Digital Twin Consortium
an EDM Association Community

Digital Twins in AECO

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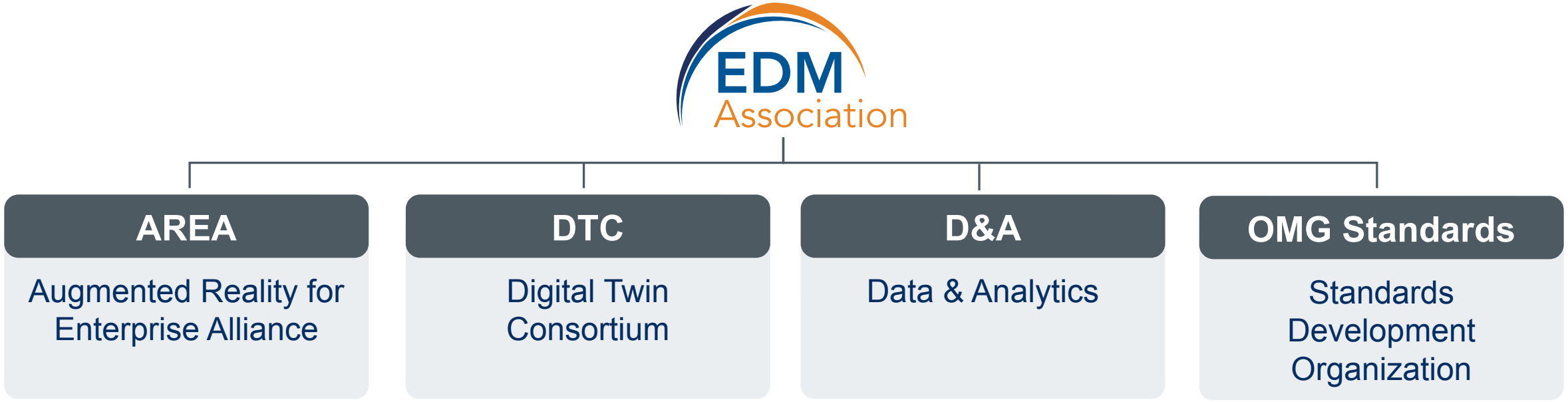
digitaltwinconsortium.org

EDMA Collaboration Opportunities



The EDM Association is a combination of 4 consortia

- Each consortium is joined separately with associated membership levels and benefits
- Each consortium membership includes qualified access to tools and resources across all EDM Association consortia

EDM Association Value & ROI Highlights

	EDM Association			
	Data & Analytics	digital twin CONSORTIUM	AREA	OMG Standards Development Organization
Community Forums, Consortia & Networking	• AI, Data Products • Regulatory • Risk • Regions	• Digital Engineering • Virtual Product Development • Systems Optimization • Regions	• AI Joint Working Group • Human Factors • Safety • Regions	• Platform • Domain • DDS, CISQ • Regions
Innovation Solutions & Test Beds	• Data Products • Data Excellence Program • Data Asset Foundations	• Test Beds • Platform Stack Framework • Technology Showcase	• AR Ecosystem Framework • AR Security Frameworks • AR Safety Frameworks	• OMG Standards • ISO Fast Track • Technical Meetings
Best Practices Frameworks, Standards & Industry Initiatives	• DCAM • CDMC • FIBO	• AI Agent Periodic Table • Digital Twin Periodic Table • Glossary of Digital Twins	• Augmented Reality Glossary • Requirements Tool • Best Practice Safety Playbook	• SysML2 • BPMN2 • UML2
Resources Training, Tools, Research & SMEs	• SMEs • Training & Certifications • White Papers • Marketing Opportunities	• SMEs • Test Bed Use Cases • White Papers • Marketing Opportunities	• SMEs • Global Research • Use Cases • Marketing Opportunities	• SMEs • Certifications • Partner Program • Marketing Opportunities

200+ Members and Growing

Researchers | Technology Providers | Academia | Government | Digital Twin Users

Steering Committee Members

XL Industry Members

The Digital Twin Testbed Ecosystem: Portfolio of Innovation

COGNOS-X
XMPro

NEGOTIATE
NEC

MANDATE-R2R
KIMM

Q-Pod
BQP

SAFESME
HS Soft

Beyond Automation
Dassault Systèmes

Digital Manufacturing for Flaw-free Metals
Rowan University

TWINSENSE
Aingura IIoT

COMPOSE
NTT

Geothermal Digital Twin Deployment No-Code Platform
Decimetrix

Nexus
Crysp

Q-SMART

WINNIO

TRANFORM
EDX Technologies

FAB
DRG Tech Solutions

STELLAR
Stellar Transformer Technologies

Giants of Oak Ridge
Oak Ridge High School

AEGIS
Performance Learning

ENGAGE
Austin Community College

Axomem Axelle Gen AI Extension for Healthcare
AXOMEM

SYNTHEKID
Health Innovation Yorkshire & Humber

CAMPUS-SAFE
George Mason University

AECO Related Example Applications

Nexus Leeds

- University of Leeds innovation centre
- 80+ companies' resident as tenants
- Extensive conference facilities
- Building opened in 2019
- First of 100+ testbed campus buildings

www.crysp.co.uk

New Jersey is uniquely positioned for aviation innovation

The State enjoys an unparalleled concentration of aviation infrastructure, research capability, and test assets.

Core assets in the Aviation District

- Atlantic City International Airport (ACY) designated Smart Airport Testbed
- FAA William J. Hughes Technical Cente the nation's premier federal aviation R& facility
- National Aerospace Research & Techno Park (NARTP) — 58-acre aviation rese park and home to NJEDA's only aviatio Strategic Innovation Center
- Cape-Atlantic Uncrewed Aerial System (UAS) Test Range — FAA-authorized platform for UAS research, developmer flight testing
- Joint Base McGuire-Dix-Lakehurst (JBM – Air Force Air Mobility Command 87th A Base Wing

NARTP
NATIONAL AEROSPACE
RESEARCH & TECHNOLOGY PARK

Mission Statement

"...to provide leadership in the advancement of aerospace technologies by creating an ecosystem of industry, academic, and governmental partnerships to foster innovation, collaboration and sustainable economic growth."

FROM RESEARCH TO REALITY

EDM Association

ADDING VALUE TO THE CUSTOMER. SUCCESS CASE

Condition Monitoring - Infrastructure

ENHANCING INFRASTRUCTURE MAINTENANCE EFFICIENCY

Client

Northeast state (USA) that manages 5000 bridges

Challenge

Challenges in bridge structural health monitoring inc
detection, prioritizing maintenance to reduce risks ar
subjective criteria-based auscultation visits. Address
requires advanced monitoring systems for automate
efficient maintenance prioritization, and objective co

Solution

- ML-based KPI (Health Index) enables continuou
  dynamics and detects structural anomalies (30%
  Europe).
- Aingura Edge Node installation included in the s
- Adjusts remaining life curve without exact theore
  considering bridge's original state.
- System learns from similar bridges (Transfer Lea
- Objective maintenance prioritization based on re
  degradation.

Advantages provided

- Cost reduction: Achieve 25% lower maintenance
- Efficiency improvement: Reduce inspector visits

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ADDING VALUE TO THE CUSTOMER. SUCCESS CASE

Condition Monitoring - Infrastructure

FEDERATED AND INTELLIGENT PREDICTIVE MAINTENANCE OF RAILWAY CROSSINGS

Client

ADIF (Spanish Administrator of Railway Infrastructure)

Challenge

Challenges in railway crossing maintenance include regular inspections, stakeholder coordination, infrastructure upgrades, compliance, environmental exposure, and wear. Adopting advanced technologies for predictive maintenance and automation poses implementation and integration challenges. Overcoming these is crucial for safe and reliable railway crossing operations.

Solution

- Innovative self-learning system for railway crossings with decentralized architectures, providing real-time information.
- Continuous evaluation and predictive maintenance of railway crossings and ultrasonic inspection using federated IoT monitoring and machine learning.
- Advanced ML technology for precise detection and identification of railway crossing failures in multi-sensor environments.
- Scalable and flexible decentralized architecture for efficient data processing.
- Real-time updates for proactive maintenance strategies using Edge-based machine learning algorithms.
- Comprehensive data collection through Federated IoT monitoring for ML-based insights.
- Proven results: Reduced maintenance costs, improved safety, optimized training needs.
- Innovative IIoT solution with machine learning for data-driven product innovation and performance measurement.

Advantages provided

- Achieve a significant 45% cost reduction in railway crossing maintenance expenses.
- Reduce urgent replacements of railway crossings by an impressive 30%.

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Passamaquoddy Bay
Digital Twin
A living platform for tribal sovereignty, ecological protection, and economic prosperity.

Advancing Innovation and Business Outcomes

Innovation

Thought Leadership

Non-traditional approaches to problem solving using Unconventional thought process

Collaboration

Force Multiplier

Engage with industry leaders, innovators, researchers, and others to develop and implement advanced technology

Leadership

Establish Authority

Bring Expertise and Knowledge to forefront
Drive Industry Transformation

Growth

New Revenue Sources

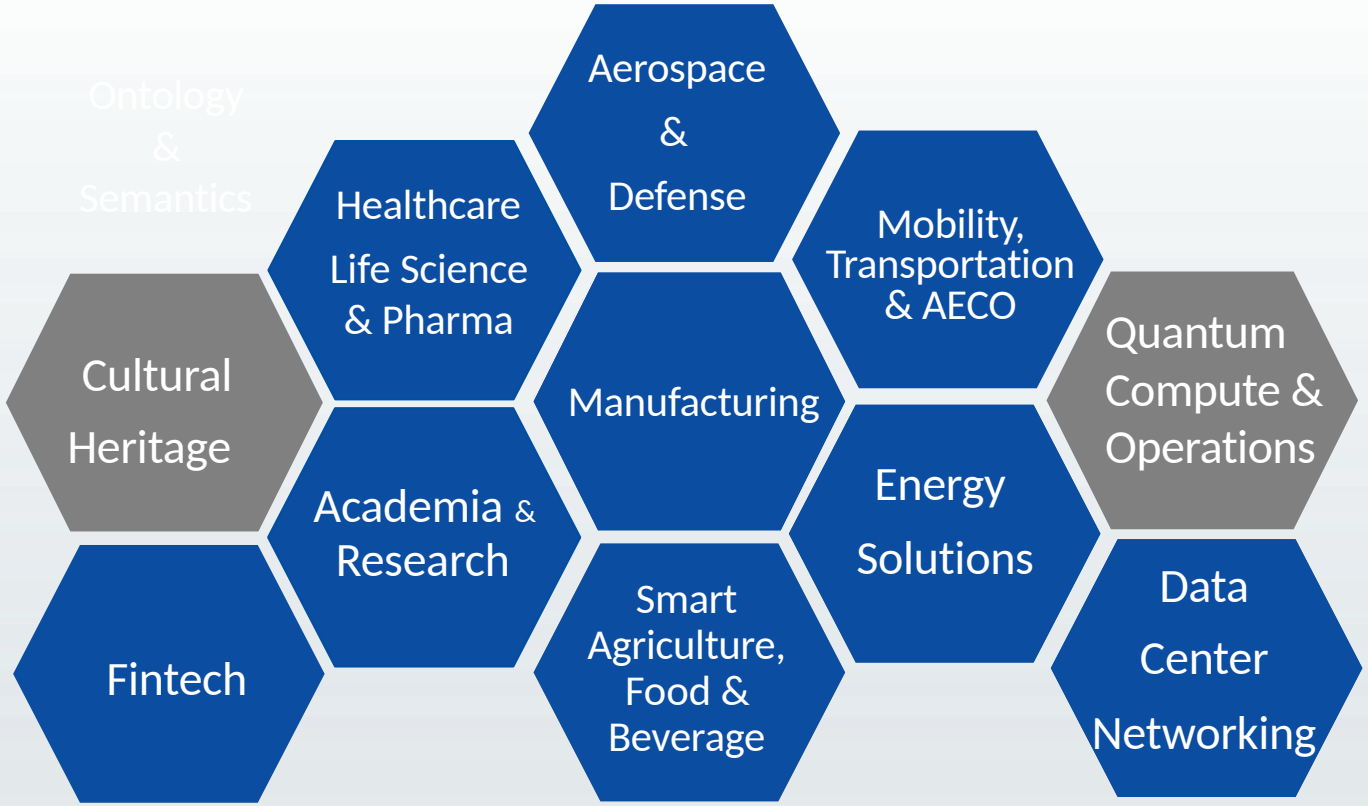
Ability to recognize and rapidly execute on market opportunities

Learn More:

www.digitaltwinconsortium.org

Thank You!

DTC Industry Vertical Working Groups



= New Working Group /Focus Area

Horizontal Working Group and Focus Areas Creating the Foundation for the Digital Twins

Focus

- Helps to create and identify the horizontal foundational elements and fundamental building blocks for digital twins
- Contributes to standards requirements, open source and cross-functional use cases and ecosystem expansion
- Identifies and develops composable frameworks through corresponding focus areas on AI, business process & strategy, digital engineering, security & trust and sustainability.
- Develop use cases and case studies that align and are consistent with the composable framework for the Technology Showcase and implementation of Testbeds, focusing on DTC member innovation, collaboration, thought leadership and growth.