Leveraging Teamcenter for Digital Thread

GLOBAL PRODUCT DATA

INTEROPERABILITY

SUMMIT 2025

BOEING ELYSIUM LOCKHEED MARTIN NORTHROP GRUMMAN Parker PDES, Inc.® Connecting the Digital Enterprise

Carolina Gomez Llanos

Presenters Bio

Carolina Gomez Llanos
Northrop Grumman

Tucson, AZ

NoVA

Jun 2021

Northrop Grumman

Systems Engineer INTERN

Disaster Recovery

Disaster recovery

May 2022

University of Arizona

BS: Systems Engineering

Minor: Eng Mgmt

Aug 2022

Northrop Grumman

Systems Engineer - Pathways Rotation Program (#1)

Co-Lead SE on Automation effort for Acceptance Tests of software device

Developed networking solution for capability for automation effort

Delivered solutions/content for DTO Bus Mgmt team for enterprise-wide adoption of new tool

Aug 2023

Northrop Grumman

Software Engineer – Pathways Rotation Program (#2)

Supported front-end of PLM

Improved performance of our team's queue

Developed new process for performance gaps

June 2024

Northrop Grumman + Siemens Training

Software Development Analyst (5-month training)

Completed Siemens 5-month training on software suite

Captured suggested Digital Thread for PLM adoption

Developed comprehensive Data Migration Handbook

Developing and capturing essential team processes

Agenda

- **Introduction**
- **Teamcenter Digital Thread Example (with Demo)**
- **Benefits and Challenges**
- **Conclusion**

Digital Thread

Definition

- “A digital thread is a set of interconnected, cross-discipline model data that seamlessly expedite the controlled interplay of digital artifacts to inform decision makers throughout a system’s life cycle” - INCOSE’s SE Handbook

Data Management

- Connects data, people, and processes in a single source (Teamcenter)

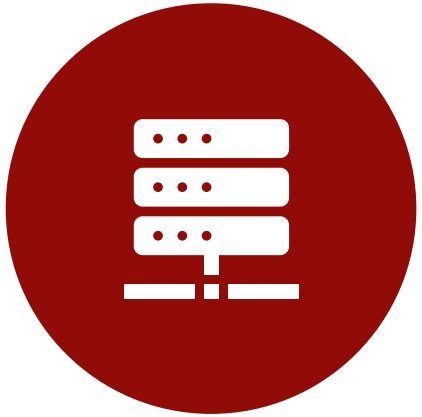
Importance of Digital Thread in PLM

- Traceability
- Accelerates product development and delivery
  - Enables Digital Twin (early validation)

Role of Teamcenter in Digital Thread

SINGLE SOURCE OF TRUTH ACROSS LIFECYCLE

SCALABLE COLLABORATION



CENTRAL BACKBONE OF PLM

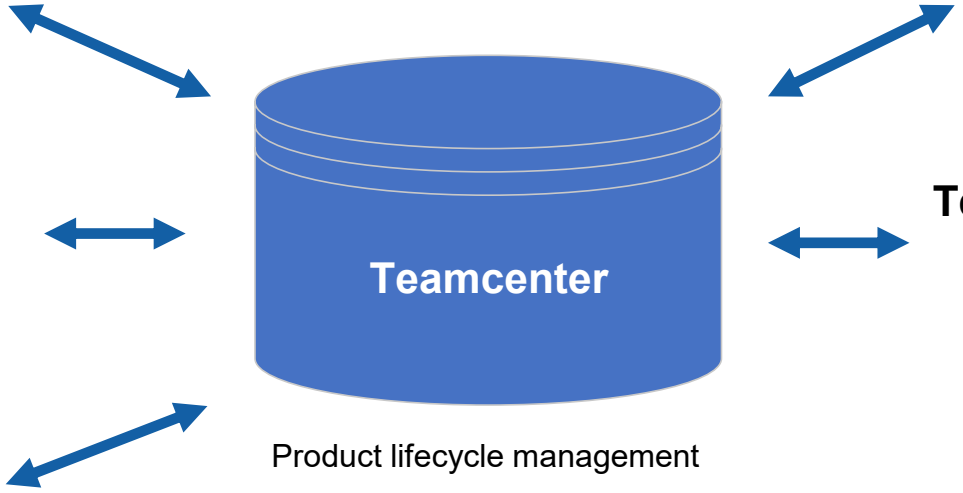
Teamcenter Tool Interoperability

Examples

NX
Mechanical design for product development

Simcenter
Multidisciplinary simulation and testing

Capital
E/E systems development

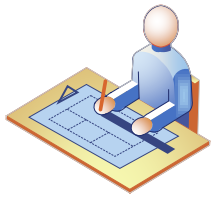


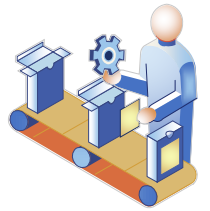
Product lifecycle management

Easy Plan
Manufacturing operation management

Tecnomatix/Process Simulate
Manufacturing operation management

Simple Digital Thread Example





Design Engineering	Electrical Engineering	Manufacturing	Production

Design
- Detailed Design
- Simulation
	Electrical Design
	- Harness Design
	- Routing
		Manufacturing Planning
		- EBOM/MBOM/etc.
		- Production Planning
		  - BOE Authoring
		  - Process Planning
		  - High Level Planning
		  - EWIs
			Production Simulation
			- Plant Floor Simulation
			- Ergonomics Reporting

NX, Simcenter	**Capital**	**Easy Plan**	**Process Sim**

Demonstrations

Mechanical Design

1

NX
Mechanical design for product development

Simcenter
Multidisciplinary simulation and testing

Capital
E/E systems development

Teamcenter
Product lifecycle management

Manufacturing Process

2

Easy Plan
Manufacturing operation management

Process Sim (Tecnomatix)
Manufacturing operation management

Teamcenter
Product lifecycle management

Demonstration Video

Benefits and Challenges of Using Teamcenter for Digital Thread

Benefits

- Collaboration across Domains
- Traceability Across Lifecycle
- Enhanced Product Quality

Challenges

- Maintaining PLM
- Integrations
- Customization vs Standardization

Benefits and Challenges of Using Teamcenter for Digital Thread

Benefits

- Breaks down silos between domains
- Stores and connects data across various domains
- Track changes
- Early validation

Challenges

- Supporting large user base
  - Fixing issues created by users
- Rolling out patches, upgrades, etc.
- Can have complex data mapping (aligning Teamcenter data with external systems)
- Teams may require more than an out-of-the-box solution where customization may be needed

Conclusion

Enables Digital Continuity Across the Enterprise

Supports Diverse Tools

Critical to Digital Transformation

Thank You!

Contact

Carolina Gomez Llanos

Software Development Analyst | NGC

Email: carolina.gomezllanos@ngc.com