2023 DAYTON DIGITAL TRANSFORMATION SUMMIT

May 10 - 12, 2023 | Sinclair College

Advancing the Future of Digital Transformation

About
The Dayton Digital Transformation Summit is a three-day event on Digital Transformation to educate and align the Dayton Region and interested parties (both locally and nationally) to support the USAF Digital Transformation. The summit is interspersed with intentional discussion breaks to drive broader communication, collaboration, and networking.

Goals
- Baseline all interested parties and stakeholders on Air Force needs to advance its Digital Transformation journey.
- Increase awareness and educate local government, industry, and academia representatives on ongoing efforts in the Dayton region related to Digital Transformation.
- Facilitate improved collaboration across Air Force, industry, and academia.

Thank you to:

Our Planning Partners

DTO — Digital Transformation Office

SINCLAIR COLLEGE

ddc | dayton development coalition

University of Dayton Research Institute

galois

ARCTOS — Applied R&D for Enduring Advantage

TENET3

AFIT — Air Force Institute of Technology

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AGENDA

May 10: A Discussion on Digital Transformation
Frederick Smith Auditorium

0800-0900 **Arrival/ Check-in**

0900-0910 Dr. Steve Johnson, President, Sinclair College, Welcome

0910-0920 Dr. Sukh Sidhu, UDRI Welcome

0920-0930 Ms. Elaine Bryant, DDC Welcome / Mr. Joe Zeis Introduction

0930-1000 Mr. Joe Zeis, Senior Advisor for Aerospace and Defense to Ohio Governor Mike DeWine

1000-1040 Dr. Steve Turek, DTO, Digital Materiel Management Overview

1040-1120 **Keynote: "AFRL Digital Capabilities Directorate"**
Mr. David Shahady, DCD Deputy Director, AFRL

1120-1300 **Lunch and Networking Break**

1300-1340 **Keynote: "Industry 5.0: The Interaction & Collaboration Between Human and Machine – Transitioning to Digital Engineering"**
Dr. Melinda Laubach-Hock, NIAR

1340-1500 **Panel 1**
Moderator- Dr. Pam Kobryn, AFRL: Digital Materiel Management
- Structures: Mr. Shawn Ehrstein, NIAR; Dr. John Matlik, Rolls-Royce
- Cyber-Physical Systems: Dr. Derek Doran, Tenet3; Dr. Kuan Collins, Axient; Mr. Johnathan Rohde, IS4S
- Training Systems: Mr. Corey Shanahan, AFLCMC/RO; Mr. Drew Spaulding, AFLCMC/WNS

1500-1520 **Discussion and Networking Break**

1520-1630 **Panel 2**
Moderator- Dr. Steve Turek, DTO: Chief Engineer Round Table – Discussion of Challenges & Opportunities with Digital Transformation.
- Mr. Joseph Harber, AFLMC/XAC
- Mr. David Diaz, HQAFMC/EN/ENZ
- Mr. Sean Mack, AFLCMC/WII
- Mr. Oren Edwards, AFLCMC/WII

1630-1720 **Panel 3**
Moderator- Mr. Aaron Miller, Galois: Academic Research Panel
- Lt.Col. (Dr.) Amy Cox, AFIT
- Dr. Michael Miller, AFIT
- Mr. Michael Vinarcik, University of Detroit Mercy
- Dr. John Franco, University of Cincinnati

1720-1730 Closing Comments – Dr. Steve Turek, DTO

1730-1900 **Reception in the Great Hall**

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May 11: Digital Materiel Management Use Cases
Frederick Smith Auditorium

0800-0820 **Arrival/ Check-in**

0820-0830 Dr. Rollie Dutton, ARCTOS, Introduction

0830-0920 **Keynote: "Digital Literacy for the Engineer of the Future"**
Mr. Rick Arthur, Senior Principal Engineer, Digital Technology, GE Research, Niskayuna, NY

0920-0950 "AIAA Digital Engineering Integration Committee Update", AIAA Digital Engineering Integration Committee representatives: Dr. John Matlik, Engineering Digital Transformation Lead, Rolls-Royce Defense & Dr. Olivia Pinon Fischer, Chief, Digital Engineering Division, Georgia Tech

0950-1020 **Networking and Discussion Break**

1020-1100 **Keynote: "Digital Thread Overview"**
Dr. Olivia Pinon Fischer, Chief, Digital Engineering Division, Georgia Tech

1100-1150 "Digital Transformation Center and onMain Updates" – Mr. David Dunn, UDRI and Mr. Buddy LaChance, onMain

1150-1250 **Lunch and Networking Break**

1250-1330 **Keynote: - "Base of the Future"**
Col. Chris Meeker, 88ABW/CC

1330-1500 **Panel 4**
Moderator Dr. John Matlik, Rolls-Royce: Digital Workforce Development Best Practices
• Dr. Olivia Pinon Fischer, Georgia Tech – Grand Challenge
• Dr. Gokcin Cinar, University of Michigan – MBSE Lab
• Dr. Marianna Maiaru, University of Massachusetts Lowell – ICME Award
• Dr. H Alicia Kim, University of California, San Diego – Multi-Disciplinary Optimization
• Ms. Lori Baukus, ARCTOS – Education at the Speed of Industry: How Community Colleges Train an Advanced Technology Workforce for Small & Medium Manufacturers
• Ms. Elizabeth Generas, Sinclair Community College – Digital Thread for Supply Chain

1500-1530 **Networking and Discussion Break**

1530-1610 **Keynote: "Digital Twins in Wargames"**
Maj. Gen. (ret.) Tim Zadalis

1610-1650 **Keynote: "JADC2 in a Contested Logistics Environment – The Role of Digital Twins"**
Dr. Olivia Pinon Fischer, Chief, Digital Engineering Division, Georgia Tech

1650-1700 Closing Comments – Dr. Rollie Dutton, ARCTOS

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May 12: Digital Integration & Innovation Center of Excellence (DIICE)
Charity Earley Auditorium

0800-0815 Ms. Elaine Bryant, DDC, Welcome

0815-0845 **Keynote: "AFIT Digital Integration & Innovation Center of Excellence Overview"**
Col. Jason Anderson, AFIT

"Digital Engineering Research Efforts"

0845-0930 Dr. Dave Jacques, AFIT
"The Use of Reference Architectures in Support of Concept Evaluation and Rapid Prototyping"
Reference Architectures (RAs) are typically associated with a domain of application or a division of a larger organization. Within the DoD, they are defined as an authoritative source of information about a specific subject area that guides and constrains the instantiations of multiple architectures and solutions. They are intended to provide a common language for the various stakeholders, promote consistency of implementation of technology, support validation of solutions against proven architectures, and encourage adherence to common standards, specifications, and patterns. Over the past several years, AFIT has developed several RAs to support design, build and test programs within the Small UAS and CubeSAT domains. These RAs are being used to both educate students as well as support verification, validation, and rapid prototyping of concepts within those domains. This talk will highlight the structure and content of those RAs and describe recent applications of their use. Also highlighted will be a recent demonstration of how an RA can be used to facilitate verification against a published standard.

0930-1015 Lt. Col. (Dr.) Jeremy Geiger, USAF and Capt. Patrick Assef, USAF
"Adoption of Model-Based Systems Engineering in Traditional DoD Systems"
The transition to digital engineering has become a major objective within the Department of Defense (DoD). One such method is Model-Based Systems Engineering (MBSE), or the use of models to facilitate systems engineering. Most new DoD programs are being built from the ground up using MBSE. However, the question of whether MBSE should be incorporated into existing systems still lingers. Little research currently exists on the efforts required to transition existing systems to MBSE. In this talk, we measure the effort required to transition an existing system of systems (SoS), which primarily relied on document-centric methods, to MBSE. Time efforts were measured to develop the model for the SoS, as well as the subsystems and components it contains. Additionally, existing MBSE resources that are part of the cost of transitioning to MBSE were also compiled. This research is intended to serve as a guide for program managers throughout the DoD to roughly estimate the time and costs they will incur to transition their programs to MBSE.

1015-1030 **Break**

1030-1115 Dr. Scott Nykl, AFIT
"Using 3D Digital Twins for Computer Vision Research and Cyber Education"
Dr. Scott Nykl will brief on a series of research topics that leverage 3D Virtual Worlds & Digital Twins. From autonomous station keeping between aircraft using real-time vision sensors, to offensive and defensive Cyber simulation, AFIT is using Digital Twins in the form of 3D virtual worlds to conduct research and educate graduate students.

1115-1125 Mr. Robert Fookes Introduction – Ms. Elaine Bryant, DDC

1125-1215 **Keynote**: Mr. Robert Fookes, AFMC/EN

1215-1230 **Break to pick-up box lunches**

1230-1300 Ms. Arliss Aleman, Deputy Chief Modeling and Simulation Officer, DAF Chief Modeling and Simulation Office