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Joint Test Concept Implementation Roadmap Workshop Outcomes Report

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Acronyms and Abbreviations

Acq.	Acquisition
AFOTEC	Air Force Operational Test & Evaluation Center
AFRL	Air Force Research Laboratory
AI	Artificial Intelligence
AIRC	Acquisition Innovation Research Center
Arch.	Architecture
ATEC	Army Test & Evaluation Center
CCMD	Combatant Command
CDAO	Chief Digital & Artificial Intelligence Office
CIO	Chief Information Officer
CMSO	Chief Model & Simulation Officer
COI	Community of interest
CONOPS	Concept of operations
DA	Digital Acquisition
DAF	Department of the Air Force
DE	Digital Engineering
DEVCOM	Army Combat Capabilities Development Command
DIA	Defense Intelligence Agency
DIR	Director
Docu.	Documentation
DoD	Department of Defense
DoDD	Department of Defense Directive
DON OSA	Department of Navy Office of Strategic Assessments
DOT&E	Office of the Director Operational Test & Evaluation
DT&E	Developmental test & evaluation
DTE&A	Office of the Director for Developmental Test, Evaluation, & Assessments
Edu.	Education
FFRDC	Federally funded research & development center
FY23	Fiscal Year 2023
FY24	Fiscal Year 2024
FY25	Fiscal Year 2025
GRTI	Georgia Tech Research Institute
HAF A5/7	Headquarters, Air Force, Air Force Futures
IAW	In accordance with
IDA OED	Institute for Defense Analyses Operational Evaluation Division
IL	Impact Level
I-Plan	Implementation Plan
JASPO	Joint Aircraft Survivability Program
JHU/APL	Johns Hopkins University Applied Physics Laboratory

JPEO-CBRNE	Joint Program Executive Office for Chemical Biological Radiological & Nuclear Defense
JPO	JT&E Program Office
JT&E	Joint Test & Evaluation Program Office (JPO)
JTC	Joint Test Concept
J-TEST	Joint T&E Strategy Team
KPIs	Key Performance Parameters
LFT&E	Live fire test & evaluation
LVC	Live, virtual, constructive
M&S	Modeling & Simulation
MBSE	Model Based Systems Engineering
ME	Mission Engineering
MgMt	Management
ML	Machine Learning
MOSA	Modular Open Systems Approach
MRTFB	Major Range Test & Facility Base
NAVAIR	Naval Air Systems Command
NAVSEA	Naval Sea Systems Command
NSWC	Naval Surface Warfare Center
NSWCDD	Naval Surface Warfare Center Dahlgren Division
NUWC	Naval Undersea Warfare Center
OEM	Original equipment manufacturer
OPLANS	Operational Plans
OPTEVFOR	Operational Test & Evaluation Force
Org	Organizations
OSD	Office of the Secretary of Defense
OT&E	Operational test & evaluation
OTA	Operational Test Agency
OUSD(A&S)	Office of the Under Secretary of Defense for Acquisition & Sustainment
OUSD(I&S)	Office of the Under Secretary of Defense for Intelligence & Security
OUSD(R&E)	Office of the Under Secretary of Defense for Research & Engineering
P&E	Prototypes & Experiments
PEO	Program Executive Office
PMO	Program Management Office
PPBE	Planning, Programming, Budgeting, & Execution
R&E	Research & engineering
RACI matrix	Responsible, Accountable, Consulted, & Informed matrix
Req.	Requirements
ROI	Return on investment
S&T	Science & technology
SA	Situational awareness
SAF/CDM	Secretary of the Air Force, Administrative Assistant's Concepts, Development, & Management Office
SDPE	Strategic Development Planning & Experimentation

SE	Systems Engineering
SERC	Systems Engineering Research Center
SIPET	Strategic Initiatives, Policy, & Emerging Technologies
SoS	System of Systems
SUT	System under test
T&E	Test & evaluation
TEP	Test & Evaluation, Programs & Policy
TRL	Technology Readiness Level
TRMC	Test Resource Management Center
UARC	University affiliated research center
USAF	United States Air Force
USASOC	United States Army Special Operations Command
USD(C)	Under Secretary of Defense (Comptroller)
USD(P)	Under Secretary of Defense for Policy
USMC	United States Marine Corps
VT-ARC	Virginia Tech Applied Research Corporation
VTNSI	Virginia Tech National Security Institute
YPG	Yuma Proving Ground

Executive Summary

In alignment with the 2022 National Defense Strategy's¹ call for a more agile and responsive Joint Force, the 2022 Director Operational Test and Evaluation (DOT&E) Strategy Update² and 2023 DOT&E Strategy Implementation Plan (I-Plan)³ outlined lines of effort to transform approaches for effective and efficient test and evaluation (T&E). To ensure advantage over adversaries, comprehensive Joint readiness will stretch traditional T&E capabilities further than ever before. T&E must be re-imagined, placing increased emphasis on the operational and mission context in which the system under test is expected to perform throughout the system lifecycle.

Through the Acquisition Innovation Research Center (AIRC), DOT&E contracted the Virginia Tech Applied Research Corporation (VT-ARC), in partnership with Virginia Tech National Security Institute (VTNSI), to develop a Joint Test Concept (JTC) in support of the I-Plan. This multi-year effort, initiated in FY23, developed a JTC community of interest (COI) to serve as the guiding coalition and foundation of innovation and new concept development. The resultant JTC pilot applies an end-to-end capability lifecycle campaign of learning approach, anchored in mission engineering, and supported by live, virtual, constructive (LVC) environments, to assess material and non-material solutions' performance, interoperability, and impact to service and Joint mission execution.

This report provides a synthesis of outcomes from the August 2024 JTC Implementation Roadmap Workshop, which will be expanded in a detailed JTC implementation plan product forthcoming in early FY25. The workshop resulted in a deeper understanding of key roles and responsibilities of the Joint Test and Evaluation Strategy Team (J-TEST), critical stakeholder interactions and offerings to JTC implementation, and implementation activities and deliverables needed for JTC adoption across the stakeholder community. Next steps captured throughout the workshop include:

- Develop detailed documentation of stakeholder and J-TEST roles and responsibilities, a cross-stakeholder governance structure with a lead integrator, and an organizational change management plan to support JTC implementation and adoption. JTC in practice will require a coordinated effort, including leadership of J-TEST directorates, across the whole T&E enterprise.
- Create a financial management and resourcing process critical to JTC implementation.
- Launch pathfinder initiatives to demonstrate short-term wins and value of JTC, while also informing further process and architecture refinement.
- Accelerate JTC implementation and adoption through policy reform and alignment, as well as leveraging stakeholders to assist in achieving deliverables.
- Design and implement adequate training and education, including detailed guidebooks and knowledge repositories surrounding JTC stakeholder offerings, process elements, and architectures.
- Identify the right champions to advocate for and communicate the vision to gain and maintain stakeholder support and momentum along the implementation phases.

Background

In support of the desired end-state surrounding joint force readiness and enduring acquisition infrastructure for delivering integrated joint capabilities, DOT&E developed a Strategy Update and I-Plan. DOT&E contracted the AIRC through the Systems Engineering Research Center (SERC), a Department of Defense (DoD) sponsored University Affiliated Research Center, to develop a JTC for Joint T&E that integrates the best practices in support of the DOT&E I-Plan desired end state. As shown in Figure 1, although the DOT&E I-Plan Pillar 1 “test the way we fight” leads JTC development, JTC implementation and impact will reach across all five pillars.

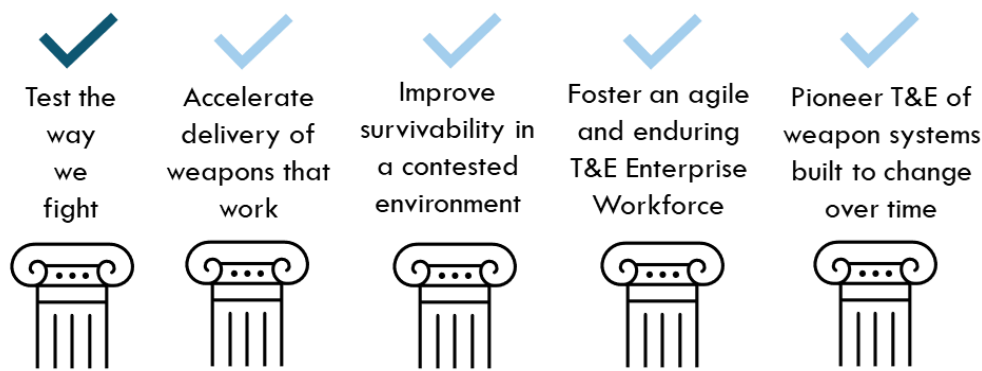


Figure 1: JTC DOT&E I-plan Alignment

The Year I (FY23) JTC effort worked to reimagine T&E in support of the DOT&E I-Plan. It resulted in a JTC Pilot and a foundational JTC Framework,ⁱ applying an end-to-end capability lifecycle campaign-of-learning approach, anchored in mission engineering, and supported by LVC, to assess materiel and non-materiel solutions’ performance, interoperability, and impact to broader Joint mission execution.

The Year II (FY24) study focused on evaluating and refining the JTC Framework, capturing process, architecture,ⁱⁱ and implementation considerations critical to realizing JTC in practice. This year focused on aligning Mission Engineering (ME) efforts, serving as a critical enabler to early JTC applications throughout the capability lifecycle and supporting Pillar 1 efforts to effectively use mission threads to inform T&E requirements in evaluations.ⁱⁱⁱ

1.1 Study Design

The Year II study – concluding and transitioning to the Year III FY25 effort – leveraged a diverse COI to evaluate and refine the JTC Framework. Critical to the multi-year study

ⁱ See *JTC Pilot Year II Update Report* (April 2024) for the JTC Framework overview, including JTC Foundational Layers, JTC Structural Elements, and J-TEST line of effort descriptions.

ⁱⁱ See *JTC Reference Architecture Report* (August 2024) for the overarching JTC reference architecture and JTC process elements developed in Year II.

ⁱⁱⁱ Noted under Pillar 1, page 14 of the [DO&TE I-Plan](#).

and future JTC implementation is the formation and expansion of this COI. Starting with nine organizations, the COI expanded to 26 by the end of Year I and currently includes 57 organizations and sub-organizations (Appendix A). The expanding COI ensures that a wide scope of expertise and equities inform JTC development and an effective value proposition to ensure adequate utility and adoption of the JTC across defense ecosystem stakeholders (Appendix B). JTC implementation will require a coordinated effort, including leadership of the J-TEST directorates, across the whole T&E enterprise.

The Year II study design employed a three-phase approach to achieve three distinct but interrelated goals:

- **Create** a JTC reference architecture that ensures data quality, accessibility, utility, and analytic value across existing and emergent Joint mission (kill/mission) webs for all systems under test throughout the entire capability lifecycle.
- **Assess** the overarching reference architecture performance through an end-to-end capability lifecycle T&E architecture simulation.
- **Develop** a JTC Implementation Roadmap that includes quick win opportunities.

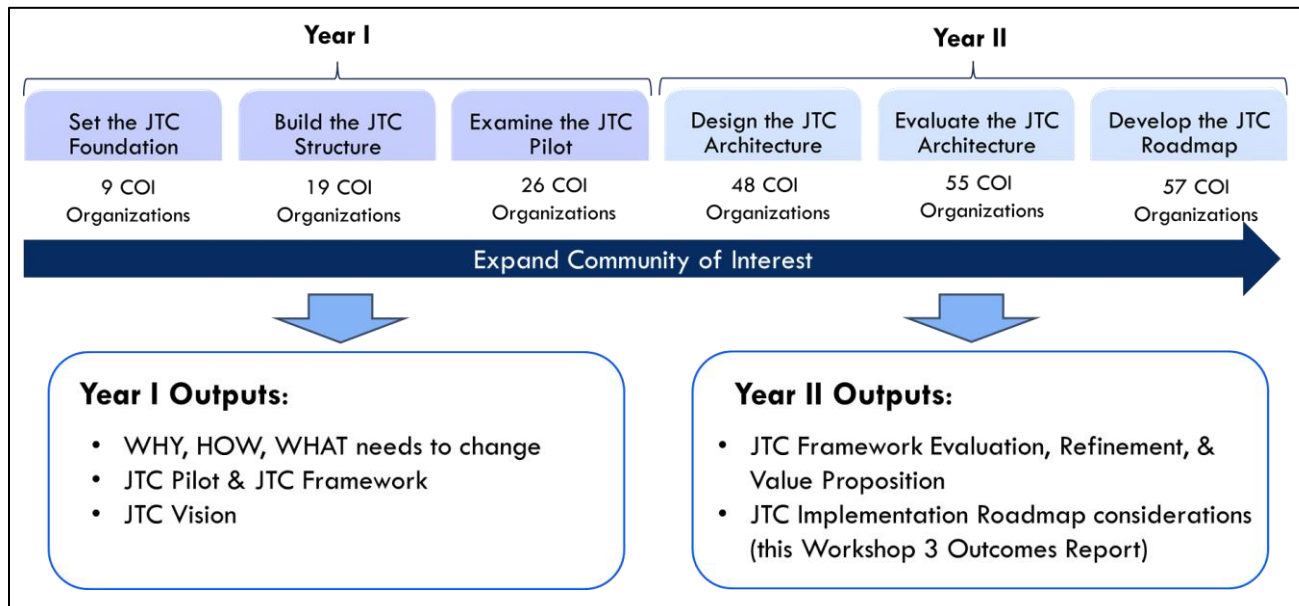


Figure 2: JTC Multi-Year Study Design & Outputs

JTC Implementation Roadmap Workshop Purpose & Design

The JTC team executed the JTC Implementation Roadmap Workshop (hereafter “Workshop III”) on 7 August 2024 at the Virginia Tech Arlington offices. The team designed workshop activities to gather vital implementation roadmap inputs surrounding key implementation activities, accelerators that can speed up the implementation process, and timelines of implementation activities. Additionally, workshop participants collaboratively decomposed key roles and responsibilities of J-TEST directorates, identified what implementation activities stakeholders would own, and key roles and competencies that must be in place to address implementation activities identified.

A total of 38 participants from the COI registered for Workshop III. The workshop began with level-setting material and initial icebreaker activities to encourage participants to

explore and familiarize themselves with the wide range of agencies and organizations represented. These activities included gathering input for how each participant envisioned their organization fitting into the JTC vision, what contributions their organization offers to the JTC, and what their organization needs to effectively support the JTC.

Following these initial activities, the remainder of the workshop focused on guiding participants through a series of fast-paced roadmap development activities using a design-based collaboration method. This method integrated design thinking, open thinking, and liberating structures principles to maximize the group's analytic and innovative potential. Participants worked across a range of partners, in small groups, and as members of larger groups throughout the day, ensuring they interacted with every participant to foster increased collaboration. The VT-ARC team led participants through activities aligned with the following goals:

- **Goal 1:** Identify Roles and Responsibilities of the J-TEST^{iv}
- **Goal 2:** Identify Key Interactions Between Defense Ecosystem Stakeholders and J-TEST
- **Goal 3:** Identify Activities, Deliverables, and Accelerators Along Near-, Mid-, and Long-Term Implementation Stages for JTC

Workshop III Outcomes: JTC Implementation Roadmap

This report provides a Workshop III outcomes synthesis. The team will conduct more in-depth outcome analysis and collation across all JTC workshops to develop a detailed JTC implementation plan product in early FY25.

1.2 Workshop III Outcomes

Following the workshop, the JTC study team consolidated and analyzed rapporteur notes and each activity's outputs. This section provides a brief overview of the analysis in relation to the three workshop goals. These outcomes will inform detailed forthcoming JTC V1.0 and JTC implementation plan products that chart the way forward for JTC implementation in FY25 and beyond.

Goal 1: Identify Roles and Responsibilities of the J-TEST

Future JTC implementation products will need to:

- Identify and document overlapping responsibilities across the J-TEST Directorates. Examples of critical overlaps that require further analysis include J-TEST Communications – J-TEST Security, J-TEST Integration – J-TEST Environment, and J-TEST Information – J-TEST Communications relationships.

^{iv} The Year I JTC Framework defined seven distinct but overlapping J-TEST lines of effort (directorates), each featuring a director: Environment, Security, Strategy, Integration, Communication, and Information. The team added a Personnel director following the Year II February 2024 workshop. The COI suggested this director's name be changed from "Personnel" to "Resourcing" in the latest August 2024 workshop.

- Include and further decompose recommended roles and responsibilities for each J-TEST directorate (Appendix C depicts COI recommendations).
- Change J-TEST Directorate titled “Personnel” to “Resourcing” to encompass enabling competencies, workforce management and development, and financial management and funding aspects.
- Identify and document resourcing/reach-back that the J-TEST needs to provide to program offices to enable their support to JTC activities.

COI participants emphasized key J-TEST roles:

- Ensure data strategy is in place to effectively manage data engineering, data sharing, and incorporation of mission engineering throughout the capability lifecycle.
- Ensure operations/mission analysis, systems of systems analysis, and modeling and simulation are performed effectively across all JTC Layers and to inform decisions throughout the Campaign of Learning
- Serve as the lead coordinator to guide, integrate, and support all stakeholders in JTC execution.

Goal 2: Identify Key Interactions Between Defense Ecosystem Stakeholders and J-TEST

COI participants emphasized the following:

- J-TEST directorate leadership, staffing, and resourcing across stakeholders will require a coordinated effort across the whole T&E enterprise.
- Stakeholder groups across the defense ecosystem (Appendix B) have a lot to offer the JTC, including T&E capabilities and infrastructure, data/information services, and mission engineering and integration to support JTC implementation, execution, and adoption. These offerings should be fully documented and coordinated as the JTC is implemented across mile markers, optimizing and building upon existing strengths and capabilities where possible.
- Stakeholders need clear and detailed documentation of supporting/supported stakeholder roles and responsibilities surrounding JTC execution and participation within and/or interactions with the J-TEST.
- Each stakeholder group needs senior leader buy-in, clear requirements, common standards, contracts/authorities and resourcing, champions and integrators, access to all other stakeholders, and a formalized battle rhythm with opportunities to integrate and coordinate contributions to JTC activities. Working-level (action officer) support is a critical enabler to JTC adoption.
- DOT&E (i.e., Joint T&E Program Office (JT&E)) and Developmental Test, Evaluation, and Assessments (DTE&A) will be critical champions, policy anchors, and integrators for successful JTC implementation and execution. The COI recommended a delegation to engage the front-line (i.e., the “doers” across the T&E community, system commands, combatant commands, program offices, and mission engineering/integration community) ensuring effective communication of the JTC vision and collaboration across stakeholders.

- Ensure partnership and collaboration between Office of the Under Secretary of Defense for Research & Engineering (OUSD(R&E)), Office of the Under Secretary of Defense for Acquisition & Sustainment (OUSD(A&S)), and DOT&E (i.e., JT&E) in support of JTC to build the connective tissue between mission engineering, joint requirements, prototyping and experimentation, and capability portfolio management across capability lifecycles.
- Each stakeholder organization will need to interact with multiple J-TEST Directorates at multiple touch points across the capability lifecycle Campaign of Learning. The team will further analyze and document interactions captured by the COI in future JTC products.
- Key stakeholder interactions with the J-TEST emphasized warfighter engagement, working-level test community engagement, budget/contracting community engagement, combatant command (CCMD) engagement, Joint Staff engagement, test range community engagement, service executives, and T&E executives.

COI participants recommended additional critical future JTC stakeholder documentation:

- Develop a living defense ecosystem organizational chart that depicts each stakeholder group with specific organizations/offices, relationships, and overarching roles and responsibilities as they relate to the capability lifecycle campaign of learning. Use this as an educational product for cross-stakeholder understanding.
- Identify and document detailed coordination points between J-TEST Directorates and each stakeholder, leveraging insights gathered from Workshop III.
- Identify CCMD roles and responsibilities throughout JTC activities including collaboration necessary between the T&E enterprise and CCMDs early and iteratively across the capability lifecycle Campaign of Learning.
- Clearly capture how the J-TEST will support joint test activities across Operational Test Agencies (OTAs) and JT&E and collaborate with DTE&A to achieve efficiencies while ensuring adequate evaluation across all JTC Layers.
- Ensure the COI includes representatives from OUSD(A&S) and Joint Staff.

Goal 3: Identify Activities, Deliverables, and Accelerators Along Near-, Mid-, and Long-Term Implementation Stages for JTC

In the two middle phases of the workshop, participants were asked to review historic COI-generated activities and identify missing milestone-related activities, relevant stakeholders, associated roles and responsibilities, and deliverables or activity artifacts.

COI participants identified several activities as critical to JTC implementation success:

- Establish a minimum threshold for a T&E event to be considered a joint test
- Establish test definitions for what makes something a test
- Gain and maintain program office buy-in
- Build out cross-domain solutions

- Create an operationally realistic environment
- Establish a pathfinder to assist in finding areas of weakness and paths around these weaknesses to implement the JTC
- Develop financial management plans that go beyond simple resourcing plans and inform processes to disburse money and track spending between services and minimize joint accounting challenges

COI participants identified the following as near-term implementation activities:

- Identify and map stakeholders to determine the appropriate level of engagement for effective collaboration.
- Evaluate the return on investment (ROI) of the current organizational structure to ensure it supports the initiative's goals.
- Implement incentives to maintain consistent stakeholder support, ensuring ongoing support and engagement.
- Develop a proposed governance structure that enables stakeholders to advocate for and support the initiative effectively.
- Communicate effectively with stakeholders, utilizing appropriate resources to convey the value and goals of the JTC implementation stage.
- Build technical support and create proof-of-concept infrastructure which will sustain use throughout the capability lifecycle.

COI participants identified the following as mid-term implementation activities:

- Establish a joint pathfinder effort. Pathfinding is essential before securing buy-in, especially during the midterm phase and will identify potential challenges, risks, and opportunities.
- Clearly define roles and obtain necessary approvals, while developing stakeholder mapping, communication plans, and knowledge resources.
- Demonstrate progress through examples and integrate these into a unified program to meet stakeholders' expectations and maintain momentum.
- Establish robust contract language, governance policies, and information-sharing protocols, recognizing that access and infrastructure needs may evolve during pathfinding.
- Address the "valley of death" in the transition phase by securing ongoing buy-in, engaging early adopters, and identifying a solution provider for commercial roles.
- Overcome the catch-22 of demonstrating value to secure buy-in by leveraging early adopters and finding a program office willing to take the initial risk.

COI participants identified the following as long-term implementation stage activities:

- The biggest rate of change will occur in the first two phases, but the community must conduct ongoing sustainment and updates over time. Traditional funding sources will need to be established by this point to ensure long-term success.
- Training will be essential in this phase, with initial teams learning on the job.

COI participants identified key technology enablers for JTC implementation:

Leverage existing TRMC-developed tools in lieu of redundant tool-development.

- Develop technology that supports data management, including understanding its location, legacy systems, and integration across platforms.
- A centralized dashboard with access to underlying data that integrates with various systems across DoD is necessary to improve access and collaboration, with uniformity at the Office of the Secretary of Defense (OSD) level but adaptable to individual organizations.
- Emerging technologies such as digital engineering, quantum computing, deep learning AI, and model-based systems engineering (MBSE) are important considerations for future development.
- NOTE: there was dialogue that reasoned that since this concept just brings together the different services, no new technology would be needed, but instead, challenges related to security and data sharing would be a far bigger issue.

COI participants identified key roles and competencies needed across each JTC implementation stage:

- The near-term group identified program managers, data managers, and T&E subject matter experts.
- The mid-term group identified operational experience, digital engineers (as well as general engineers), security officers, and information and knowledge management teams.
- The long-term group identified bridge managers, senior leadership, and people with specific technical competencies to complete the integration.
- It is likely that marketing skills and other soft skills would be necessary at each stage.

COI participants identified key deliverables for each JTC implementation stage:

- Near-term key deliverables include: a charter, a change management plan, initial budgets, a mission engineering plan, initial metrics to track ROI, and an implementation policy.
- Mid-term key deliverables include: guidebooks and plans, a stakeholder management site/tool, defined roles and responsibilities, and change management tools.
- Long-term key deliverables include: training materials and trainers, as well as a dashboard to communicate key findings and developments.

COI participants identified the following JTC implementation accelerators:

- Leverage existing computer vision capabilities, T&E organizations, and other stakeholders to deliver key milestones and complete the mission.
- Utilize established architectures, guidebooks, and involve the user and requirement communities to enhance the implementation process.
- Engage program officers and build a strategic involvement and communication plan with stakeholders to ensure alignment and collaboration.
- Secure cross-service and program funding by appealing to Congress, exploring alternative funding strategies.

- Distribute tasks based on stakeholders' specific areas of expertise to maximize efficiency and effectiveness.

JTC implementation risks include:

- Misalignment of cross-stakeholder priorities/equities
- Lack of funding and resourcing
- Inadequate value proposition communication associated with low buy-in
- Communication breakdowns
- Lack of data/information sharing
- Changing priorities across the long-term.
- If realized, these risks could result in increased resistance to change, friction amongst stakeholders, degraded test quality, delayed delivery of critical capabilities to the warfighter, and inefficiencies and duplication of efforts.

Accelerators to bridge gaps and remove barriers to implementation progress include:

- Capture and showcase early adoption success, best practices, and process refinement through joint-focused pathfinder efforts.
- Garner support and change/adoption momentum through compelling use cases (e.g., joint failures, adversary capability advancements, recent competition/conflict).
- Gain senior leadership champions.
- Develop and employ incentives for programs and portfolios to support JTC adoption.
- Develop and implement a new appropriations structure and conduct Planning, Programming, Budgeting & Execution (PPBE) reform. Reform budget/funding process aligned to capability-level as opposed to individual program-or service-level.
- Decrease regulations and develop a process for tripwires prompting actions.
- Leverage existing solutions where possible (e.g., dashboards, Chief Digital and Artificial Intelligence Office (CDAO) artificial intelligence capabilities, Jira, etc.).
- Define, develop, and implement “agile” contracting methods for increased flexibility and integration in support of JTC activities.
- Implement enabling technology such as Modular Open Systems Approach (MOSA), Digital Engineering (DE), Digital Acquisition (DA), and Model Based Systems Engineering (MBSE).
- Establish a dedicated champion team through DOT&E and DTE&A partnership.
- Ensure the dedicated champion team conducts front-line engagement across T&E enterprise “doers.”
- Establish authoritative mission threads.
- Shift to enterprise mindset surrounding infrastructure, funding, and resources.

- Conduct policy reform surrounding acquisition policy (5000 series DoD Directives), funding policy, data rights/sharing policy, U.S. code Title 10, and security policies to achieve improved alignment, consolidated guidance, and more direct language.

1.3 Resultant JTC Implementation Roadmap Framework

Implementation Strategy

The JTC team developed an implementation strategy with three implementation stages along the near, mid, and long-term with key end-state goals (referred to as “mile markers”) that each build upon the other for each stage (Figure 3). These mile markers provided participants with a targeted incremental goal to organize key implementation activities along each implementation stage. The team will incorporate, refine, and expand on this strategy in the forthcoming JTC Implementation Plan product in early FY25.

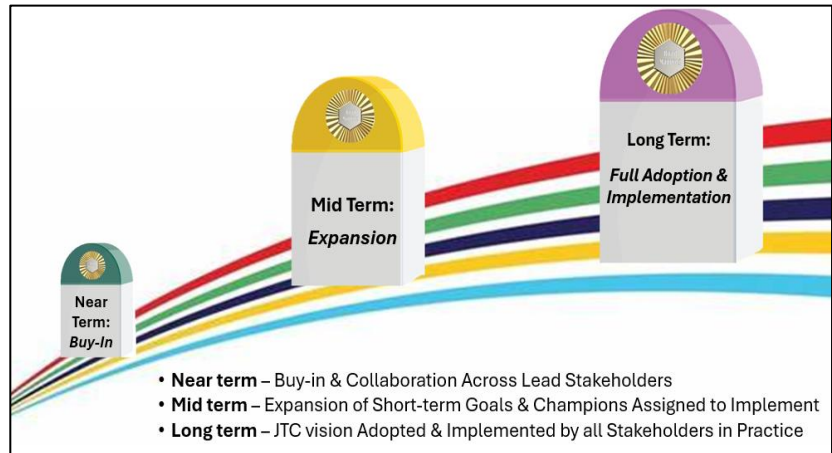


Figure 3: JTC Implementation Stages & Mile Markers

The near-term milestone is focused on obtaining buy-in and collaboration across lead stakeholders. This milestone will get the initial core group of people interested in the concept and begin working together towards implementing the JTC in practice. The mid-term milestone is marked by expanding upon the near-term goals and scaling them support long-term success. Additionally, the mid-term target assigns champions who will implement aspects of the JTC. Lastly, the long-term milestone is marked by full adoption and implementation of the JTC by all stakeholders in practice and across the DoD ecosystem. The participants identified buy-in as a critical goal for all three stages with near-and mid-term stages buy-in would be difficult to maintain.

Implementation Roadmap Framework & Updated Strawman

The JTC study team designed an initial JTC Implementation Roadmap Strawman through synthesis of all Year I and II outcomes collected (pre-workshop version in Appendix D). Figure 4 depicts the framework’s design and descriptions of each pillar. The post-workshop JTC Implementation Roadmap Strawman, depicted in Figure 5, incorporates Workshop III outcomes. The team will transform this into a more detailed implementation framework in the forthcoming JTC Implementation Plan product in early FY25.

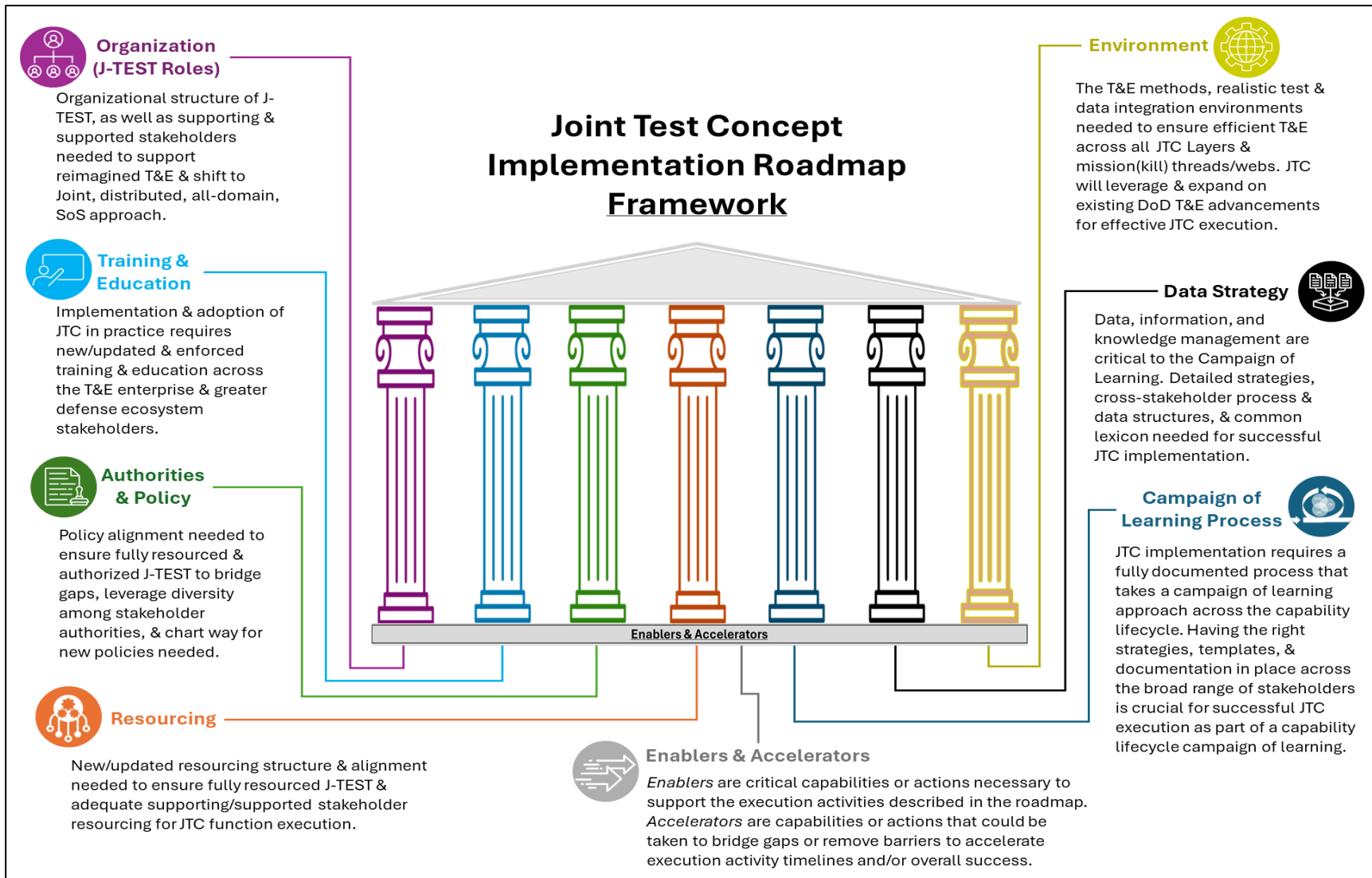


Figure 4: JTC Implementation Roadmap Framework

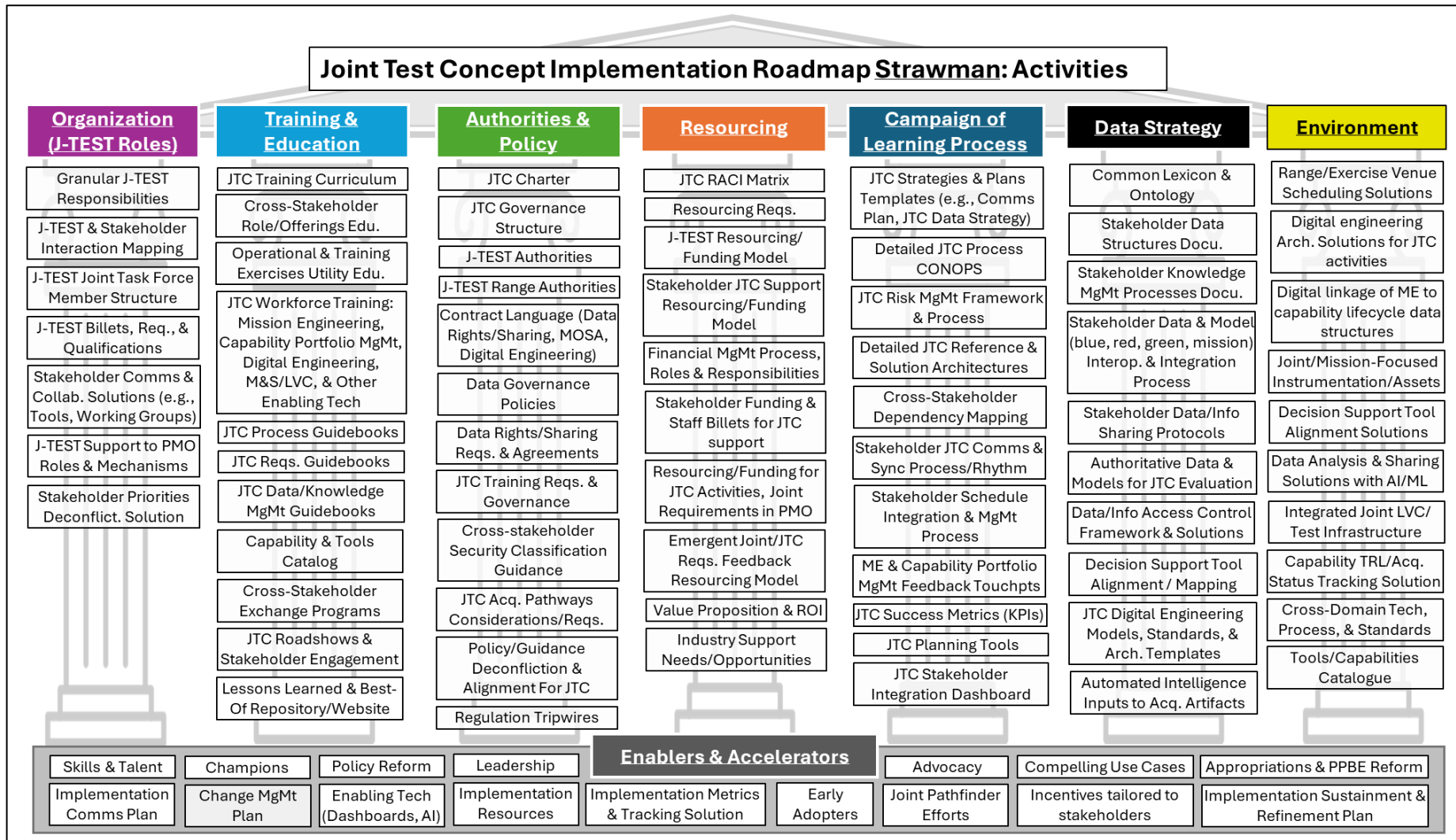


Figure 5: JTC Implementation Roadmap Strawman (Updated Post-Workshop)

Conclusions

The JTC Implementation Roadmap workshop outcomes capture key COI-generated implementation considerations. The workshop resulted in a deeper understanding of and refinement to J-TEST roles and responsibilities; stakeholder interactions and potential implementation roles; stakeholder collaboration opportunities across the T&E capability lifecycle campaign of learning;⁵ and implementation activities and deliverables needed to achieve the key goals across mid-, near-, and long-term stages for JTC implementation.

The team leveraged workshop outcomes gathered to update the overarching JTC Implementation Strategy Framework and Strawman and will conduct deeper analysis of Workshop III outcomes to develop a more granular JTC Implementation Plan product in early FY25. The resulting product will outline the granular execution activities, deliverables, and accelerators associated with the three implementation stages to chart an actional path forward for JTC implementation. The product will put a heavy focus on identifying and empowering champions, encouraging early adoption and generating quick wins through pathfinder efforts, and pursuing critical enablers and accelerators (i.e., technical solutions, policy, leveraging existing stakeholder capabilities and strengths, core competencies and talent, training, financial management models, etc.) to build a solid foundation to achieve JTC implementation and adoption in the long term.

⁵ Concept for T&E Capability Lifecycle Campaign of Learning will be delivered early in FY25 as a supporting concept to the JTC.

Appendix A: Community of Interest Organizations (Updated August 2024)

As of August 2024, the JTC COI includes 57 organizations/sub-organizations:

- Air Force Operational Test and Evaluation Center (AFOTEC)
- Air Force Research Laboratory (AFRL)
- Acquisition Innovation Research Center (AIRC)
- Army Redstone Test Center
- Army Test and Evaluation Command (ATEC)
- Cypress, Former Navy expertise (i.e., NAVSEA, NSWC, NUWC)
- Department of the Air Force (DAF) Strategic Development Planning & Experimentation (SDPE) / DAF Chief Model and Simulation Officer (CMSO)
- DAF Test & Evaluation, Programs and Policy (DAF/TEP)
- Deloitte
- Army Combat Capabilities Development Command (DEVCOM)
- Defense Intelligence Agency (DIA)
- DIA, Science & Technology T&E Office
- Department of Navy (DON) Office of Strategic Assessments (OSA)
- Office of the Director, Operational Test & Evaluation (DOT&E)
- DOT&E, Strategic Initiatives, Policy, and Emerging Technologies (SIPET) / ATEC-Yuma Proving Ground (YPG)
- Georgia Tech Research Institute (GTRI)
- Headquarters, Air Force (HAF) A5/7 (LinQuest Corporation)
- HAF Futures (LinQuest Corp)
- Hepburn and Sons, LLC
- HII Mission Technologies (Supporting NSWC PHD)
- Institute for Defense Analyses (IDA)
- IDA / Operational Evaluation Division (OED)
- Joint Aircraft Survivability Program (JASPO)
- Johns Hopkins University Applied Physics Lab (JHU/APL)
- Joint Staff J2
- Joint Staff J6
- Joint Staff J7
- Joint T&E (JT&E) Program Office (JPO)
- Joint Program Executive Office for Chemical Biological Radiological and Nuclear Defense (JPEO-CBRNE), Advanced & Emerging Threat Defense Program
- L3Harris
- MITRE
- Moore Group, LLC
- Naval Air Systems Command (NAVAIR)
- Naval Surface Warfare Center Dahlgren Division (NSWCDD)
- Naval Surface Warfare Center, Crane Division (NSWC Crane)

- Operational Test & Evaluation Force (OPTEVFOR)
- Office of the Under Secretary of Defense for Intelligence & Security (OUSD(I&S))
- Office of the Under Secretary of Defense for Research & Engineering (OUSD(R&E)), Developmental Test, Evaluation, and Assessments (DTE&A)
- OUSD(R&E), Mission Capabilities, Mission Integration
- OUSD(R&E), Prototypes & Experiments (P&E)
- PeopleTec Inc.
- Rand
- Raytheon
- Secretary of the Air Force, Administrative Assistant's Concepts, Development, and Management Office (SAF/CDM)
- SAF/CDM Acquisition Intel-Joint Integration Cell
- Scientific Research Corporation (SRC) supporting Test Resource Management Center (TRMC)
- Security Concepts & Strategic Design, LLC
- Stevens Institute of Technology
- Strategia Worldwide
- TRMC
- Troika, Former United States Marine Corps (USMC)
- United States Air Force (USAF)
- United States Army Special Operations Command (USASOC)
- USMC, Operations Analysis Directorate, Combat Development & Integration
- Vsolvit; Former ASN RDA
- Virginia Tech Applied Research Corporation (VT-ARC)
- Virginia Tech National Security Institute (VTNSI)

Appendix B. Defense Ecosystem Stakeholders

Figure 6 provides the high-level stakeholder groups, and sub-organization types within each of those groups, that make up the defense ecosystem. The JTC study team created this visual through synthesis of outcomes from all previous JTC workshops across Year I and Year II. This visual guided JTC Implementation Roadmap Workshop activities in identifying key stakeholder interactions with J-TEST, stakeholder touchpoints and involvement across the capability lifecycle campaign of learning, and stakeholder offerings for JTC implementation and execution in practice. This stakeholder analysis will inform more detailed stakeholder and defense ecosystem organizational charts in future JTC products.

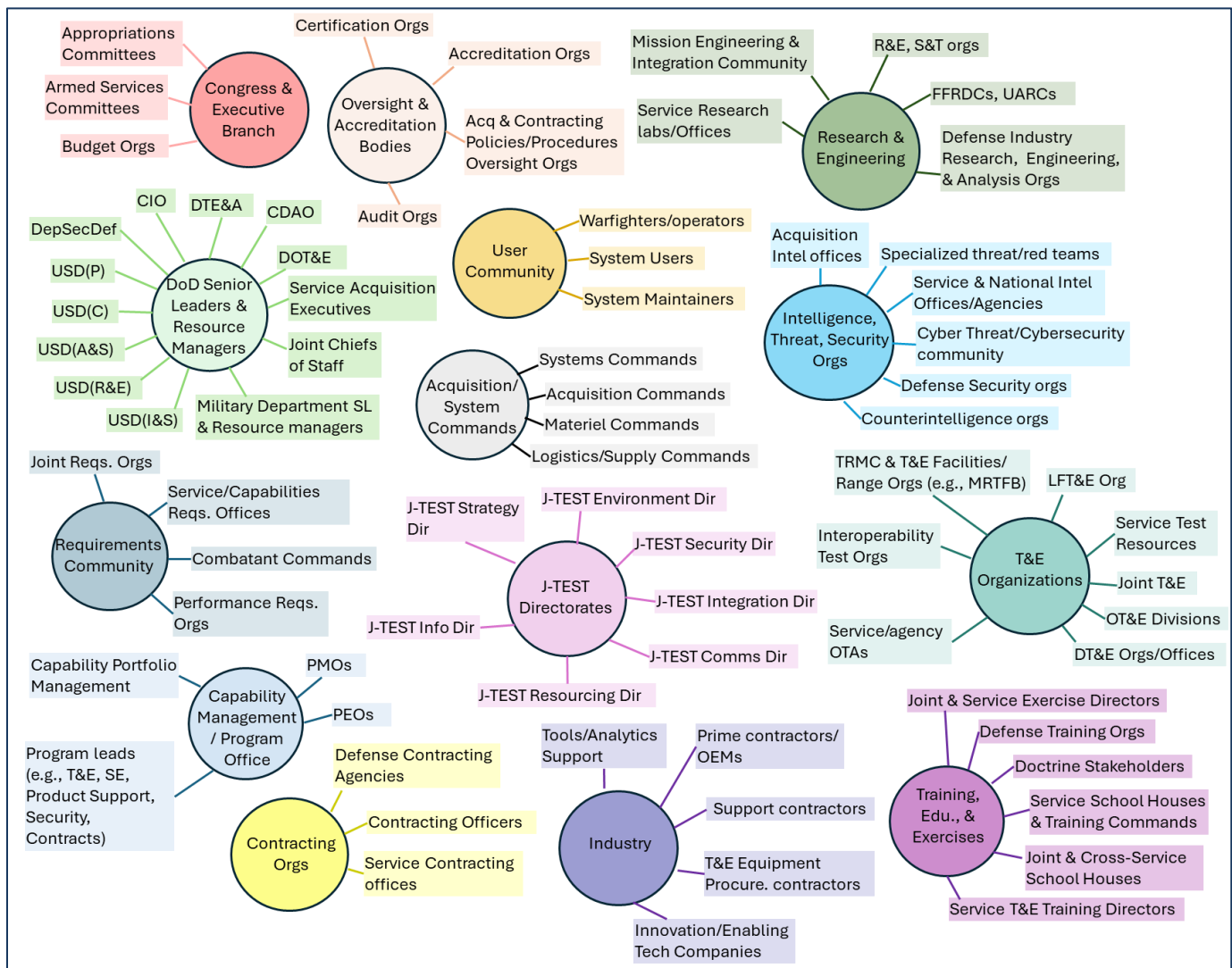


Figure 6: Defense Ecosystem Stakeholder Groups

Appendix C. J-TEST Roles & Responsibilities Outcomes

Through Workshop III activities, the team captured COI recommendations for more granular roles and responsibilities for each J-TEST Directorate (Table 1), building upon the JTC Framework developed in Year I (J-TEST design depicted in Figure 7). The JTC study team will further develop and decompose these roles and responsibilities in collaboration with the COI in future JTC work in FY25. The COI emphasized that JTC implementation and J-TEST directorate leadership, staffing, and resourcing will require a coordinated effort across the whole T&E enterprise.

Table 1: COI Recommendations for J-TEST Roles & Responsibilities

J-TEST Directorate	Roles & Responsibilities for Inclusion in JTC Framework
Information	<ul style="list-style-type: none"> • Identify and coordinate amongst data creators and key data/information products along the Campaign of Learning. • Create and maintain a common data repository for stakeholder data/information access, storage, and sharing. • Create and facilitate data, information, and knowledge management training specific to JTC activities. • Ensure adequate contract language used to enable JTC data/information strategy implementation.
Integration	<ul style="list-style-type: none"> • Develop policies and procedures to govern and coordinate JTC activities across the capability lifecycle Campaign of Learning. • Identify and oversee roles and responsibilities across stakeholders for JTC integration activities across the Campaign of Learning. • Ensure the connective tissue across the Campaign of Learning surrounding integration of Joint/mission requirements and artifacts into capability lifecycle activities. • Provide coordination and additional resourcing to support program office integration in JTC activities.
Resourcing (Formerly "Personnel")	<ul style="list-style-type: none"> • Identify and implement billet requirements within J-TEST and across stakeholders necessary to support JTC execution. • Workforce management and development surrounding JTC activities (e.g., billets, training, support/supported roles awareness, incentives, funding models). • Financial management surrounding JTC activities, both within the J-TEST and in coordination with stakeholders to ensure adequate funding/resourcing dedicated to JTC activities.
Communications	<ul style="list-style-type: none"> • Identify a communications strategy and coordinate execution of this strategy across J-TEST and all stakeholders. • Develop strategy surrounding human-based communications (e.g., integration activities, change management, stakeholder communications). • Develop strategy surrounding system- and data-based communications (e.g., DoD Impact Levels (ILs), account and data/information access,

	<p>application program interfaces/system connectivity, secure environments/facility access, etc.)</p> <ul style="list-style-type: none"> • Coordinate closely with J-TEST Security Directorate.
Security	<ul style="list-style-type: none"> • Coordinate access control amongst stakeholders surrounding JTC activities. • Develop and implement data compilation and data/information security standards surrounding JTC activities, especially surrounding implications of multiple mission threads/webs. • Coordinate amongst stakeholders to deconflict and align security guidance surrounding data/information. • Support the management of compartmentalization across T&E activities. • Provide cybersecurity policy and oversight surrounding JTC activities.
Environment	<ul style="list-style-type: none"> • Support activities surrounding threat assessments, CONOPS, and gaps assessments surrounding T&E methods and capabilities to ensure adequate environment/infrastructure planning. • Coordinate with combatant command, range, and threat assessment representatives to ensure adequate environment/infrastructure for JTC activities. • Plan and coordinate range/T&E resource usage across capability lifecycle Campaign of Learning.
Strategy	<ul style="list-style-type: none"> • Inform future policy needs as JTC evolves in practice and maturity across implementation phases. • Establish and track progress toward key JTC milestones across capability lifecycle campaign of learning, informing decision making. • Coordinate early and often with sustainment/product support representatives to incorporate sustainment considerations into JTC activities.

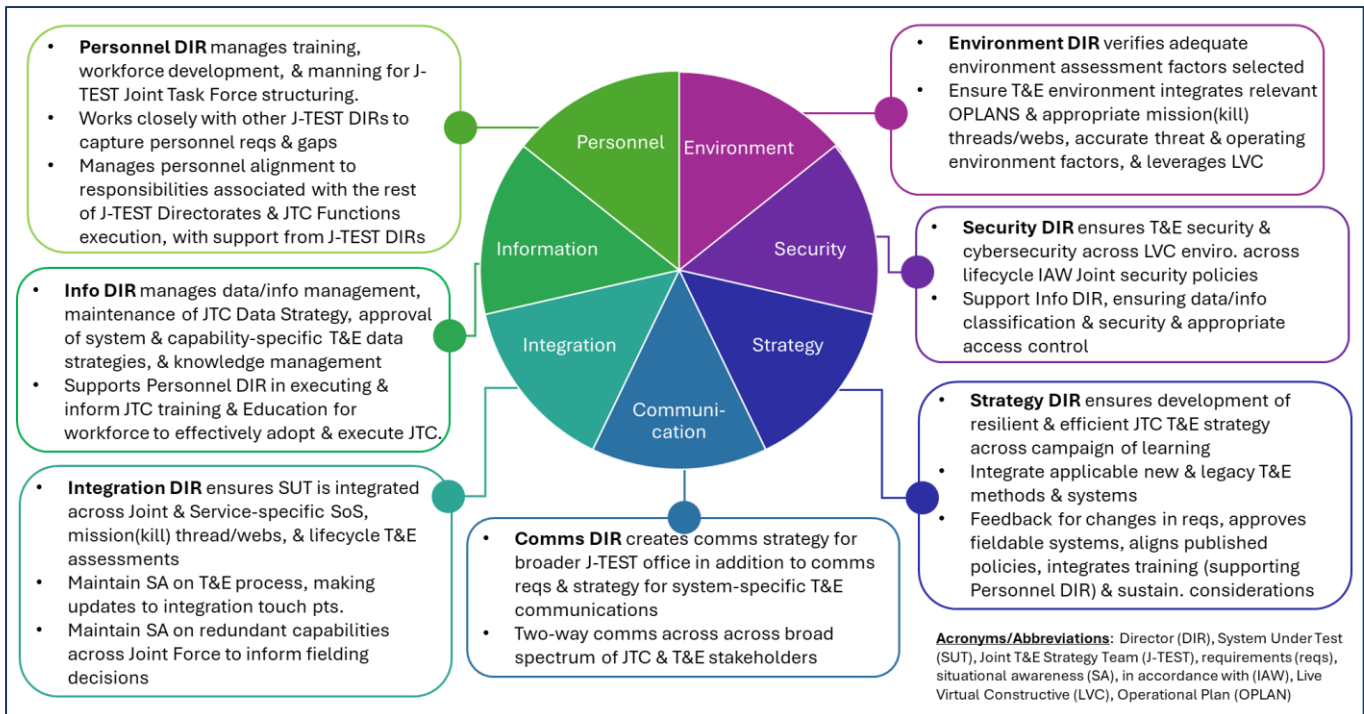


Figure 7: J-TEST Overarching Roles & Responsibilities

Appendix D. Pre-Workshop JTC Implementation Roadmap Strawman

The visual below depicts the pre-workshop JTC Implementation Roadmap Strawman prior to adjustments made through analysis of the workshop’s outcomes. To create this initial strawman, the JTC study team synthesized all outcomes across Year 1 and Year 2 workshops to date. This strawman provided an initial framework that Workshop III participants built upon, enabling the team to gather vital COI feedback and recommendations for implementation roadmap elements, which will be incorporated in the forthcoming JTC Implementation Roadmap product in early FY25.

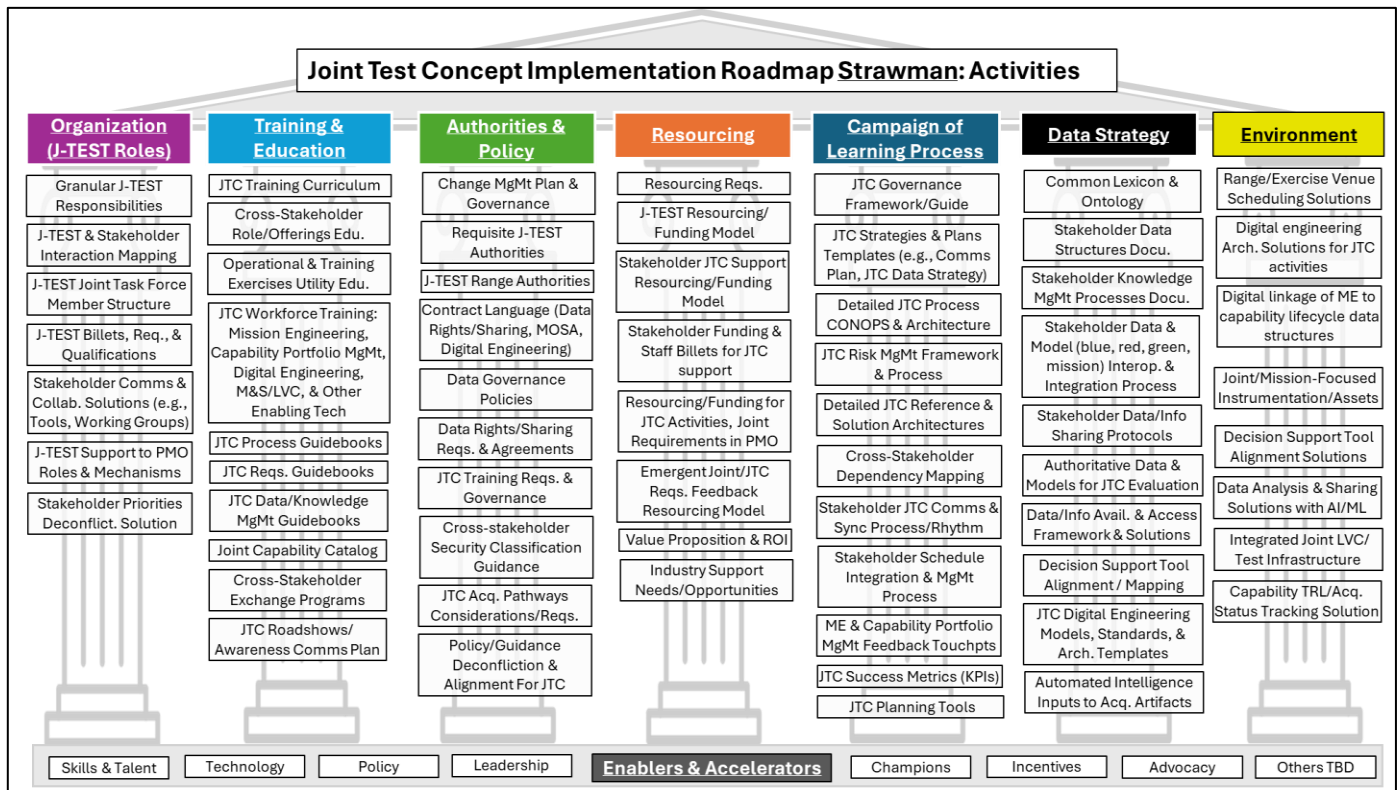


Figure 8: Pre-Workshop JTC Implementation Roadmap Strawman

¹ <https://media.defense.gov/2022/Oct/27/2003103845/-1/-1/1/2022-NATIONAL-DEFENSE-STRATEGY-NPR-MDR.PDF>

² <https://www.dote.osd.mil/Portals/97/pub/reports/FINAL%20DOTE%202022%20Strategy%20Update%2020220613a.pdf?ver=NkYa8WXfdonuh7M7HT3PBg%3D%3D>

³ <https://www.dote.osd.mil/Portals/97/pub/reports/DOTE Strategy Imp Plan-Apr2023.pdf?ver=jQHyc5uHXsvM25sYurv5Zw%3D%3D>