Digitally Connected Supply Chain

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Vice President, Global Supply Chain

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VICE PRESIDENT
SUPPLY CHAIN OPERATIONS

Travis Hedges is the Vice President of Global Supply Chain Infrastructure Program Support. In this role, Travis leads all elements of strategy development and operational execution related to Northop Grumman's consolidated indirect spend.

Prior to this role he served as the director of Global Supply Chain Digital Transformation leading the effort to transform GSC into a fully digital operation.

Travis has 20 years experience in A&D Supply Chain Management, Manufacturing Operations, Program Management, and Digital Transformation and is passionate about fostering digital connectivity and collaboration across NG's supply base.

Who We Are

- **Northrop Grumman is a leading global aerospace and defense technology company** delivering discriminating capabilities in military aircraft, national security space, mission and weapon systems.
- Our broad and diverse portfolio continues its strong alignment to key national security priorities and encompasses platforms and mission systems that enable us to deliver integrated systems-of-systems solutions for our customers.
- Driven by a shared purpose to solve our customers' toughest problems, our 100,000 employees define possible every day.

A Proven Technology and Performance Culture

At Northrop Grumman, we invest in the people, the tools and the technologies needed to deliver on our commitments. Our shared purpose drives our mission and keeps our company at the forefront of technology.

Digital Engineering Transformation: One Sector's Journey

2007 - 2008
- Integrated Enterprise Solution
- Product Data Management (PDM) and CAD upgrades on major programs

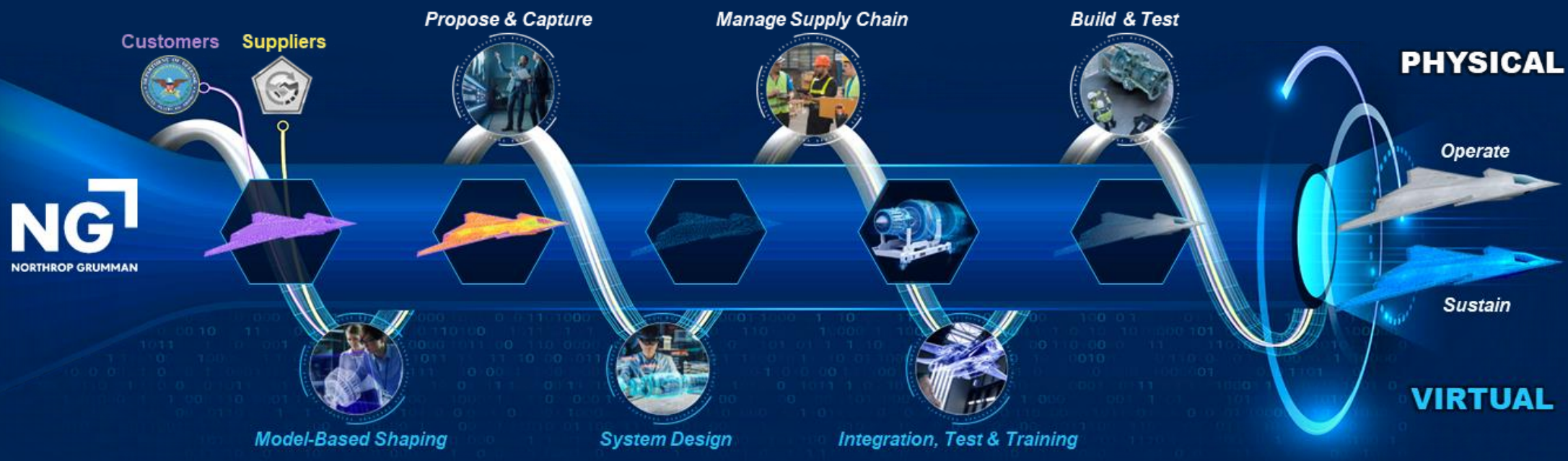
2009 - 2011
- MBD
- Evolving CAD Modeling Standards for model consumption

2012 - 2014
- PDM to Product Lifecycle Management and Integrated Analysis
- Cross Function engagement: Shift Left

2015 - 2017
- First implementation for major classified Aircraft EMD program
- Partner integration

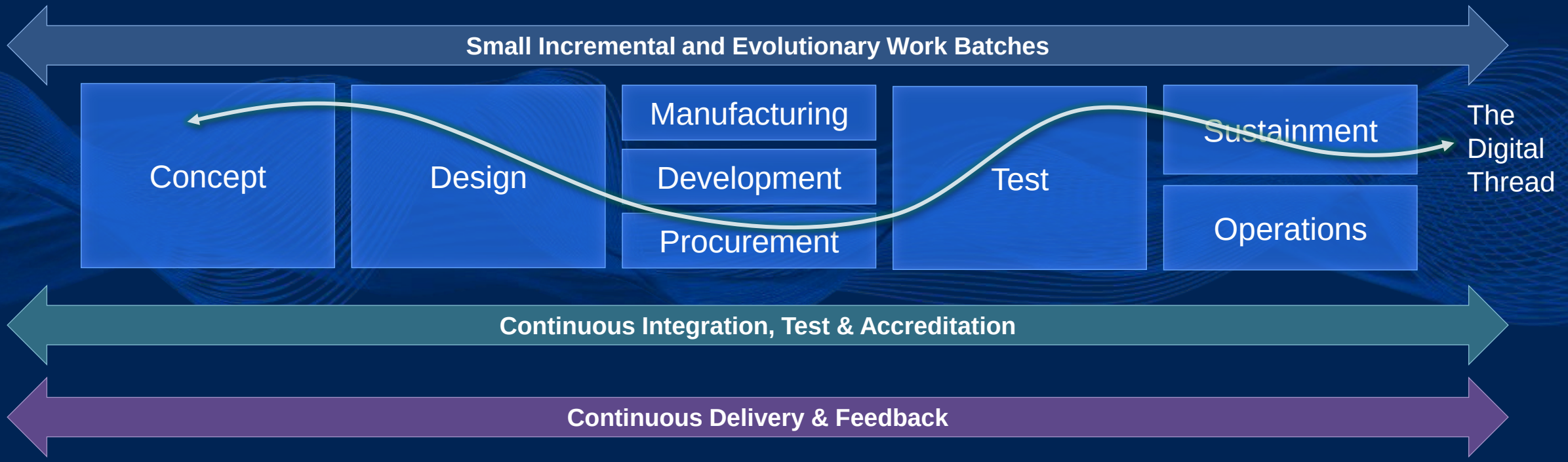
2018 - 2019
- Expanded usage for new major Space EMD Cross Sector program
- Customer engagement

2020 - Future
- Enterprise-wide Digital Transformation
- Digital Cross Functional Initiatives



Goal: A Fully Connected Bi-Directional Digital Thread

Digital Thread



- **Enables incremental verification**
- **Finds issues sooner**

- **Reduces rework**
- **Reduces hand-off errors**

NORTHROP GRUMMAN

Digital Engineering: Digital Thread / Digital Twin

SYSTEMS ARCHITECTURE MODEL

Model Based Sustainment

Model Based Manufacturing

Bi-Directional Digital Thread

Digital Simulation

Automated & Model Based Testing

Mission Effectiveness Analysis

Predictable System Integration

Multi-Disciplinary Analysis and Optimization (MDAO)

DEV * OPS

Life Cycle Cost Analysis

Effectivity Based Digital Twin

Model Based Design

CORE VMS

Model Based Systems Engineering

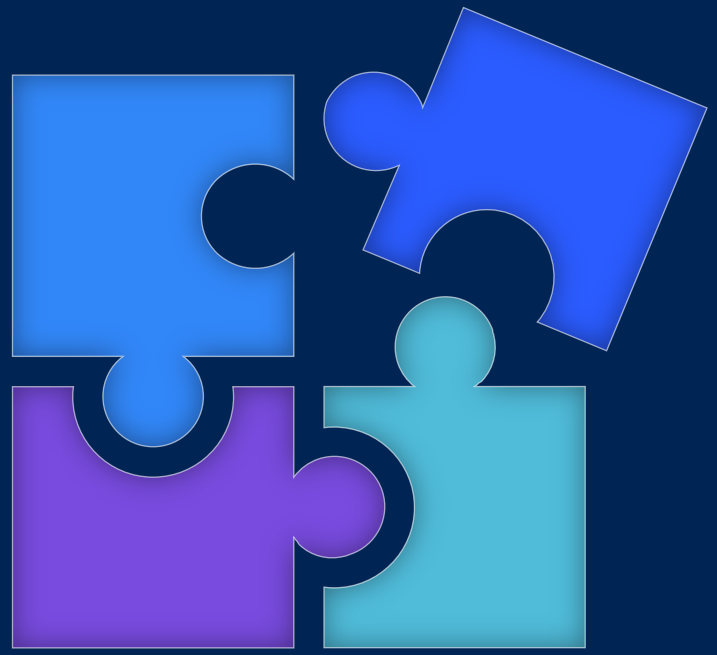
End Product:

- Low Cost
- High Quality
- Producible
- Sustainable
- Delivered Quickly

Simultaneously Optimizing Product Design - Digitally

Defining Possible in Digital Technology

We Still Have More Work to do…



Questions?