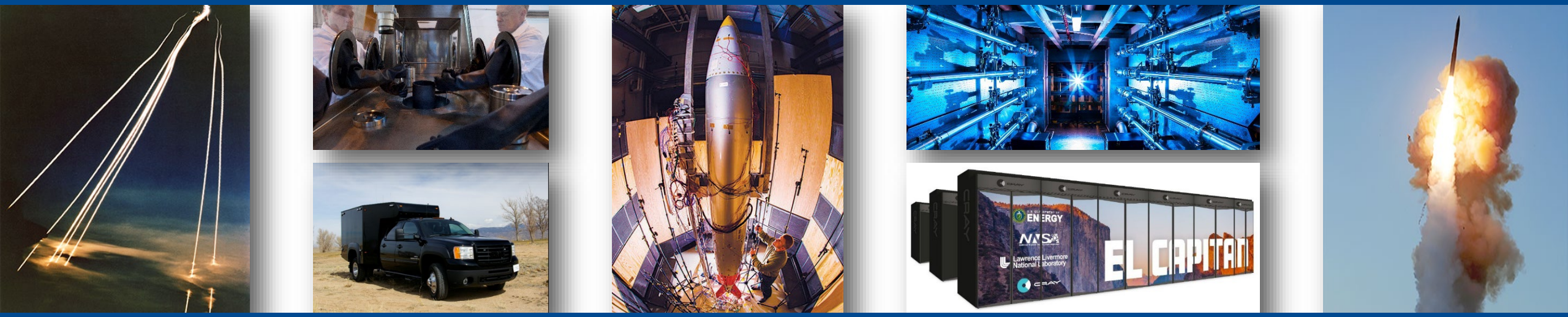
Update on NSE Digital Transformation for EFCOG

4 April 2025



NATIONAL NUCLEAR SECURITY ADMINISTRATION OFFICE OF DEFENSE PROGRAMS

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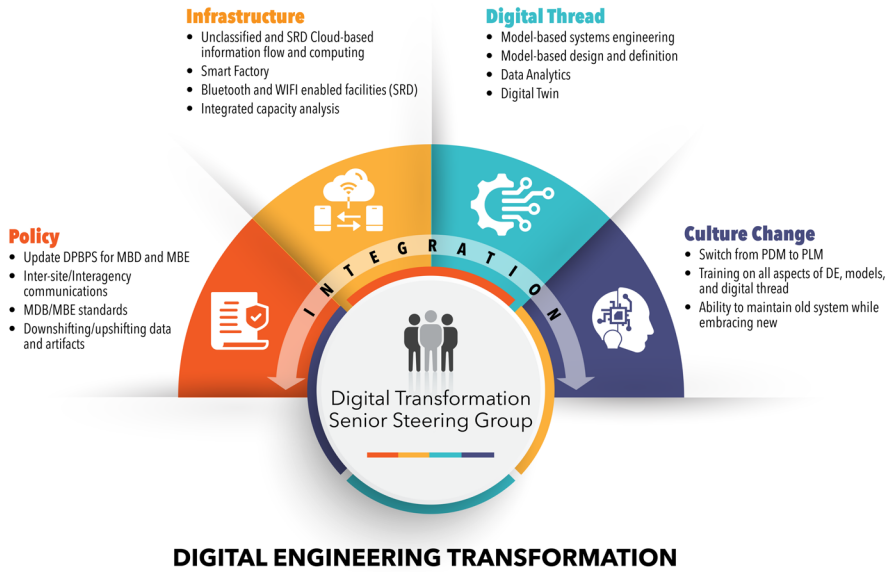
Bottom Line Up Front

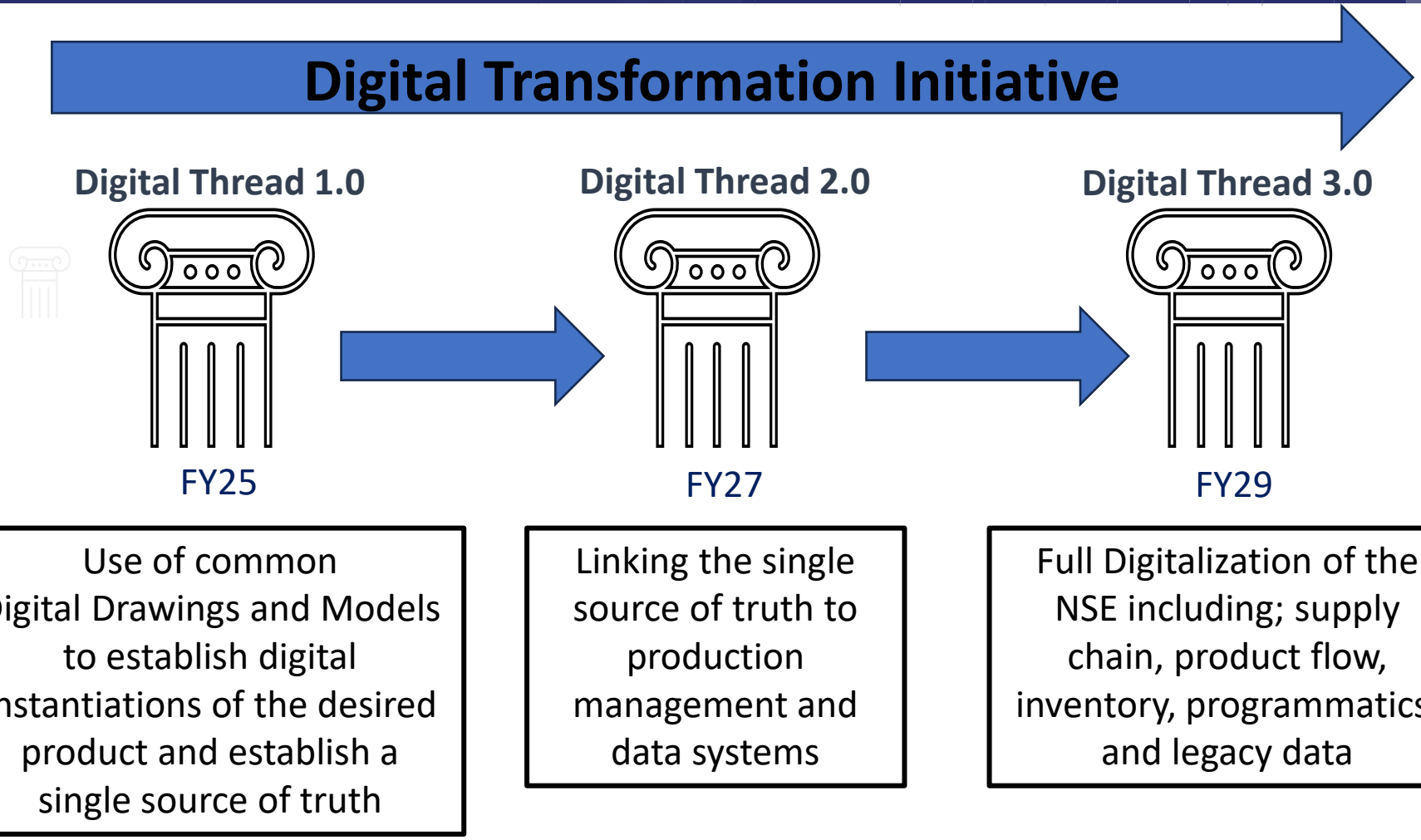
- Continuing to make progress on Digital Thread
- Strong commitment across LPS (Labs, Plants and Sites) and NNSA Leadership
- Strong support and collaboration w/W93 Program
- PRIDE capabilities being released to plan
- Many challenges – working to resolve
- Phase 2.0 Definition in progress



Digital Transformation Topics

- High level Objectives for Digital Transformation: Digital Thread 1.0, 2.0, 3.0
- NNSA Digital Transformation Leadership
- Progress on Digital Thread 1.0
- Challenges
- Digital Thread 2.0 Preliminary Definition

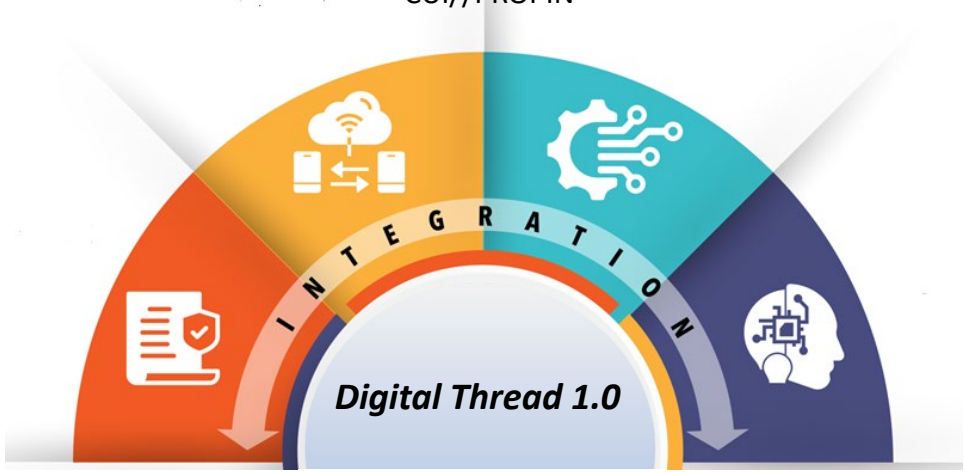
NNSA Digital Transformation Initiative



Digital Transformation Senior Steering Group Leadership

- DTSSG co-chaired by Kent Jones (NA-18), Laura McGill (SNL)
- Working Group co-leads (Fed and LPS members in spirit of EMDI)
  - **Policy**: Ryan Coogan (NA-PAS), Greg Noeninckx (LANL)
  - **Infrastructure**: Valerie Noble (Acting for NA-IM), Jason Crenshaw (SNL)
  - **Digital Thread Working Group**: Jon Arlotti-Parish (NA-122.1), Shawn Dirk (SNL)
  - **Organizational Excellence**: Allyson Koncke-Fernandez (NA-1.1), J.J. Rambo (SNL)
- Each Working Group includes membership from NNSA and LPS
- NNSA DTSSG Charter and DT Strategy being updated

Definition of DT 1.0 Success in Oct 2025

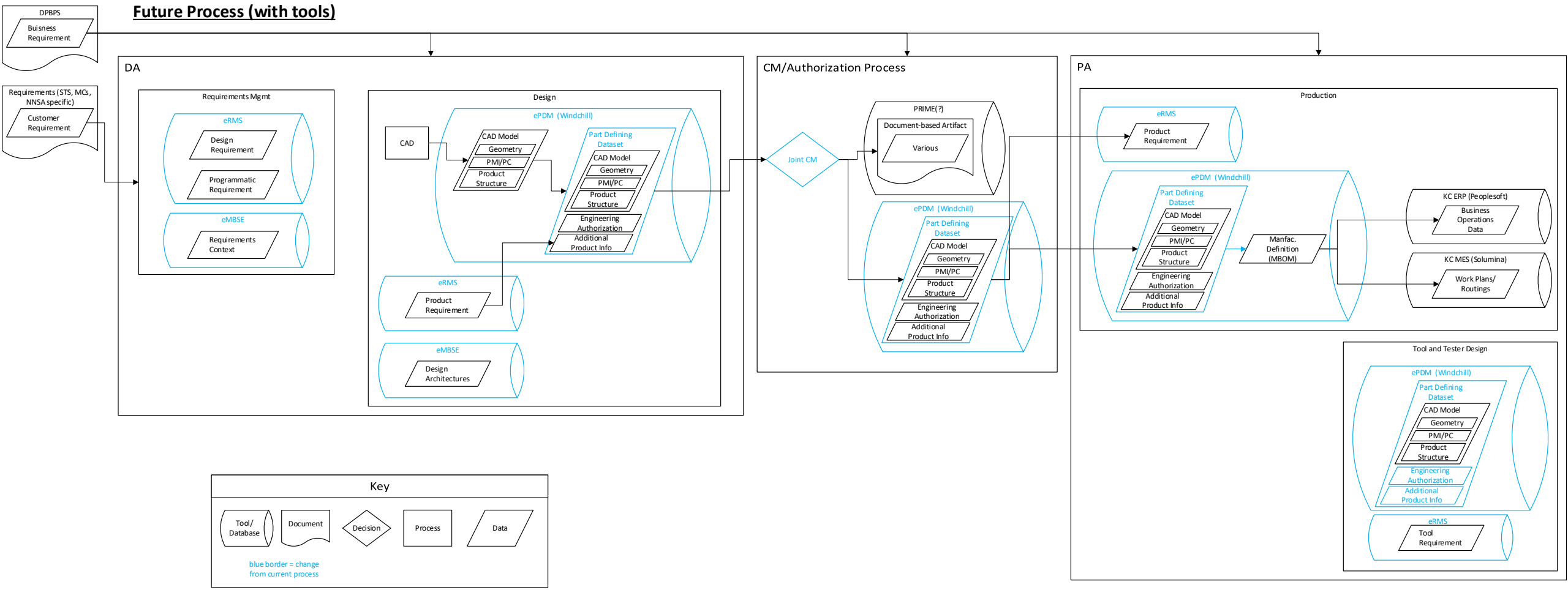


- Enterprise policies and processes are in place to use of DT 1.0.
- LPS policies and processes in place to use DT 1.0.
- All sites and stakeholders supporting the W93 have access to the ESN Hub.
  - W93 eMBSE users have access to an ESN Hub desktop.
- ESN infrastructure is operational and stable.

- eMBSE, ePDM, and eRMS are established on the classified and unclassified
- Minimum cross domain capability for product definition in place to support DAs and PAs.
- ECAD AoA is complete for execution in 2026; cross enterprise alignment on strategy/approach.
- ePDM can manage electrical and mechanical product definition.
- Enterprise process and roles are place for current and future capability and tool connection, upgrades and O&M.
- Base DE expectations for future programs are in place: agreement for Phase I's to be born digital.
- DT 2027 roadmap is established.
- Key capabilities are established and available for use:
  - Weapons requirements managed in eRMS.
  - Collaboration on common system models in eMBSE.
  - Product Structure and PDD development with models via ePDM.
  - initial NTK information collections in place.

- Sponsors and leaders have supported culture change through expectation setting, decision-making, support for MOWs, and recognizing success in alignment with the goals of DT 1.0.
- Cohesive communications and aligned messaging have been delivered to LPS workforce.
- MOW's are trained on all tools, policies, and processes relevant to their work.
- MOW's understand the culture shift and have begun to transition to a digital way of doing business.
- Path to measuring workforce adoption and usage is defined.

Integration of Key Digital Thread Capabilities



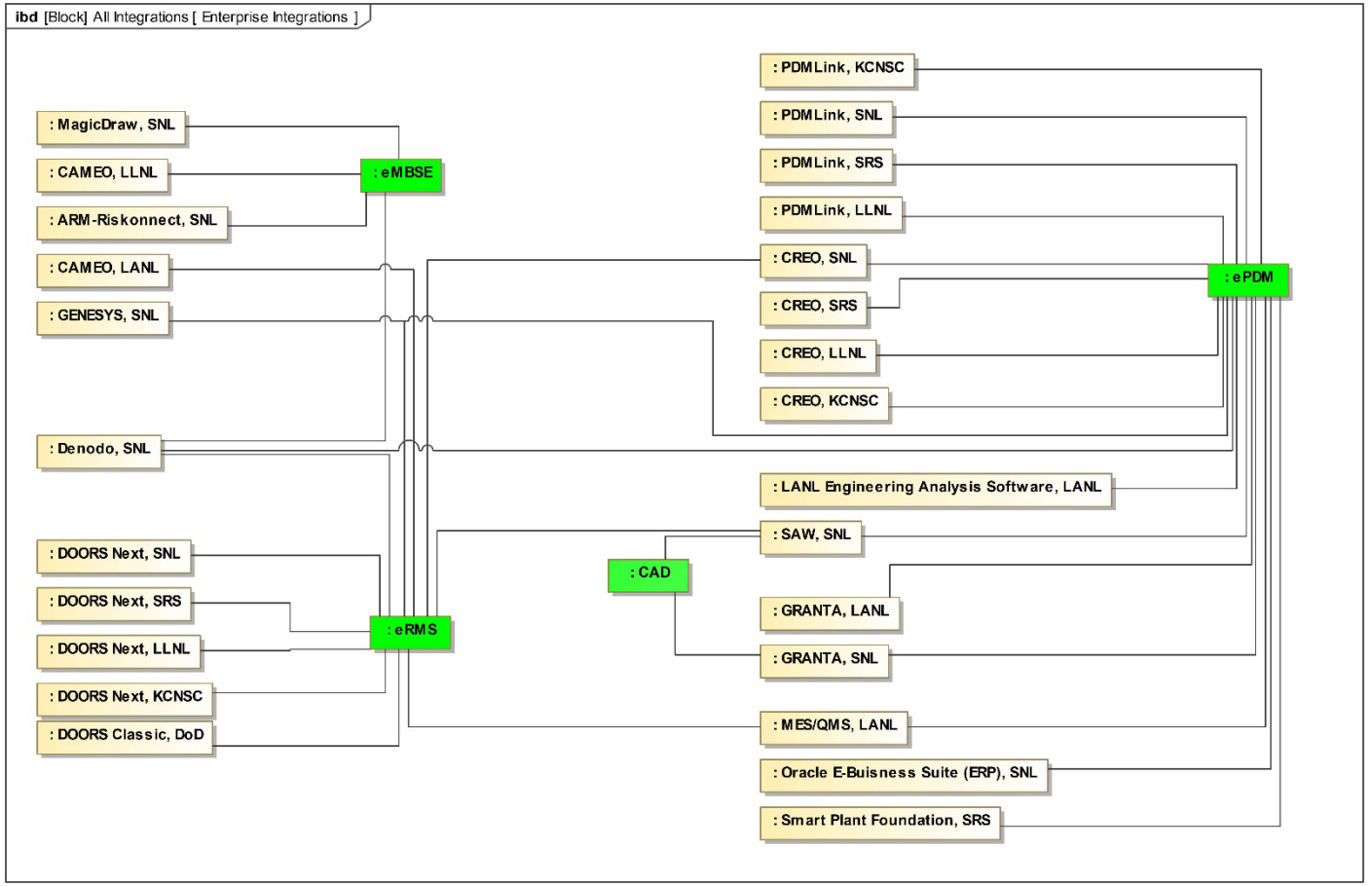
- User mapping to enterprise tools and processes

Digital Thread Tools Released

- eRMS (enterprise Requirements Management System) deployed Dec 2023
  - Single source of truth for W93 requirements and future programs
  - Exercised for W93 Customer Requirements Review: cited by Navy as a ‘best practice’
  - Allows real-time traceability across organizational boundaries
- ESN-Hub released in Feb 2024, full deployment in progress
  - Replaces existing ESN infrastructure and addresses hardware stability issues
- ePDM (enterprise Product Data Management) released Oct 2024
  - Enterprise-wide repository for all digital artifacts
  - W93 will be migrated from local PDM to Integrated Product Data Structure in ePDM

Site-Specific Tool Mapping

- Site-specific tool integrations identified and compiled in a model to support planning for integration of the enterprise digital thread
  - 50+ site-specific tool integrations requested
  - Dozens of additional inter-site tools identified



Technical Challenges Being Worked

- ePDM implementation for W93:
  - Establishment of integrated Product Data Structure for W93 system
  - Timing of Class/Unclass versions
  - Data Migration
  - Cross Domain Solution: Integration of Class/Unclass artifacts to maintain system integrity
- All LPS applying CUI markings
- Management of NTK
- LPS Readiness to employ enterprise capabilities

Other Challenges Being Worked by Organizational Excellence and Policy Working Groups

- Culture to embrace capabilities and share data will require continued reinforcement
- Workforce understanding of how Digital Thread will change the way we do work
  - Developing systems engineering work flows and training
- Ensuring that Digital Thread drives faster program execution, unencumbered by current processes
- Long term funding model for continued advancement/sustainment of capabilities
  - WBS established to support Digital Transformation plans
  - Costs to be partially offset by consolidated enterprise management of roadmaps, tools, licenses, etc.

Digital Thread 2.0 Preliminary Definition (1 of 5)

- Simulation product data management tool integrated
- W93 is actively using ePDM for engineering BOM and released to PAs
  - PAs connected to enterprise tools using the source of truth in ePDM
- Phase I's are using the enterprise tools (eMBSE, ePDM, and eRMS)
- eECAD is available for use
- Subset of production lines are using the ePDM for manufacturing BOM and manufacturing BOP
- DAs using digital thread to make design decisions
  - DA prioritized site tools linked to digital thread

Linking the single source of truth to production management and data systems

Digital Thread 2.0 Preliminary Definition (1 of 5)

- Continuous improvement processes in place and operating at enterprise level
  - Process performance feedback
  - User engagement and feedback
  - Enterprise tools/capabilities continue to be improved
- All current EA types are in ePDM
- Unclassified product definition is being released on the low side
  - Low to high CDS
- Establish how security incidents will be handled (and who owns risk)

Linking the single source of truth to production management and data systems

Digital Thread 2.0 Preliminary Definition (1 of 5)

- Secure wireless and unclassified wireless in secure space ready for use by all LPS
  - Policies, authorization, processes, common risk posture, and mechanisms in place to support adoption
  - Use case complete: Implementation on Y-12 production floor
- Enterprise network strategy and implementation of commercial cloud where appropriate
- Fin-ops model in place
- CDS in place low to high (with high to low as a stretch goal)
- Enterprise license procurement process and funding model established and used

Linking the single source of truth to production management and data systems

Digital Thread 2.0 Preliminary Definition (1 of 5)

- Digital Governance Council is in place and operating
- Policy site impact analyses are done, DPBPS processes are updated and effective, and LPS site procedures have been updated
  - DE 7 digit specs have been superseded
- S161 and S162 are written and released
- R-docs are modeled and accessible in eRMS and on a web-based dashboard
- Digital Engineering requirements are established and in appropriate document

Linking the single source of truth to production management and data systems

Digital Thread 2.0 Preliminary Definition (1 of 5)

- PEMP objective language strengthened and NNSA incorporate performance objectives specific to leadership elements enabling adoption of DE and use of digital thread
- Established: authority, responsibility, funding, and resources are established for Digital Transformation (DTSSG)
  - The glue at the higher level
- Training path forward is defined, structure implemented, and all users can access

Linking the single source of truth to production management and data systems

Summary

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