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Digital Engineering Portfolio

presented to

ITW/AA SE&I

Addx Corporation
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Our Corporate Profile

Addx Corporation is a business and technology solutions integrator to the US Government. As a solutions integrator, we standout by focusing on customer needs and will do whatever it takes to make them successful. For instance, we apply the most appropriate practices and technologies to solve specific problems with a specialty in system level activities and application of subcontractors where best needed.

Addax

The name, Addx, is derived from an antelope species and represents beauty (excellence), agility (responsiveness), and speed (efficiency). These antelope are also survivors who live in the draught-ridden Sahara desert.

Our success and unwavering purpose is simple: 1) listen to our customers to understand their needs; 2) through our expertise, develop the right solutions that meet their mission needs; and, 3) provide solutions through a combination of service excellence, responsive delivery, and efficient implementation.

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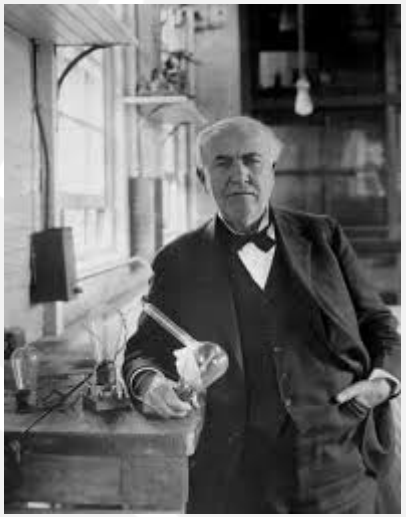
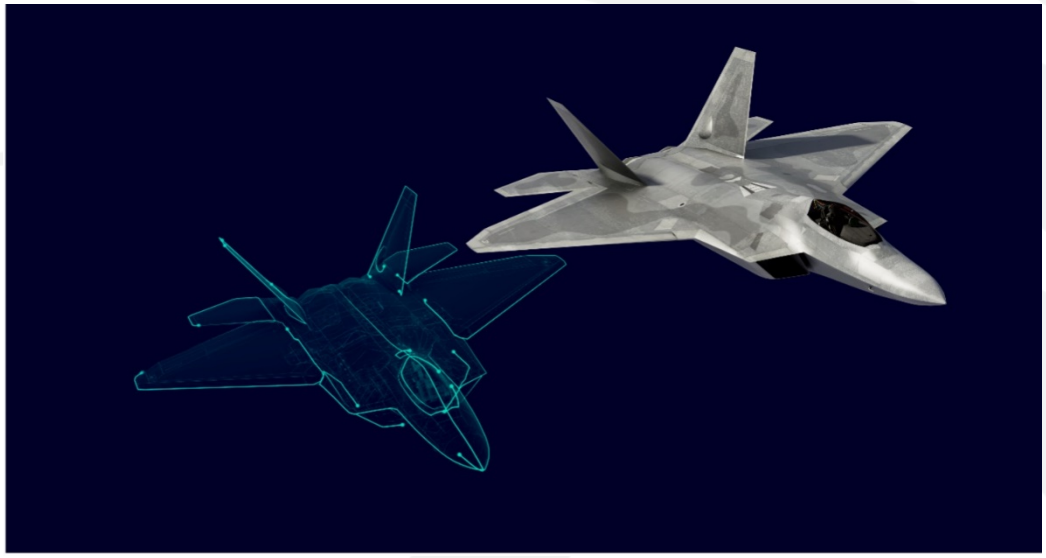
Project Edison

- an Addx Corporate Solutions Group initiative to create, capture, manage, and market our portfolio of customer-focused technology solutions.
- Named for the “Wizard of Menlo Park”, Thomas Edison (1847 – 1931)
  - Became America’s greatest modern inventor
  - 1093 patents covering the creation or refinements of devices in telephony, electric power generation, lighting, sound recording, motion pictures, storage batteries, mining and cement technology.
- Currently we have 30+ Edison Projects…and growing



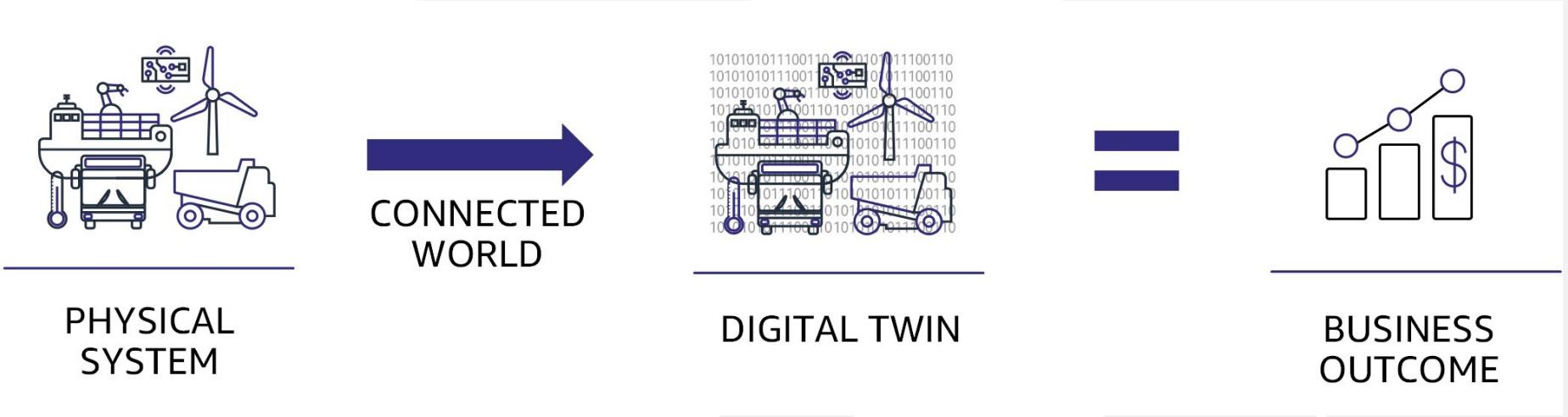
What is Digital Engineering?

- *Digital Engineering (DE) is an integrated **digital approach** that uses authoritative sources of systems **data and models** as a continuum across disciplines to **support lifecycle activities** from concept through disposal*
- "Build a digital model before building it in the real world."



What is a Digital Twin?

- *A Digital Twin (DT) is a living **digital representation** of an individual physical system that is **dynamically updated with data** to mimic the true **structure, state, and behavior** of the physical system, to **drive business outcomes**.*



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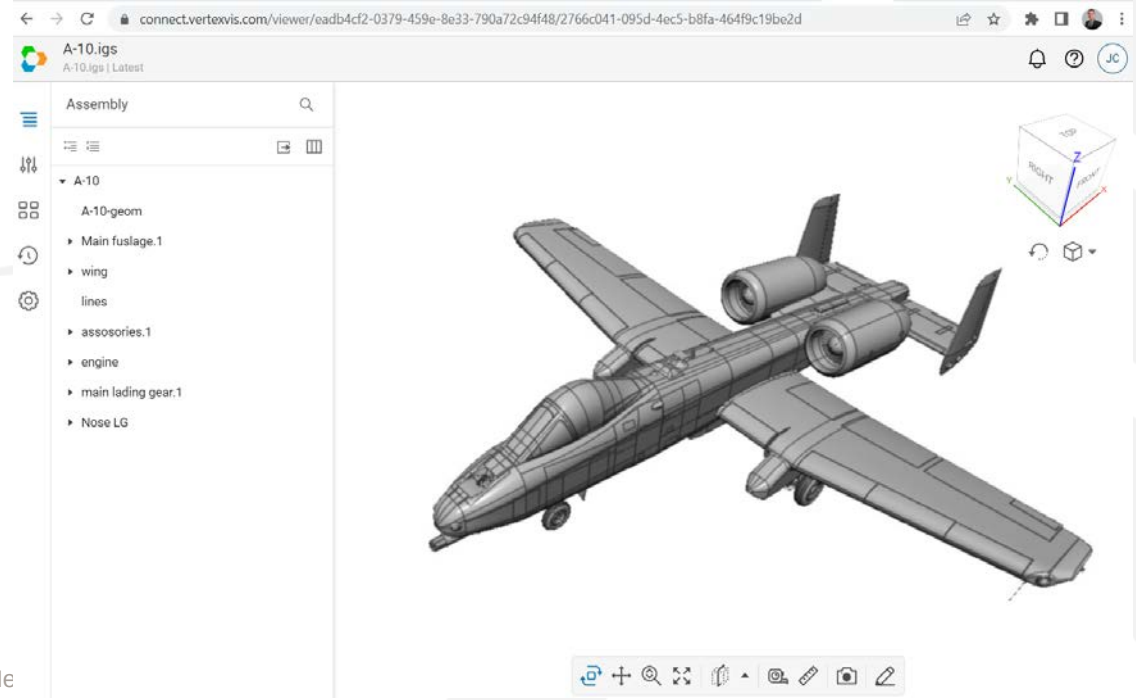
Digital 3D Models – CAD/CAM

- Historically “heavy” client software and hardware investment required
- Produced models in proprietary data formats
- Significant open source and cloud-based platforms in recent years



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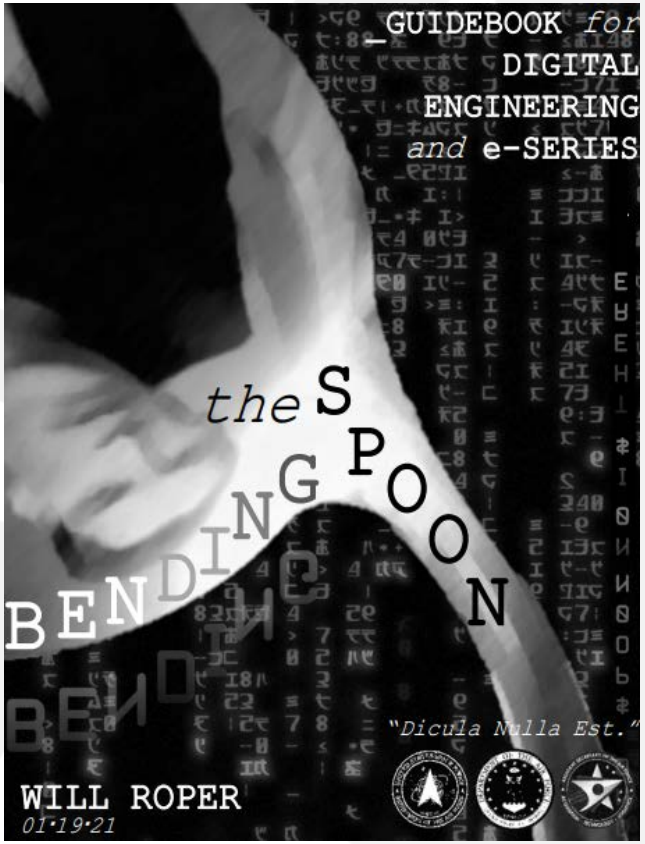
Digital Engineering in the DoD

- Discussed in detail by Dr. Will Roper in “There is No Spoon: The New Digital Acquisition Reality” and “Bending the Spoon”

Originally published as “Take the Red Pill”



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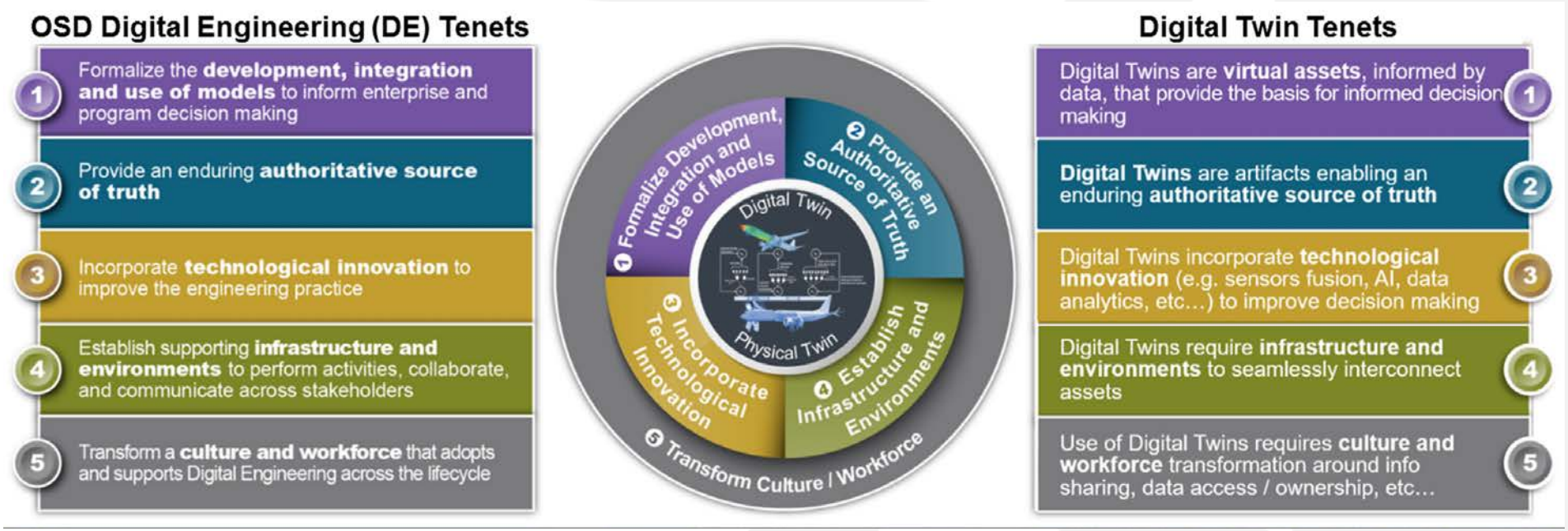
Department of Defense DE/DT Strategy

- Maps Digital Engineering Goals to Digital Twin Capabilities
- https://man.fas.org/eprint/digeng-2018.pdf



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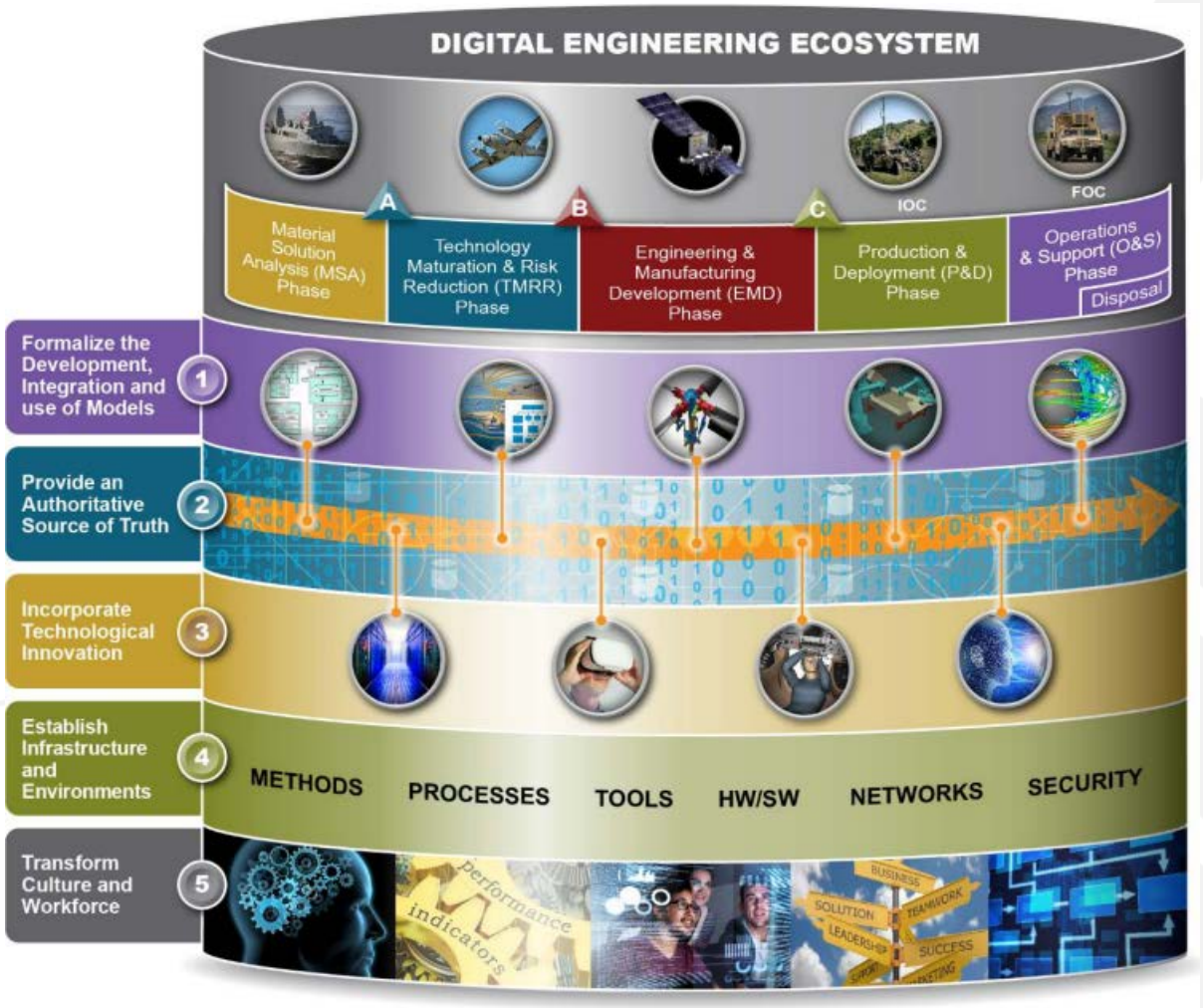
DoD Digital Engineering Eco-system



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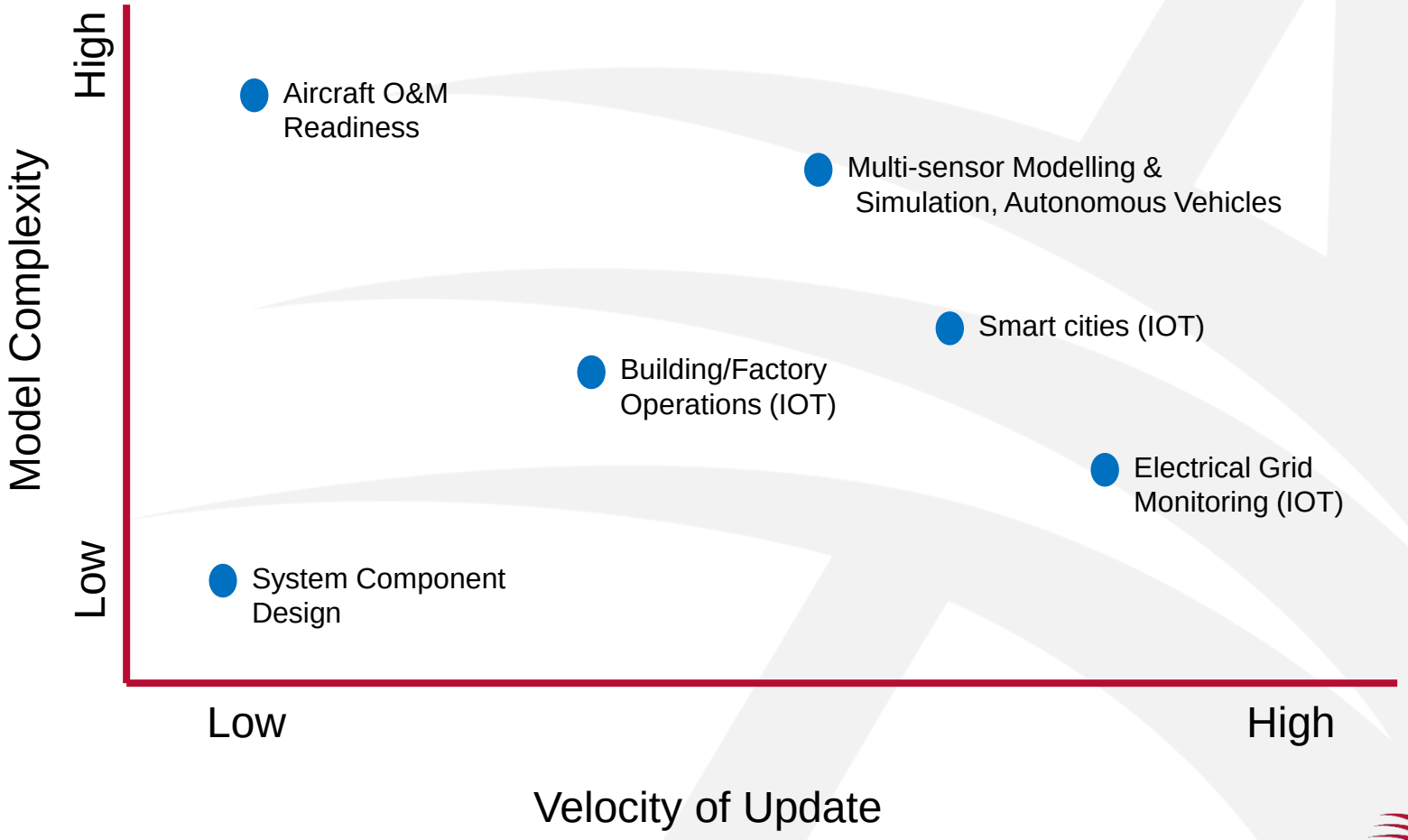
The Digital Twin Use-Case Spectrum



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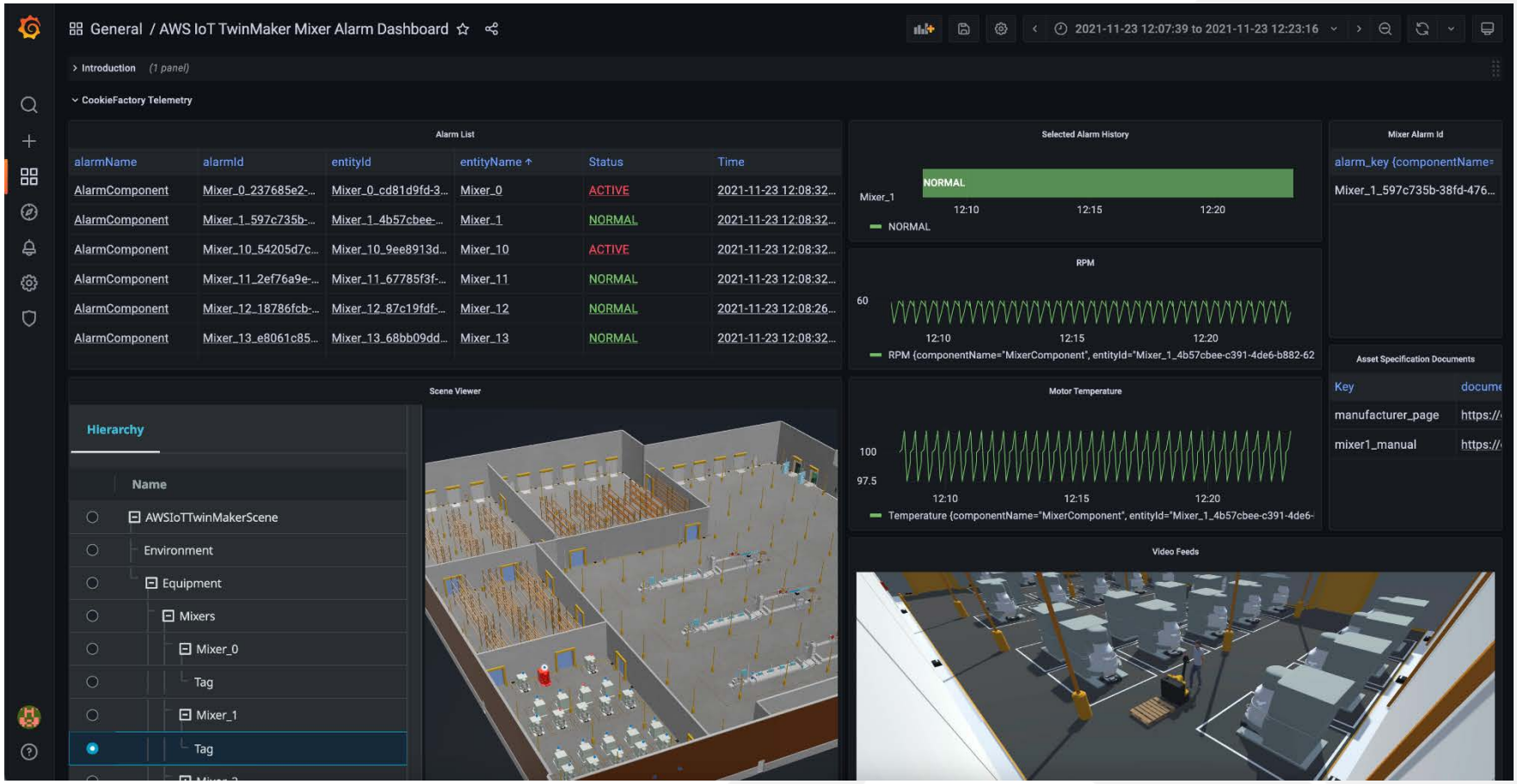
Digital Twin Example: IoT Building Operations



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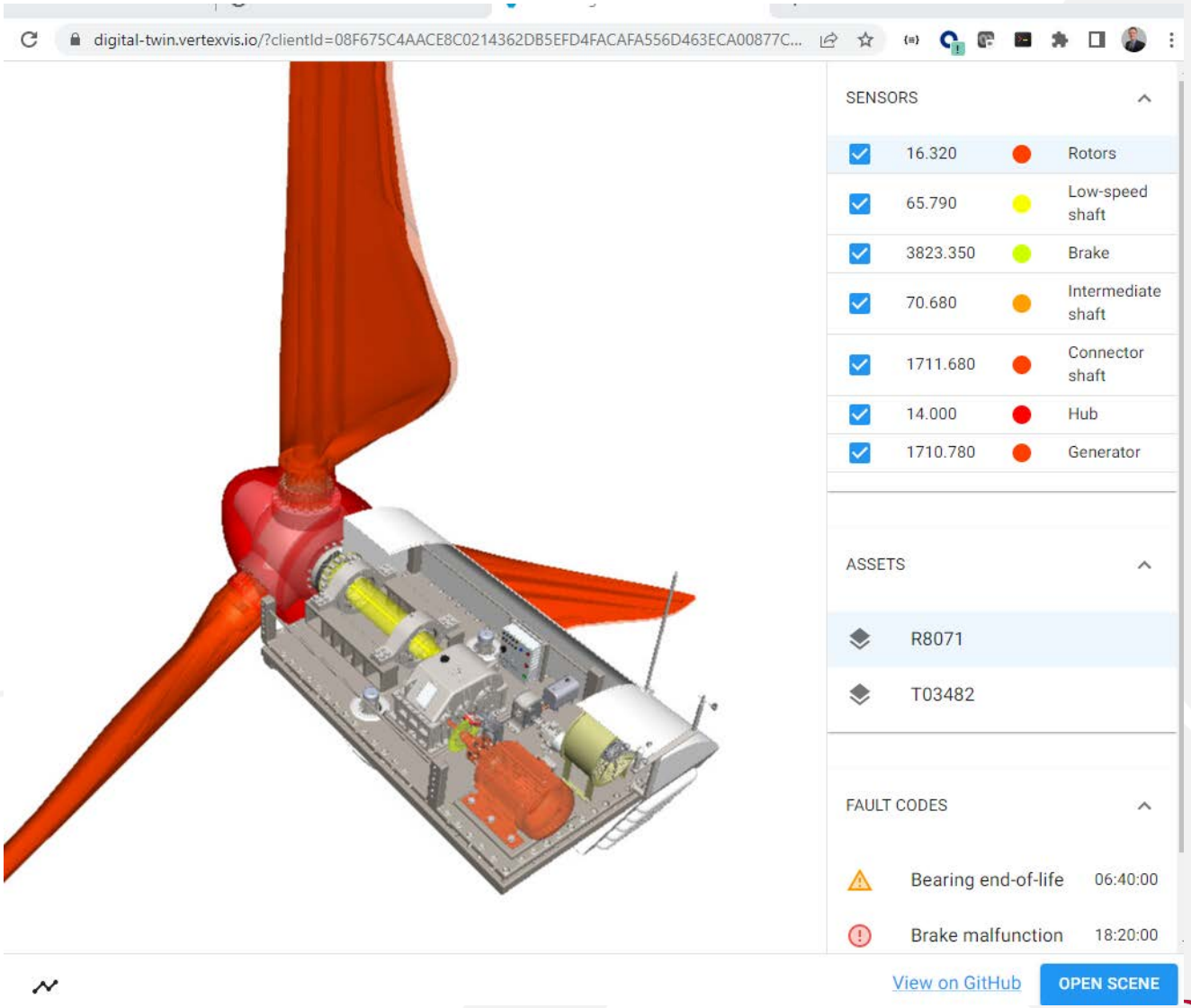
Digital Twin Example: System O&M Readiness



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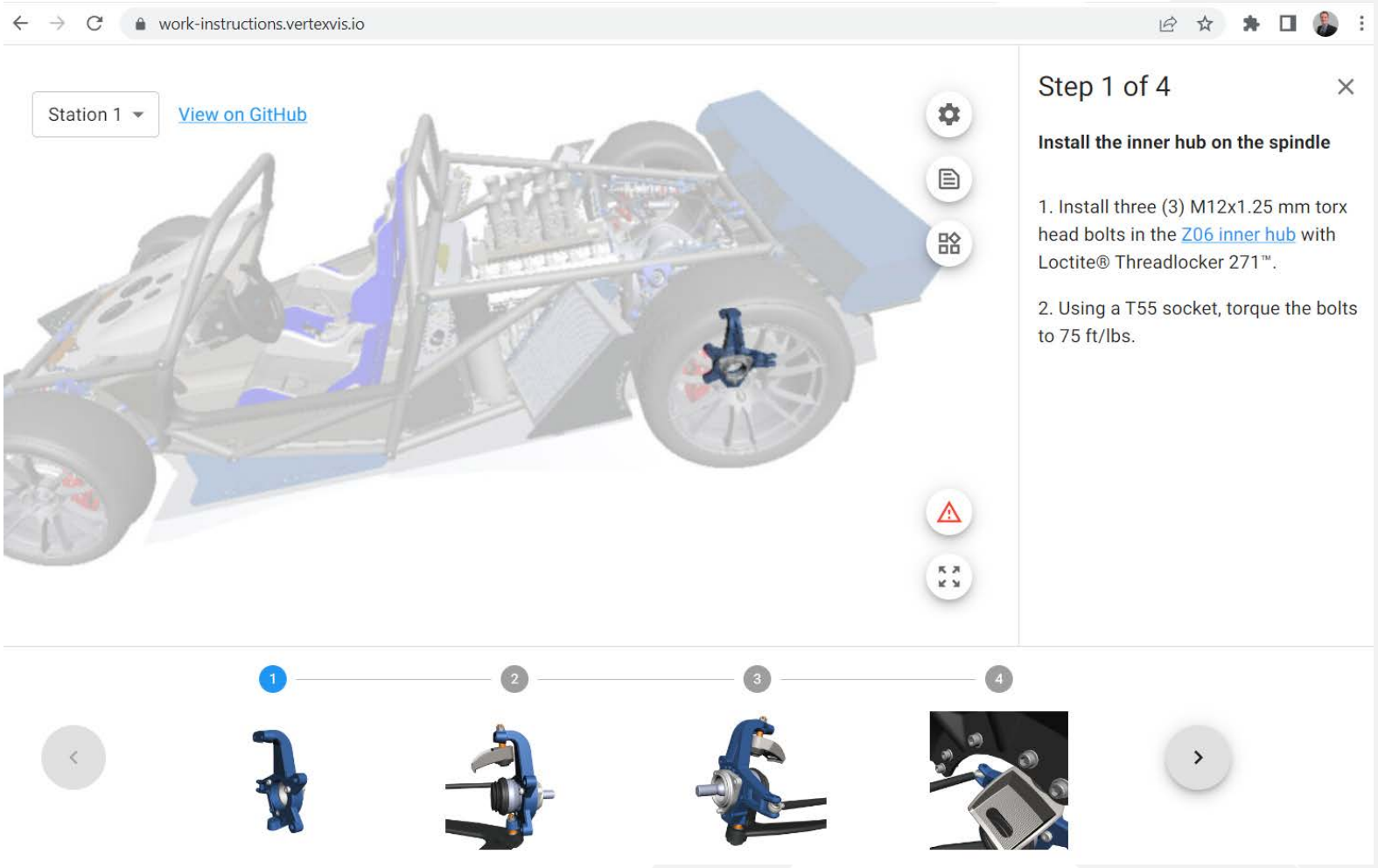
Digital Twin Example: Work Instructions



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Digital Twin Success – Getting Started

- 3D CAD model(s), in whatever file format(s)
- Parts database, ideally mapped to the CAD model
- Sensor/maintenance data feeds
- Access to a cloud service provider like AWS
- Modest development resources (JavaScript, PHP, etc.)
- What you DON'T need
  - Specialized hardware, CAD software or GPUs
  - A big budget

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