

Supporting Army readiness through a robust digital additive manufacturing supply chain



Digital Thread Webinar

Joe Veranese

CIO

joe.veranese@ncdmm.org

Poll Question: How familiar are you with the concept of digital thread?

What is AMNOW?

Objective:

Develop and demonstrate a prototype AM digital supply chain system that enables bi-directional, secure digital transfer of contracting documents, TDPs and manufacturing process information between Govt agencies, DoD OEMs and industrial base manufacturers.

Benefits:

- Prototype digital AM supply chain linking Army needs to the industrial base
- Demonstration of a highly secure, open standard based system and non-proprietary architecture implementing a critical segment of the Digital Thread
- Validation projects exercise the supply chain and digital prototype as well as develop AM processes and ATDPs for Army parts

Tangible Benefits

- *A window into the regional supply chain*
- *Ability to interrogate supply chain to rapidly identify gaps in capabilities within a region*
- *System identifies capable suppliers based on AMNOW package information (Material, Process, Size.....)*
- *Allows suppliers to suggest design, material, process or other innovative solutions*
- *Once manufacturing processes are defined associated KPI's automatically become digital deliverables*
- *Army receives parts and in parallel receive a digital record that the build went according to spec*
- *By default supply chain becomes more capable and resilient*

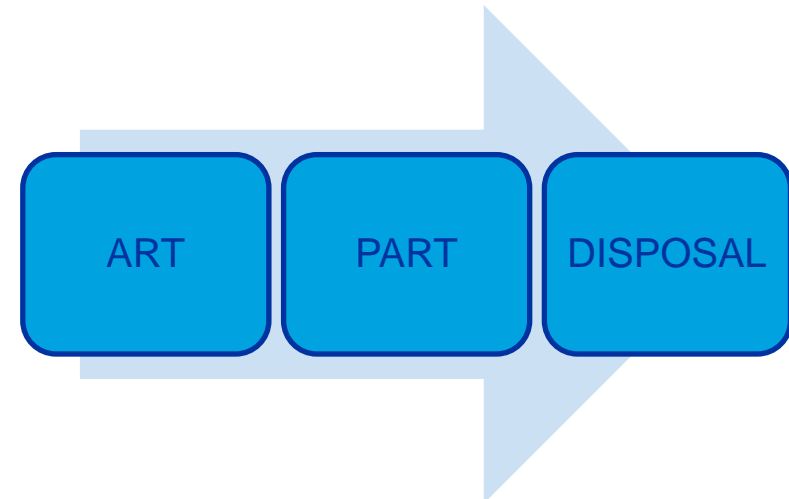
What is the Digital Thread?

Definition:

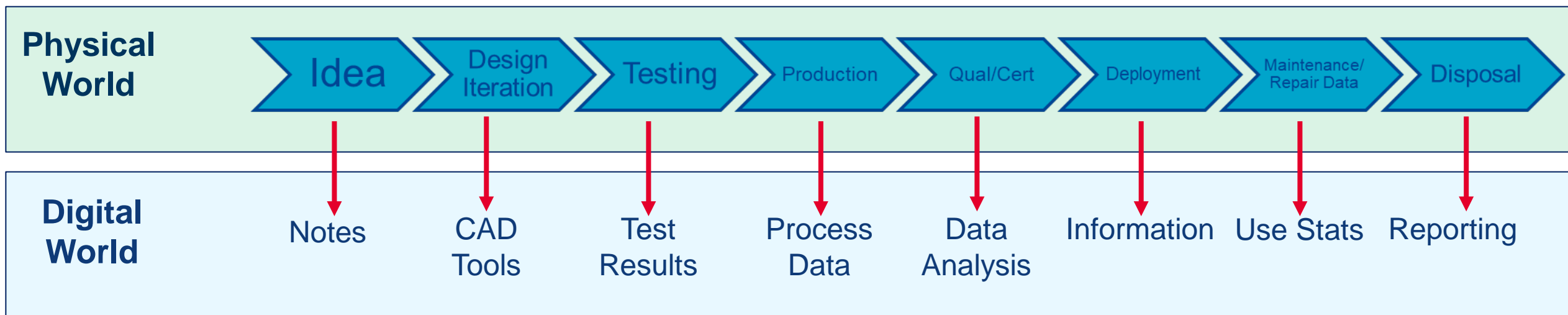
The digital thread refers to the communication framework that allows a connected data flow and integrated view of the asset's data throughout its lifecycle across traditionally siloed functional perspectives.

Huh?

A digital representation of all data surrounding a thing from....



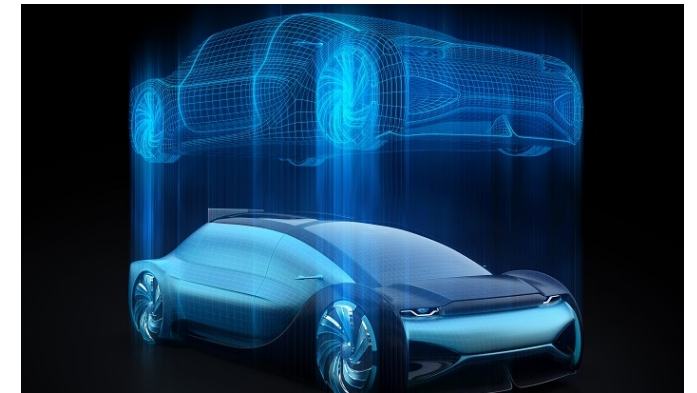
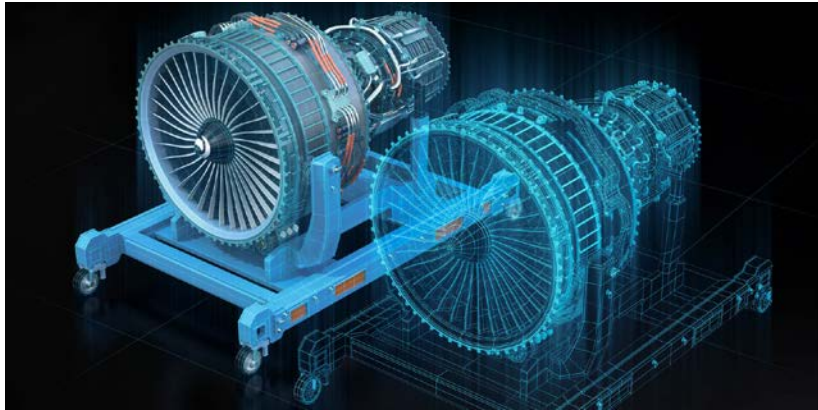
Digital World data mirrors the Physical World data



Where does the Digital Twin fit in the digital thread?

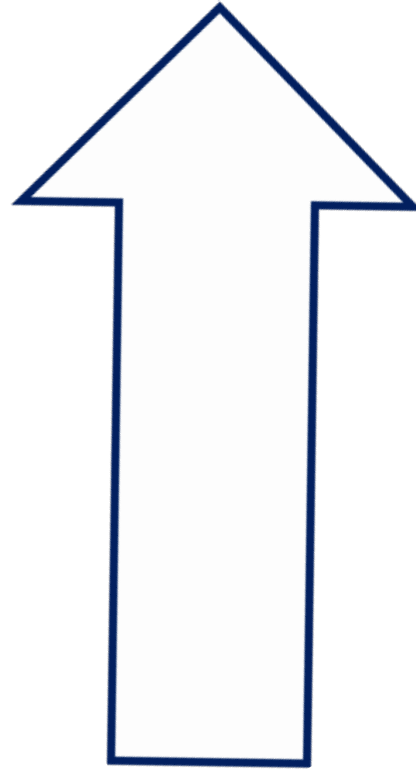
Definition:

Digital twin refers to a digital replica of potential and actual physical assets, processes, people, places, systems and devices that can be used for various purposes.



This pairing of the virtual and physical worlds allows analysis of data and monitoring of systems to head off problems before they even occur, prevent downtime, develop new opportunities and even plan for the future by using simulations.

Benefits of using the Digital Thread



**Understanding
of Your Business
Processes**



“No model is perfect,
but some are useful”

Poll Question: Do you feel the digital thread is important to your organizations continued growth and success?

Where does AMNOW fit in the Digital Thread?

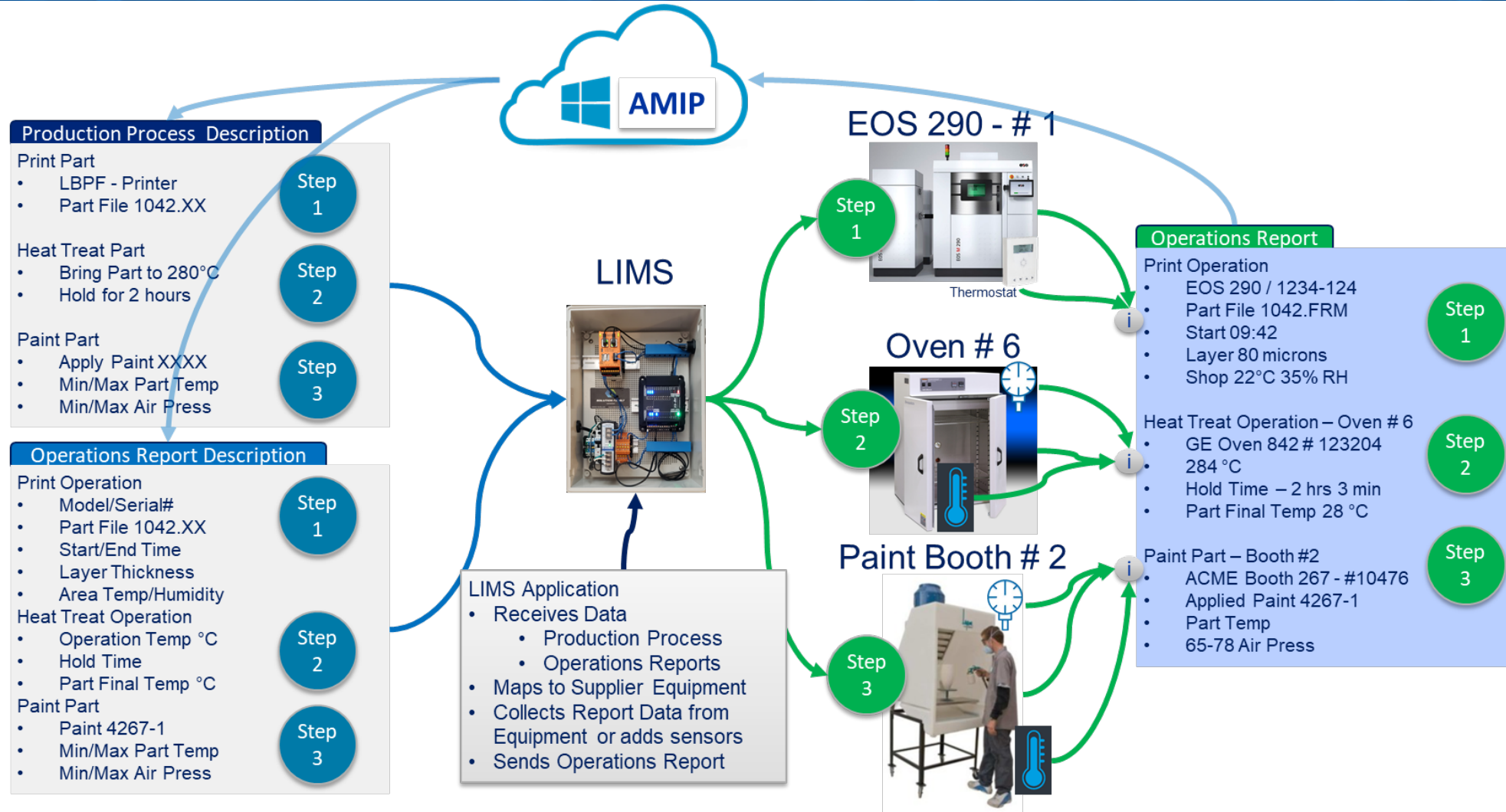


AMIP

Advanced Manufacturing Intelligence Platform

- Cloud Based
- Open Source
- Interactive Platform
- Intuitive
- Web Page Interface
- Open Communication

How are we doing it? “Secure Digital Platform”



What makes the Edge Device Cyber Secure?

- Minimal attack surface
 - 1 port open for communication
- Edge device is called from the AMIP secure cloud environment only
- Communication is done through the highest level of cryptographic handshakes under TLS 1.2
- Edge device only has access to communicate with a cloud “Secure Zone”
- Edge Device approved for use within the Defense Research Network

AMNOW project participation demonstrates a cybersecure method of transferring technical information and manufacturing process data to the Digital Thread for the Army.

This is completed by using restricted communication channels, PCI level encryption, and tokenization. Additionally, AMIP only moves data when the user approves it to be moved. The end user has full control to inspect and edit the data elements prior to submittal.

For additional information related to the security architecture of the AMIP platform please contact joe.veranese@ncdmm.org

Questions

Joe Veranese, CIO
joe.veranese@ncdmm.org