ptc

LIVEWORX

A NEW ERA IN PRODUCT LIFECYCLE INNOVATION

SESSION ID: PL1333B

# THE UNITED STATES MARINE CORPS' DIGITAL MANUFACTURING DATA VAULT: ADDITIVE MANUFACTURING FROM FACTORY TO THE FOB


SPEAKER(s): **Cici Sobin**
Senior Consultant, Deloitte Consulting LLP

**Gian Villegas**
Manager, Sabel Systems

**Kahlil Natirboff**
Principal Solutions Consultant, PTC


May 17, 2023

# OUR TEAM

Deloitte provides audit and assurance, tax, consulting, and risk and financial advisory services to a broad cross-section of corporations and governmental agencies.

Deloitte supports the USMC in design, strategy, and implementation of their Digital Thread for Additive Manufacturing.

Sabel Systems Technology Solutions, LLC (Sabel) is a people, process, and technology consultancy that provides innovative solutions to organizational challenges and needs.

Sabel performs the role of Systems Integrator for the USMC Advanced Manufacturing Digital Data Repository.

PTC's 30-year heritage of digital innovation and investments in emerging technologies keep our customers ready for the next disruption, while giving them the power to create a better world for their own customers and employees today.

PTC's PLM delivered as FedRamp Software-As-a-Service to the USMC provides the foundation for their Digital Manufacturing Data Vault.

# BACKGROUND

Cici Sobin

# DMDV & ADVANCED MANUFACTURING (AM) VALUE

The DMDV enables and expands Advanced Manufacturing (AM) value while reducing risk

The USMC has determined that “AM implementation requires the user to develop, store, analyze, and transmit protected Technical Data Packages (TDPs). This information is known as the "digital thread". This requires infrastructure such as three dimensional (3D)-scanners, high-performance computers, and storage; production software for Computer Aided Design (CAD), 3D scanning software, and other design software; storage and transmission infrastructure to protect and distribute design files securely.” – MCO 4700.4 1-5

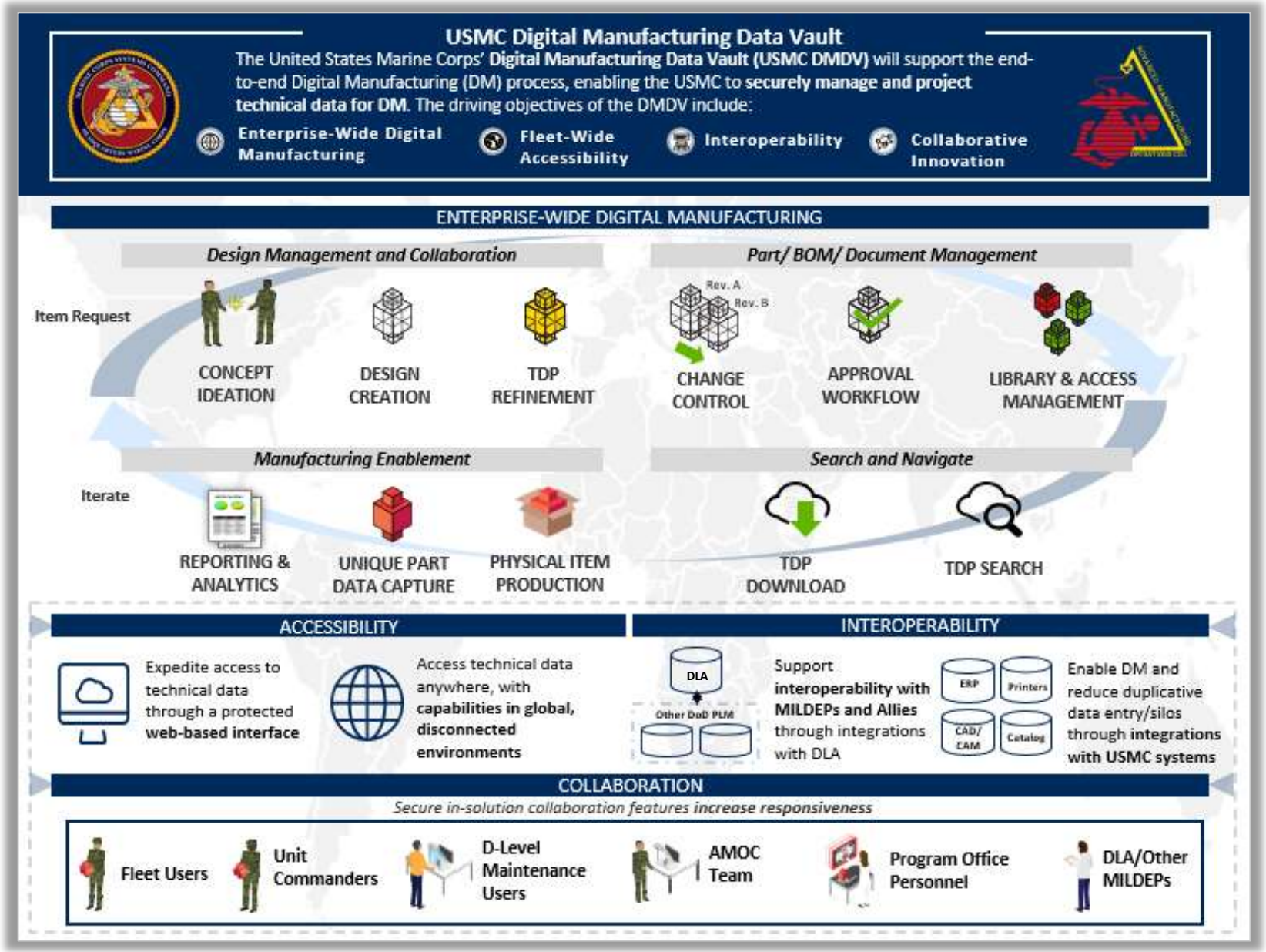
## ADVANCED MANUFACTURING & DMDV VALUE DRIVERS

| | | |
|---|---|---|
| PRIMARY | **Readiness & Impact to Mission** | • Reduces lead time on hard to source / no source items<br>• Provides alternative sources of supply<br>• Improves repair cycles to increase asset availability<br>• Enables Joint operations via sharing of designs and capabilities across services<br>• Addresses Diminishing Manufacturing Sources and Material Shortages (DMSMS) issues |
| | **Sustainment Cost Avoidance** | • Transportation Costs<br>• Costs associated with excess quantities (need 1, only sold in 5s) and next level assembly (need part A only, must buy assembly A instead) |
| SECONDARY | **Innovation & Acquisition Impacts** | • Enables “home grown” innovation and iteration vs. long development and acquisition cycles<br>• Informs enduring requirements through prototyping and experimentation |
| | **Reduce Duplication & Cycle Time** | • Avoids data proliferation and multiple designs (and associated work) for similar/ same parts<br>• Captures efficiencies from data management standardization<br>• Shortens the design-to-production cycle |
| | **Balance Risk & Responsiveness** | • Provides reach back to subject matter experts<br>• Structured approval process |

# DMDV MISSION

The **Digital Manufacturing Data Vault (DMDV)** will be the Marine Corps' digital thread, **providing enterprise-wide end-to-end product lifecycle capabilities** to support day-to-day operations.

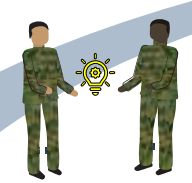
The DMDV will enable the Marines to achieve increased **readiness** and **battlefield innovation** by amplifying current AM capabilities while reducing risks to data integrity and security



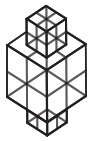
# ENTERPRISE-WIDE DIGITAL MANUFACTURING CAPABILITIES

Item Request

## *Design Management and Collaboration*



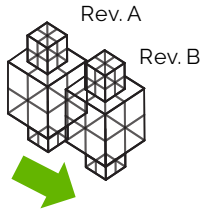
CONCEPT IDEATION



DESIGN CREATION

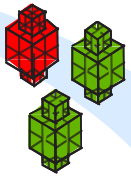
TDP REFINEMENT

## *Part/ BOM/ Document Management*




CHANGE CONTROL

APPROVAL WORKFLOW

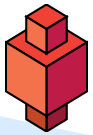


LIBRARY & ACCESS MANAGEMENT

Iterate

## *Manufacturing Enablement*

REPORTING & ANALYTICS



UNIQUE PART DATA CAPTURE

PHYSICAL ITEM PRODUCTION

## *Search and Navigate*

TDP DOWNLOAD

TDP SEARCH

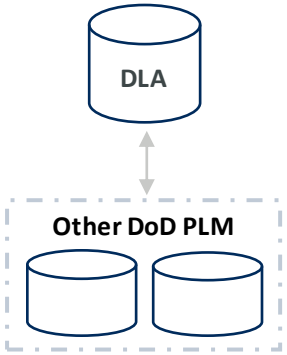
# ACCESSIBILITY, INTEROPERABILITY, & COLLABORATION

## ACCESSIBILITY

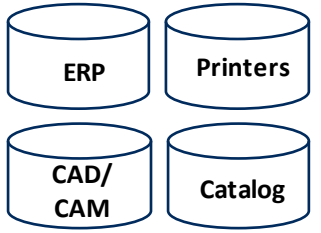
Expedite access to technical data through a protected **web-based interface**

Access technical data anywhere, with **capabilities in global, disconnected environments**

## INTEROPERABILITY




Support **interoperability with MILDEPs and Allies** through integrations with DLA




Enable DM and reduce duplicative data entry/silos through **integrations with USMC systems**

## COLLABORATION

*Secure in-solution collaboration features **increase responsiveness***

**Fleet Users**

**Unit Commanders**

**D-Level Maintenance Users**

**AMOC Team**

**Program Office Personnel**

**DLA/Other MILDEPs**

# PTC PRODUCTS PART OF DMDV

- Windchill PLM
  - PTC FedRAMP Cloud-Hosted
  - Multi-Organization Installation
  - Workgroup Manager Integration with Solidworks
- ThingWorx Navigate
  - Rebranded to MCWorx
  - Custom Mashups
  - Custom API Development

- Creo Parametric
  - Creo Engineer III
  - Generative Topology Optimization (GTO)
  - Creo Simulation Live
  - Creo Ansys Simulation

# SOLUTION DEMONSTRATIONS

Gian Villegas

# Additive Manufacturing Repository Demonstration

# Digital Engineering & Design for Additive Manufacturing Demonstration

# CONCLUSION

Kahlil Natirboff

# QUESTIONS?

**Kahlil Natirboff**
knatirboff@ptc.com

**Cici Sobin**
csobin@deloitte.com

**Gian Villegas**
Gian.Villegas@sabelsystems.com

Visit Us in the FA&D Pavilion!


## Please fill out the session survey.

Take your post-session survey(s) either in the event mobile app or via email post-event.

Your feedback provides us with valuable information on how to shape future content strategy for the event!

# PROVIDE SESSION FEEDBACK

ptc

LIVEWORX

A NEW ERA IN PRODUCT LIFECYCLE INNOVATION

# THANK YOU

LIVEWORX.COM | **#LIVEWORX**

ptc.com