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Transforming Technical Data Package (TDP) Management with the Integrated Digital Maturity Pathway (IDMP)

Naval Postgraduate School, Acquisition Research Symposium, May 2025



VIRGINIA DIGITAL MARITIME CENTER

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Research Question

How can the Integrated Digital Maturity Pathway (IDMP) improve TDP completeness, accessibility, and security while respecting contractor intellectual property (IP)?



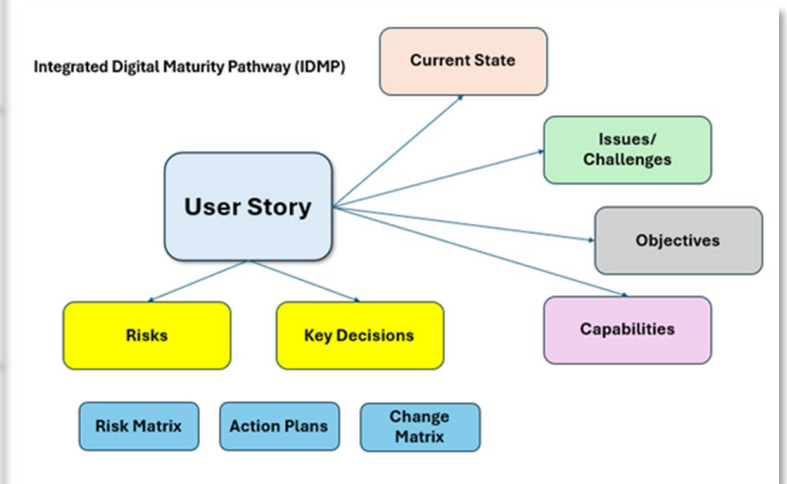
Challenge & Methodology

- TDPs are critical for lifecycle sustainment yet often incomplete or inaccessible.
- IP sensitivity and mixed funding complicate data sharing
- Used NDIA DMWG case study: 80 User Stories + validation workshops
- Applied the IDMP maturity model to diagnose and resolve systemic gaps



NDIA Digital Manufacturing Working Group

User story 16 & 20	As (16) a Supplier or (20) the Prime Integrator of a Supply Chain	I want to protect my proprietary data and that of my suppliers from disclosure or use outside specifically negotiated license provisions,	So that I can share data and models for collaboration within the supply chain and with the Government and ultimately provide better products and services.
User story 47	As a Prime Contractor	I want to offer Tech Data as a Service (TDaaS) as an alternative to data deliverables	So that my government customer will have secure access to up-to-date tech data for sustainment at the time of need.
User story 48	As a Government Product Support Manager	I want to get delivery of a complete tech data package with unlimited data rights	So that I can release build-to-print information for competitive procurement of spare parts
User story 49	As a Government Depot Manager	I want to have access to digital design and manufacturing data	So that I can accomplish depot repairs and fabricate parts as needed (additive and other mfg processes)



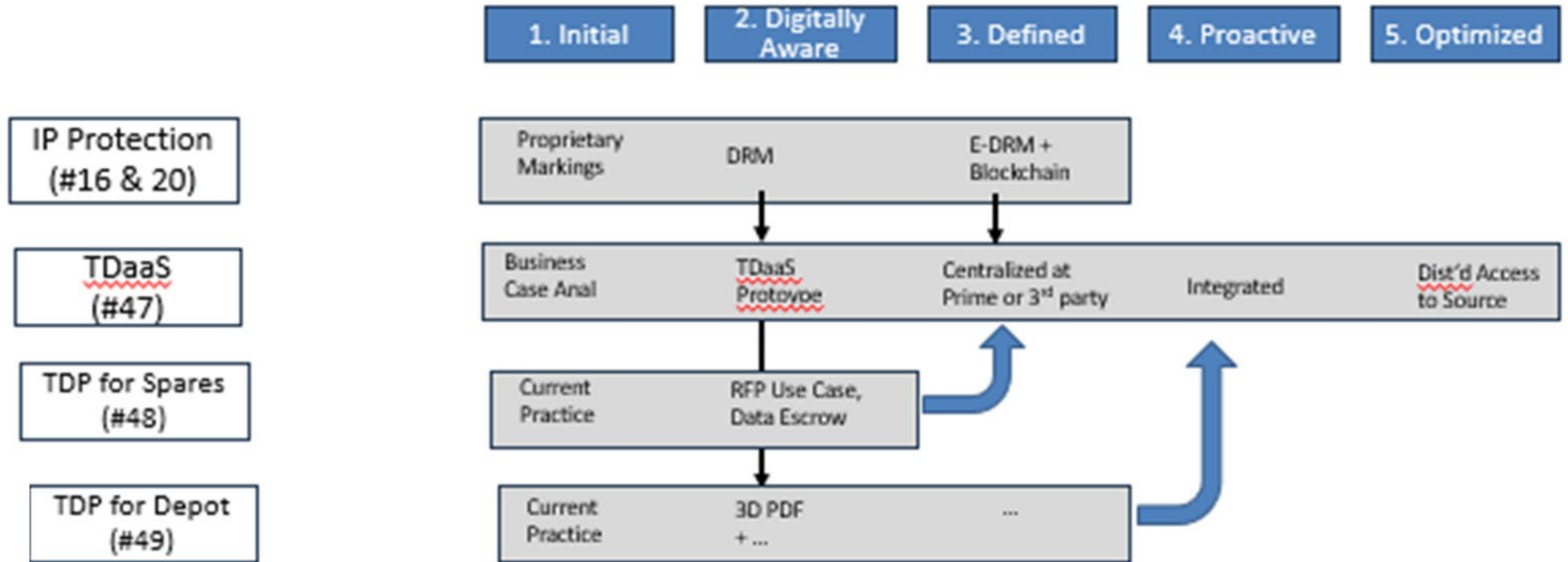
IDMP Framework and TDP Application

- IDMP = Maturity Model for secure digital transformation.
- Enables role-based data access, traceability, and modular TDP updates.
- Applied the IDMP maturity model to diagnose and resolve systemic gaps.
- Aligned with VAULTIS principles for trust and interoperability.
- Supports use-case specific formats for AM and depot repair.

IDMP Level	Current State	Issues	Capabilities	Objectives
Initial Level: Current Process (Manual and Basic Processes)	The government specifies delivery of a Tech Data Package (TDP) for manufacturing components, but the TDP is often incomplete, causing issues for competitive procurement.	-Incomplete TDPs: Current processes result in insufficient technical data for competitive procurement. -Vendor lock: The government is often reliant on a single supplier due to incomplete TDPs. -Data Gaps: Vendors struggle with insufficient engineering details for manufacturing, leading to fewer competitive bids and higher risks of no-bid decisions.	-Establish basic TDP standards using MIL-STD-31000 to define minimum deliverables. -Initial efforts to incorporate basic TDP requirements into contracts to improve future procurement competitiveness.	Establish clarified TDP requirements and update contract deliverables to ensure complete, competitive TDPs for future procurement needs.
Initial Level: Decisions	-Determine minimum TDP requirements to avoid gaps that cause vendor lock. -Decide if manual processes for TDP validation are sufficient or if early digital initiatives should be introduced.			



Workshop Post Processing



NDIA Workshop Insights on TDP Modernization

Key Stakeholder Insights

- TDPs often procured before sustainment needs are fully known.
- Contractors resist data sharing due to IP exposure and competitive concerns.
- Government faces delays and cost escalations in spare parts and depot maintenance.



Workshop Recommendations

- Apply IDMP maturity levels to TDP delivery pathways.
- Use DRM and Blockchain to enhance IP protection at higher maturity levels.
- Prototype TDaaS as a business model for secure, time-based access to data.
- Prioritize 3D PDF and RFP-based data escrow as entry-level practices.



Thank You!

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