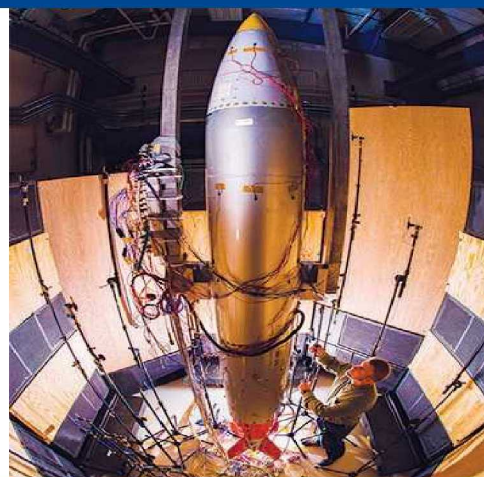




NNSA's Model-Based Enterprise Transition Initiative (MBET-I) Pilots: SNL MBD Program Pilot Brief

Title: SNL MBD Program Pilot
PI: Kevin Campbell and Brian Scott
Site: SNL*
Date: 20200401



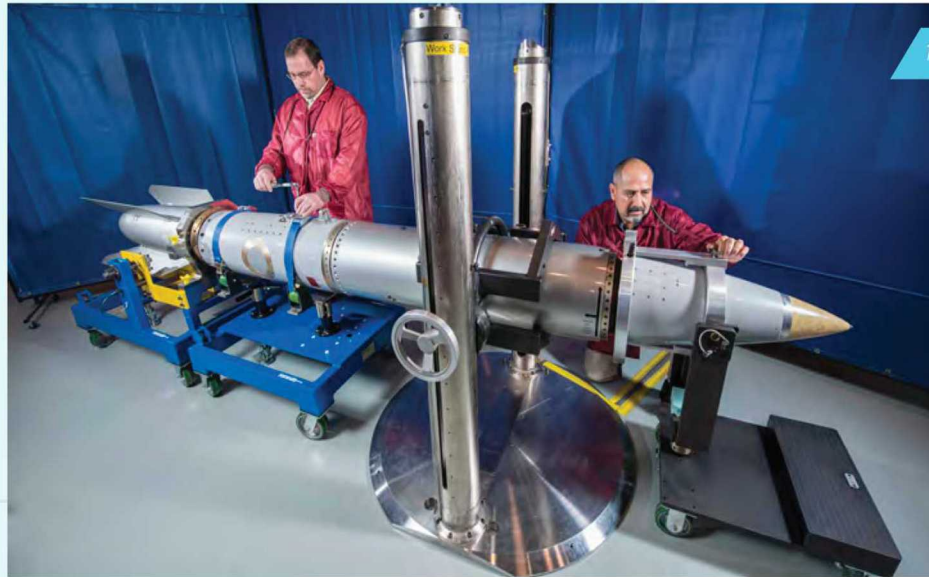
NATIONAL NUCLEAR SECURITY ADMINISTRATION OFFICE OF DEFENSE PROGRAMS



SNL MBD Program Pilot: Sandia Mission with the NSE

Nuclear Weapons Product Realization Lifecycle: System Level Milestones

Version 1.1



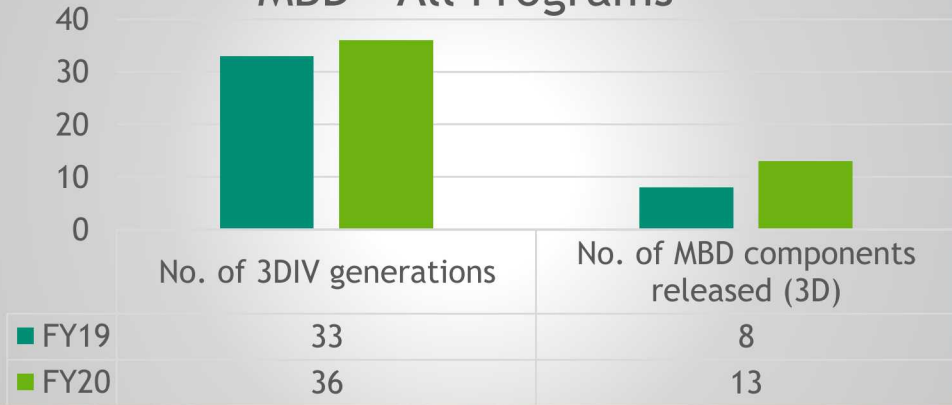
1 Nuclear deterrence

The nation initially assigned Sandia responsibility for stockpile surveillance in 1949, and it still plays a key role in ensuring the safety and reliability of the nuclear arsenal in support of nuclear deterrence. Sandia continually evaluates components, subsystems, and system performance and today is extending the life of nuclear weapons in the nation's stockpile, most of which were initially produced 40 years ago.



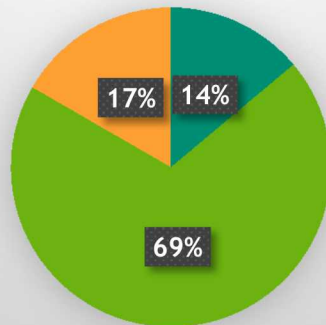
SNL MBD Program Pilot: Metrics

MBD - All Programs



MBD Clients by Program (based on number of artifacts)

■ Prog 1 ■ Prog 2 ■ Prog 3



FY20 MBD by Program

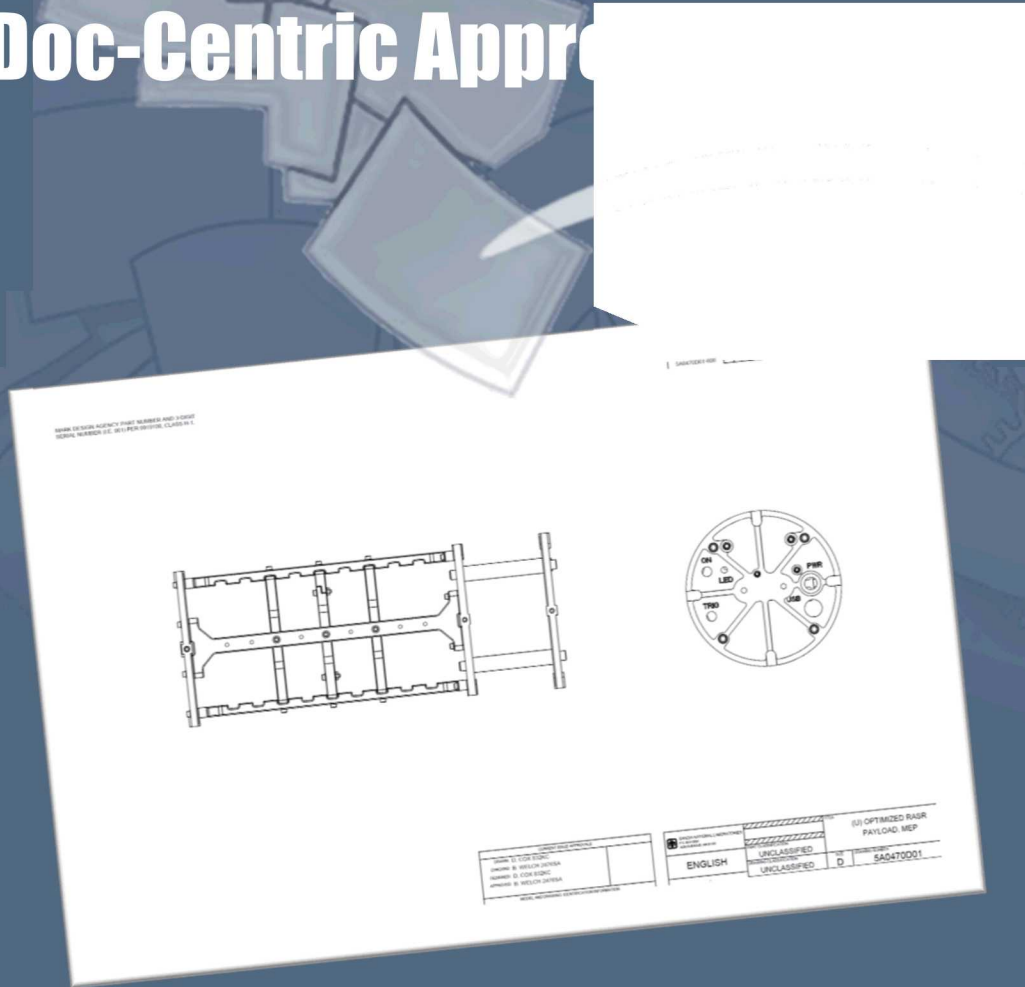
■ No. of released MBD designs ■ No. of generated 3DIVs



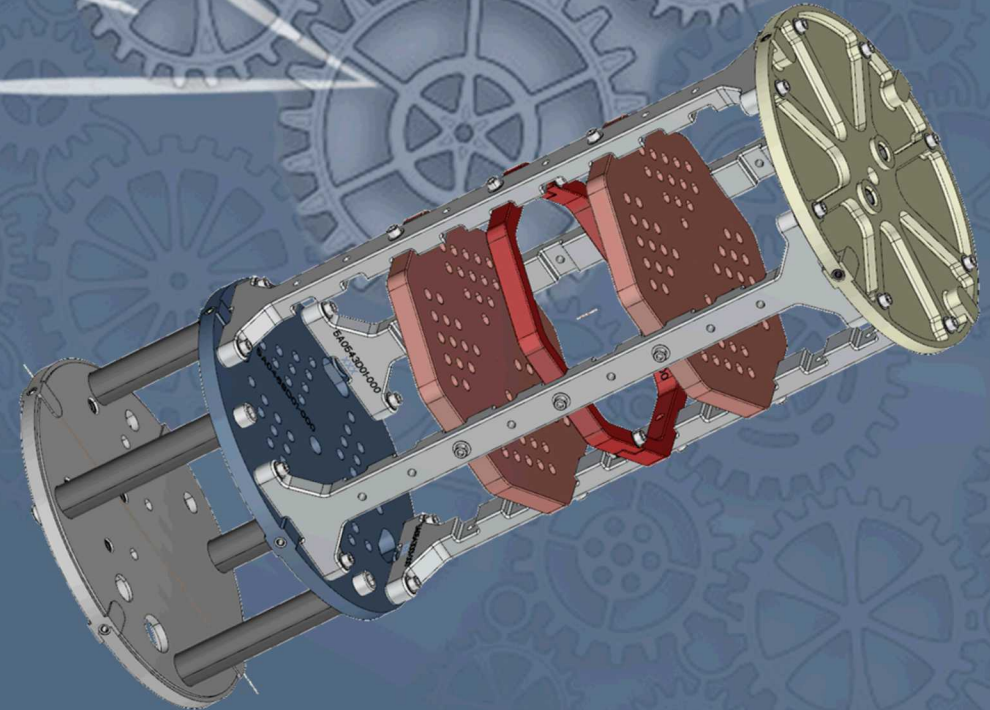


SNL MBD Program Pilot: Document Centric to Part-Centric, Model-Based

Paper-Based (Manual), Doc-Centric Approach



Part-Centric, Model-Based Approach

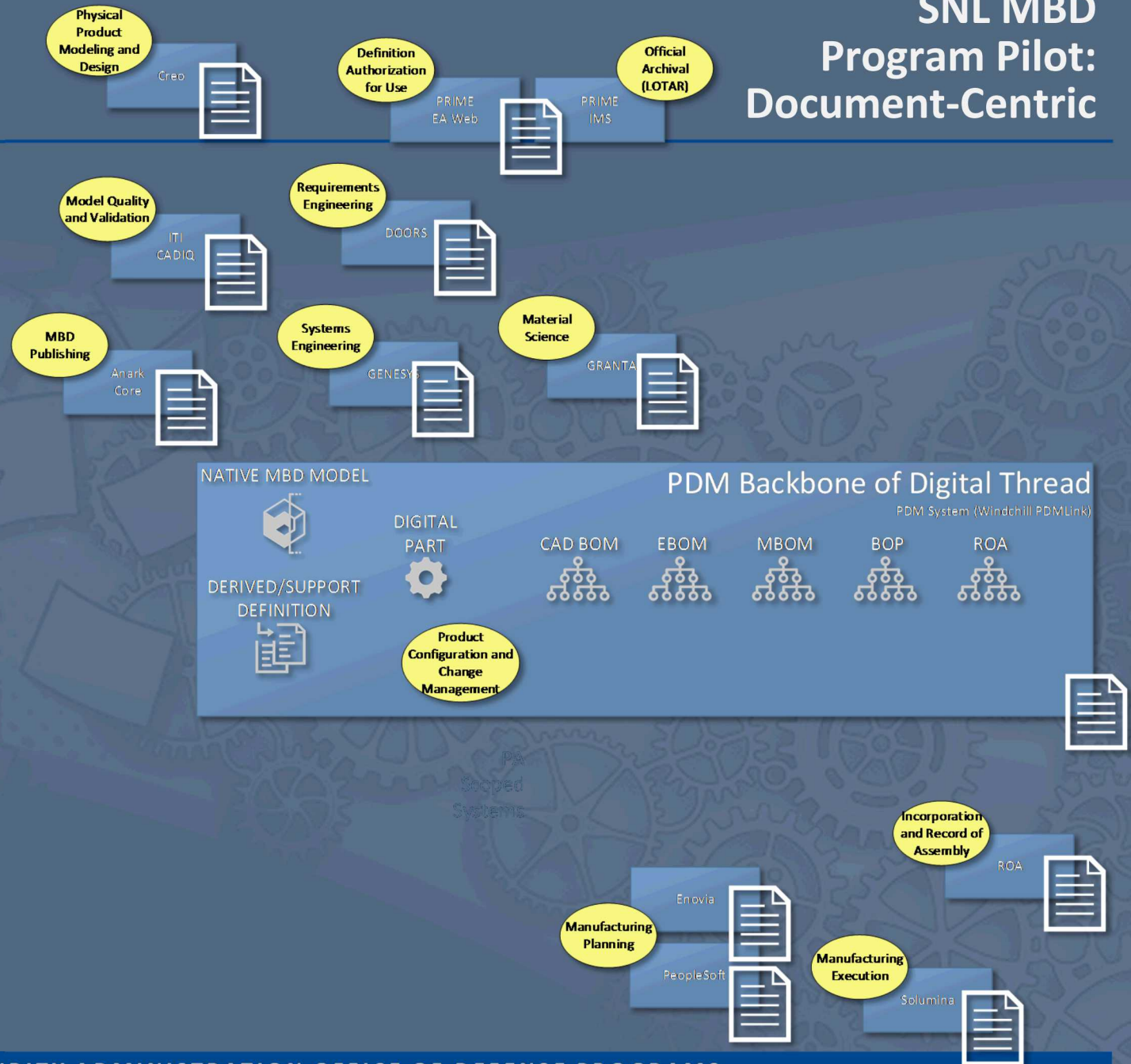




SNL MBD Program Pilot: Document-Centric

What “Document-Centric” and “Manual” means to us (current state):

- Numerous business domains across lifecycle.
- Isolated digital systems per domain which generate formally recognized paper artifacts.
- Manual exchange of paper artifacts between digital systems.



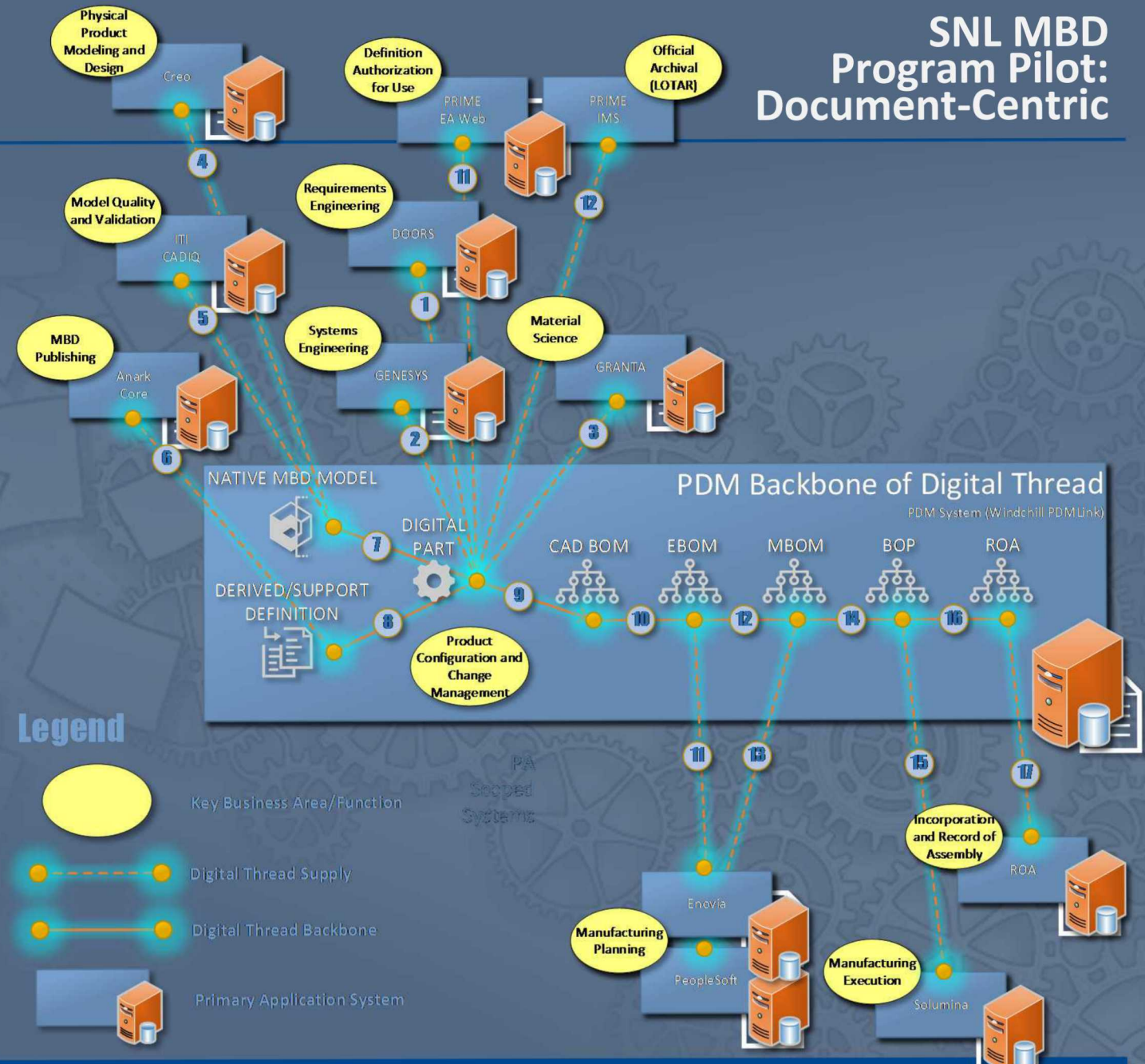


SNL MBD Program Pilot: Document-Centric

What "Part-Centric, Model-Based" means to us (target state):

- Manage and formally acknowledge digital information (let go of paper).
- Drive/derive data from the native model and represent as a digital part.
- Integrate data between systems about the digital part, for automation and interoperability.

Providing necessary infrastructure and processes to the community for the realization of MBE.





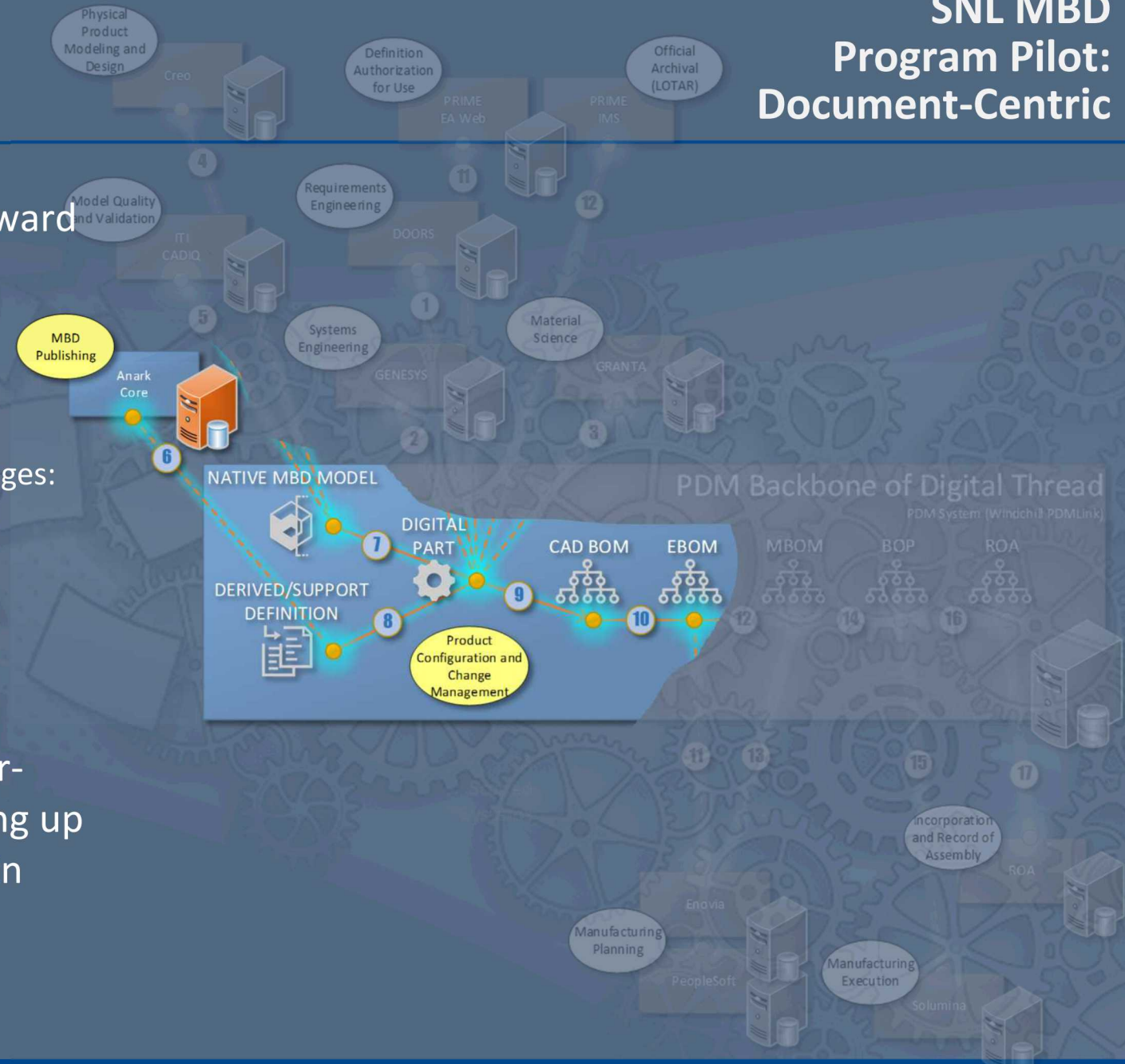
SNL MBD Program Pilot: Document-Centric

What we're currently tackling as steps toward our MBE target state

(SNL MBD Pilot Scope):

- Establishing model-based definition set, standards, and automation:
 - Infrastructure and Digital Thread linkages:
 - Anark Core publishing
 - Windchill Part Management
 - Windchill Product Structure Management
 - Windchill BOM Management

This effort replaces several manual, paper-based steps in our current process, shoring up data integrity, leading to necessary trust in MBD.





SNL MBD Program Pilot: Model-Based Definition Set

Current State - Separately and manually managed definition artifacts:



Target State - Integrally managed definition set with automation:

