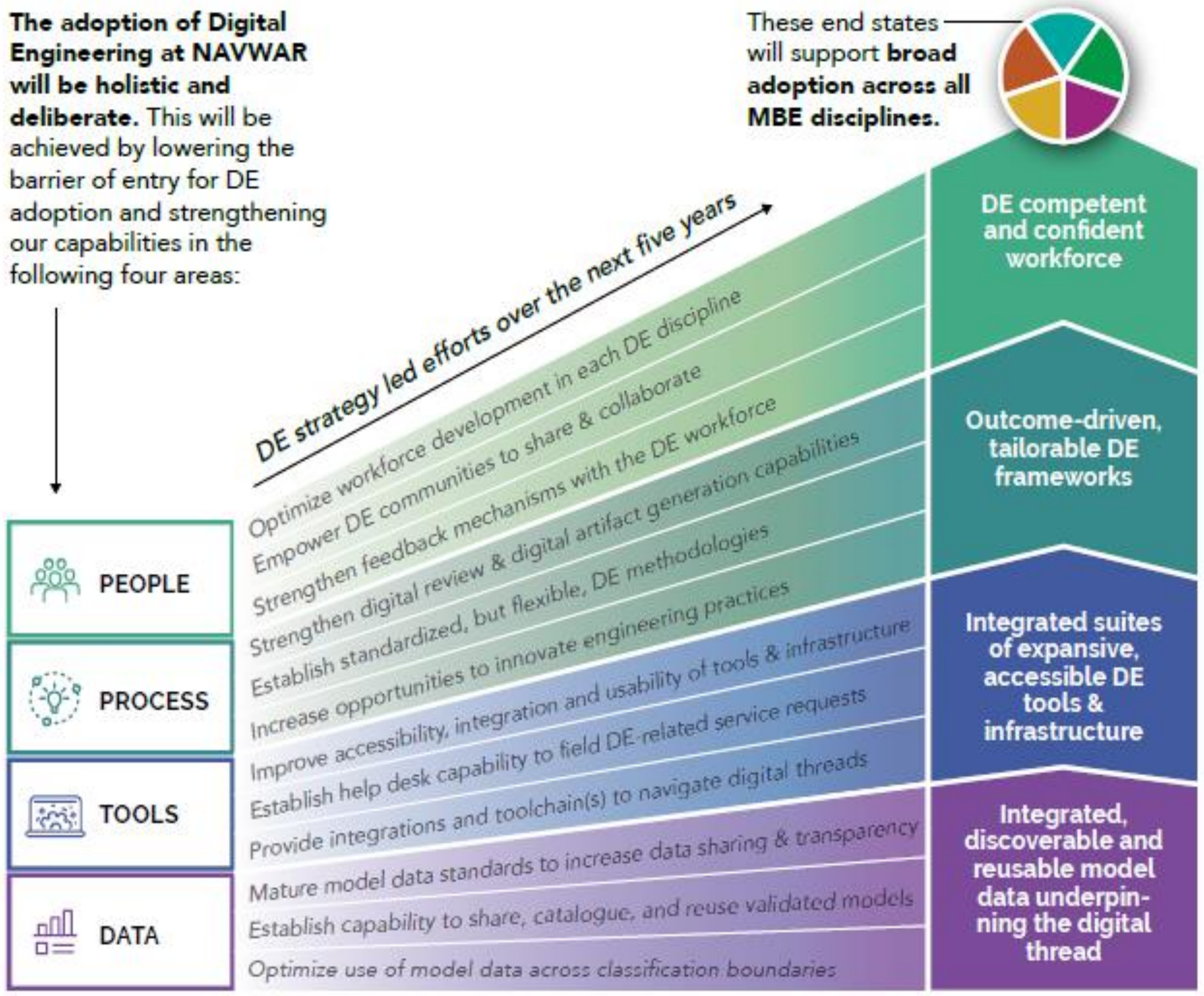


Table 1: MBE Disciplines Definitions

Mission Engineering	An interdisciplinary approach spanning the effort to analyze, design, and integrate current and emerging operational needs and capabilities to achieve mission outcomes.
Model Based Systems Engineering (MBSE)	Application of formalized methods and tools to perform engineering activities which create representations of systems within a data-driven environment.
Physical Model Based Engineering (PMBE)	Application of formalized methods and tools to perform activities which create physics-based/physical materials and systems within a data-driven environment. They are of a fidelity which enables deterministic analysis as well as blueprinting for physical system creation and management.
Modeling & Simulation (M&S)	Dynamic use of models, including emulators, prototypes, simulators, and stimulators, to develop data for making decisions.
Model Based Logistics Engineering (MBLE)	Application of digital models across the logistics, sustainment and overall lifecycle stages.

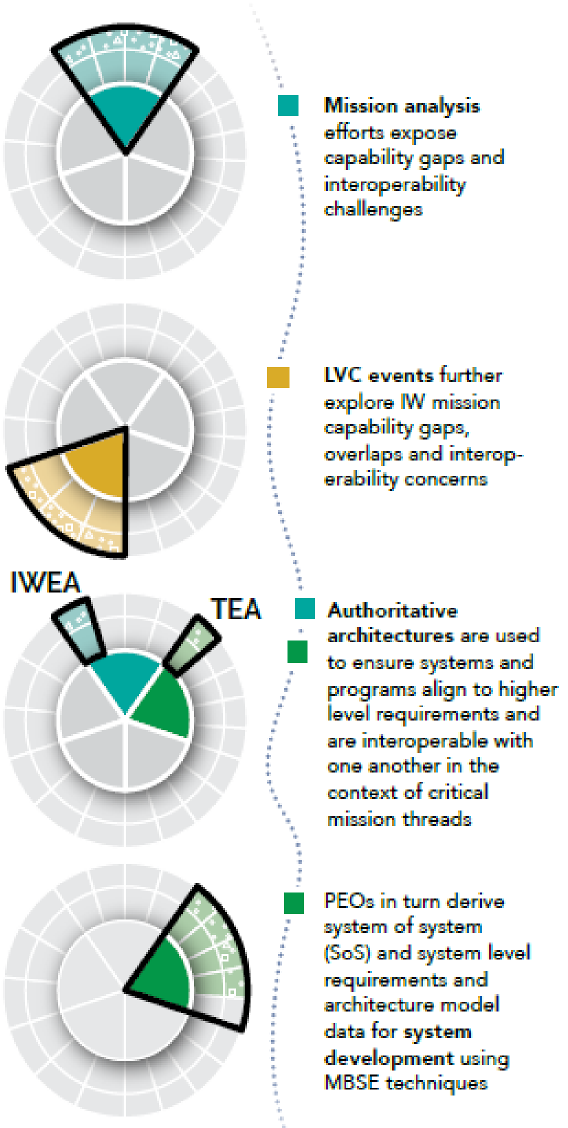
Naval Information Warfare Center ATLANTIC

NAVWAR DE Transformation



- In 2028 and beyond, NAVWAR employs a DE workforce that is confident and competent at the appropriate levels of skill for the role(s) assigned. The workforce embraces collaboration and is open to sharing and reusing validated models and model data in a secure fashion. DE subject matter experts provide meaningful feedback into the various DE communities.
- NAVWAR has easily tailorable DE processes/methods that are seamlessly executed across the digital thread. Model data is the center of focus for digital reviews (vice document-based artifacts). DE best practices are readily shared and easily discoverable. Sound and helpful guidance is published for DE tool/data use combinations.
- Value is clearly seen across disciplines in the DE world. DE knowledge bases are highly utilized and offer great value. The barrier of entry to the adoption (and continued practice) of DE is minimal. DE-related positions and roles are well understood. ROI/value metrics are consistently captured and communicated to reinforce positive behavior.
- A robust DE storefront exists where tools are connected and used intentionally and purposefully. DE tools and infrastructure are treated as services and available at an enterprise level, at and across appropriate classification levels. DE tooling infrastructure is widely accessible, scalable and available.
- A limited set of authoritative sources of truth are agreed upon and established for particular sets of technical data. The data within the authoritative sources is well maintained and actively used by program and projects. Model data reuse guidelines are established and followed. Stakeholders embrace data-driven enterprise decision making.

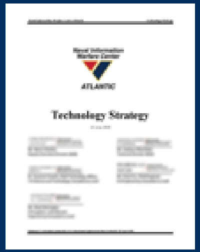
Mission Focused Digital Thread



- Critical mission threads analyzed using mission engineering and modeling & simulation methods (e.g., mathematical, physics-based and mission-level M&S).
- If mission analysis identifies gaps and interoperability challenges, then M&S may be used to conduct trade studies and obtain preliminary performance estimates.
- Performance and interoperability assessments may be refined during LVC events which afford the opportunity to interact with real systems and/or operators. Scenarios developed during mission analysis can inform these LVC events, which may also uncover other gaps or challenges.
- Authoritative architectures such as the Target Enterprise Architecture (TEA) and the Information Warfare Enterprise Architecture (IWEA) are used by NAVWAR PEOs to ensure systems and programs align to higher level requirements and are interoperable with one another in the context of critical mission threads.
- TEA and IWEA provide enterprise sets of IW-related capability requirements and operational mission thread data to PEOs who, in turn, derive system of system (SoS) and system level requirements and architecture model data for system development using MBSE techniques.
- Key technology concepts from various reference architectures such as zero trust, unified capabilities, cybersecurity, naval digital platform and automation are integrated with TEA to ensure that PEOs are incorporating future state technologies and warfighter capabilities in a coordinated and optimized manner.

Technology Strategy & Technology Focus Areas (TFAs) — to maintain tactical superiority, and respond effectively to unforeseen challenges.

Technology Strategy and TFA analysis **drives work acceptance** and **lab/facility infrastructure** allocations and **tools**.


Technology Strategy

TFAs to Achieve Technology Goals

Artificial Intelligence Provide warfighters with analytics-driven, data-informed, and technology-empowered capabilities to drive decision advantages and optimal mission outcomes.

Assured Communications Addresses the demand for resilient, and sometimes covert, wired and wireless communications in degraded and/or denied environments.

Cloud Computing IT modernization and digital transformation for resilient infrastructure, platform and software services.

Cybersecurity Provides protection from unauthorized use of and/or defends electronic data, hardware, software from disruption or of the services they provide.

DevSecOps Refers to replacing siloed Development, Security and Operations to create multidisciplinary teams that collaborate with shared and efficient practices and tools.

Mobility Provide Wireless Technology and enterprise access for the warfighter to engage with a mobile environment and applications, anytime, anyplace.

Model-Based Systems Engineering (MBSE) Technologies used to support the development, mgmt. and application of virtual constructs of varying fidelity across the spectrum of systems engineering.

Mission:

Conduct research, development, prototyping, engineering, test and evaluation, installation, and sustainment of integrated information warfare capabilities and services across all warfighting domains with an emphasis on Expeditionary Tactical Capabilities & Enterprise IT and Business Systems in order to drive innovation and warfighter information advantage.

Vision:

WIN THE INFORMATION WAR.

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