GE Aerospace

PLM Road Map™ & PDT North America 2025

PLM's Integral Role in Digital Transformation From Strategy to Execution

Elevating PLM to an Enterprise Business Solution,

the PLM Professional's Road Map to Success

CIMdata May 7 & 8 eurostep

Building a Best-in-Class Enterprise PLM Platform

Michael Carlton, Director, GE Aerospace

May 2025

Business Overview

Global leader in attractive, growing commercial & defense sectors

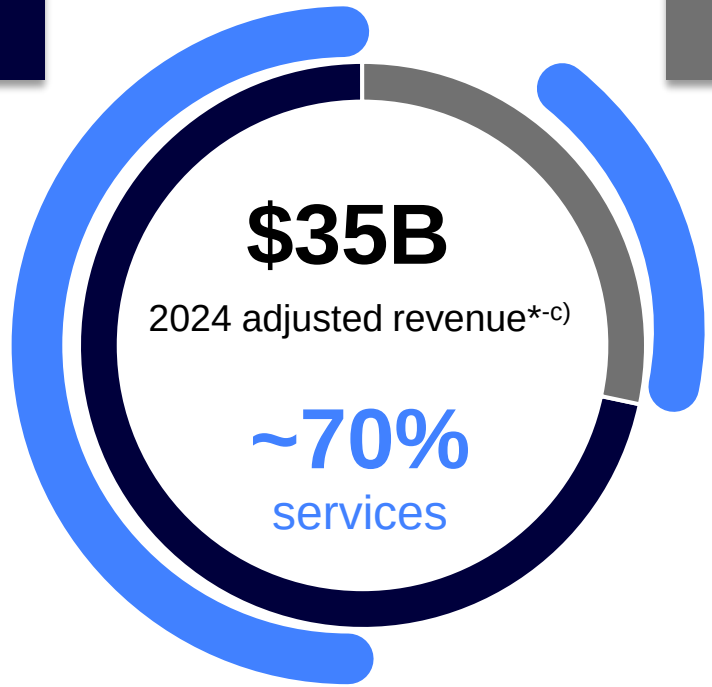
Commercial Engines & Services

$26.9B revenue[-a)]

Servicing and growing the industry's most extensive installed base with **~45,000 engines[-b)]**

Most complete value prop ... **safety, efficiency, reliability**

~70% services revenue … **extensive, open MRO network means flexibility for customers**



Defense & Propulsion Technologies

$9.5B revenue[-a)-d)]

Leading defense programs, developing mission critical tech **~25,000 engines**

Rotorcraft & combat engine provider of choice ... **next gen U.S. & international programs**

~55% services revenue … **engineering design through full product lifecycle support**

*Non-GAAP Financial Measure
(a – Represents anticipated GAAP segment measures to take effect post GE Vernova separation; amounts are unaudited and represent our current estimates; refer to page 101
(b – Includes equipment made by CFM & Engine Alliance Joint Ventures
(c – Amounts are unaudited and represent our current estimates; refer to page 101
(d – Includes Defense & Systems and Propulsion & Additive Technologies, excluding the impact of eliminations reported in Corporate
CFM is a 50/50 Joint Venture between GE Aerospace & Safran Aircraft Engines; Engine Alliance is a 50/50 Joint Venture between GE Aerospace & Pratt & Whitney

GE Aerospace: Powering the world's airline fleets with ~45,000 engines

~3.4B

Passengers flew with GE Aerospace technology* under wing in 2024

¾ takeoffs

Three out of every four takeoffs are powered by GE Aerospace technology*

~950,000 people

~950,000 people flying at any given time on aircraft powered by GE Aerospace technology*

*Includes joint venture engines built by CFM and Engine Alliance
CFM is a 50/50 joint company between GE Aerospace and Safran Aircraft Engines
Engine Alliance is a 50/50 Joint Venture between GE Aerospace and PW

Image courtesy of Boeing

Defense Engines

Our segments:

Combat

F101
F110
F118
F404
F414
J85
J79
TF34

Rotorcraft

T700
CT7
T408
T58
T64
T901

Mobility

F103 (CF6-50)
F108 (CFM56)
F138 (CF6-80)

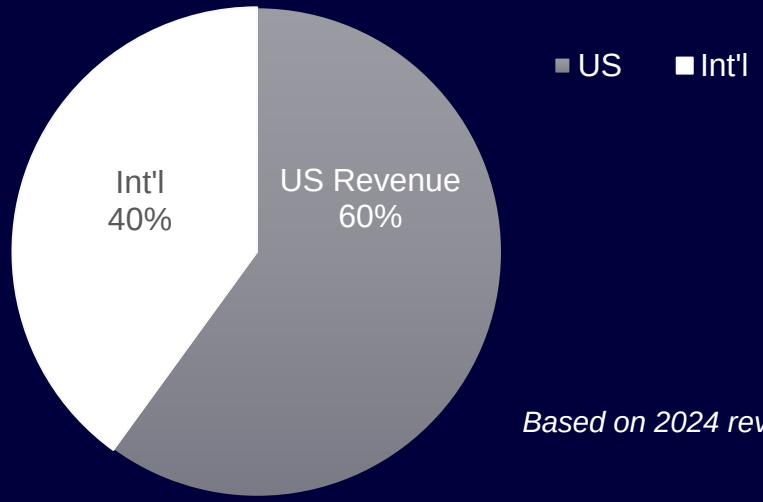
Marine

LM6000
LM2500+
LM2500+G4
LM1600
LM500

Our customers

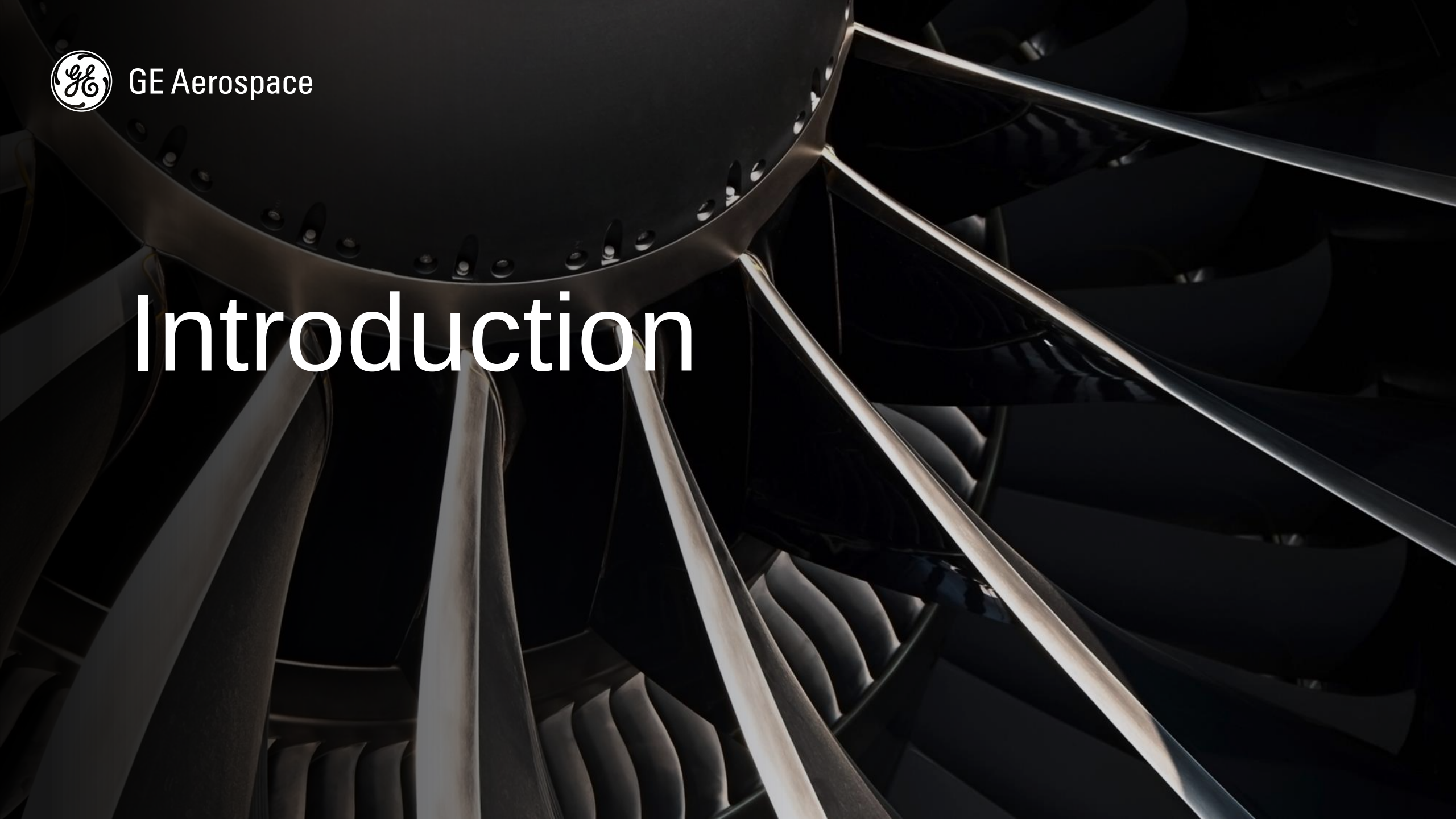
>25,000 engines ... 300 customers globally

U.S. Air Force, U.S. Army, U.S. Navy, and International Armed Forces



Based on 2024 revenue

CFM is a 50/50 joint company between GE Aerospace & Safran Aircraft Engines



Introduction

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How do we build & manage large scale Enterprise PLM Platforms?

This presentation speaks from the point of view of building & managing a large Enterprise PLM Platform from an IT, DevOps, Infrastructure & Software Architecture, and Solution Development perspective

Just starting out?

See 2020 CIMdata Position Paper, “Why is PLM Often so Hard?” – *Simple is Best*

Do you have a complex & established Enterprise PLM Platform?

- Large number of users
- Large number of infrastructure components
- Large number of technology components
- High degree of complexity
- Demand for new solutions greatly exceed capacity to develop and deliver them

How do we create the capacity to achieve ambitious development goals,
while challenged to keep our enterprise systems operational, up to date, and secure?

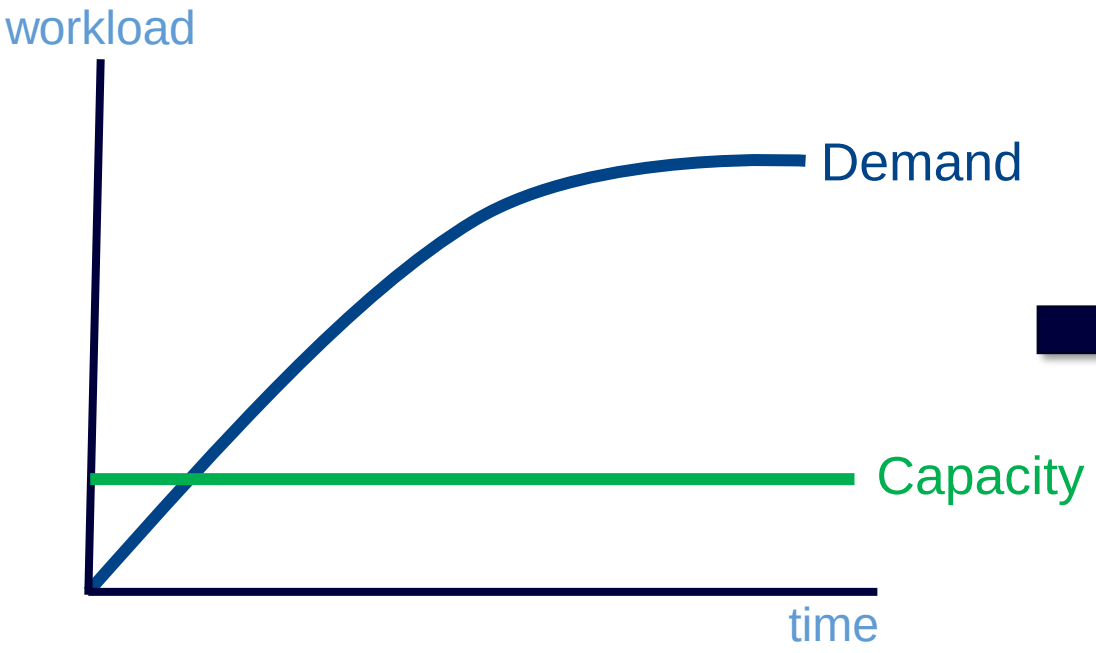
Business Drivers

Business Drivers

- Business Transformation
- Single PLM system for GE Aerospace engines
- Digital Thread capabilities & connectivity demand ↑
- Uptime demand ↑
- Tech Stack, Cloud & AI Transformation

Challenge

FROM



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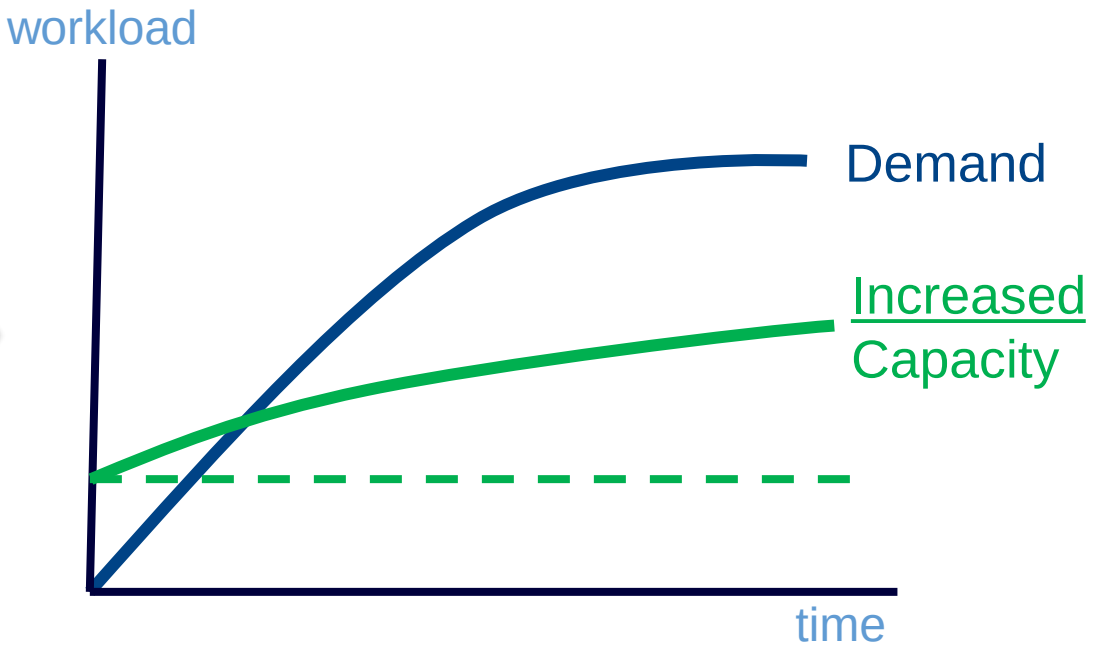


HOW ?

Strategy

Approach to Defining Strategy

Lots of books, papers, and courses outline the same key elements of a strategy

- What to achieve?
- What do we focus on?
- What is the plan to succeed?
- What do you need?
- How do we track work?

&

How do we actually create and execute a strategy to achieve goals beyond the conventional?

Goal: **Imagine the ideal end state**

It should feel uncomfortably ambitious

+

Ask: **What must be true?**

Imagine what People, Process, & Technology capabilities look like in the achieved end state

Apply this approach at the Enterprise Product level. It works!

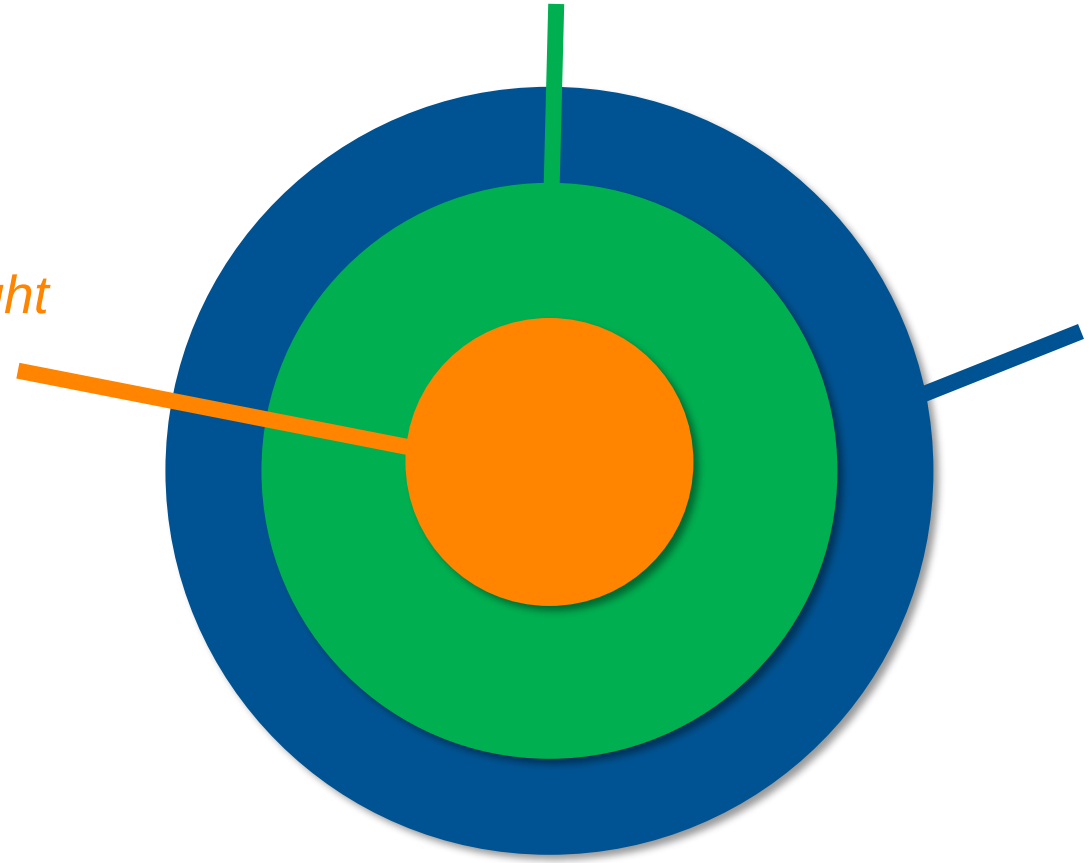
PLM Strategy Elements

What

Rapid Response to Business Kaizens
& Strategic Initiatives

Why

Business Outcomes: Right
Data at the Right Time
Without Interruption

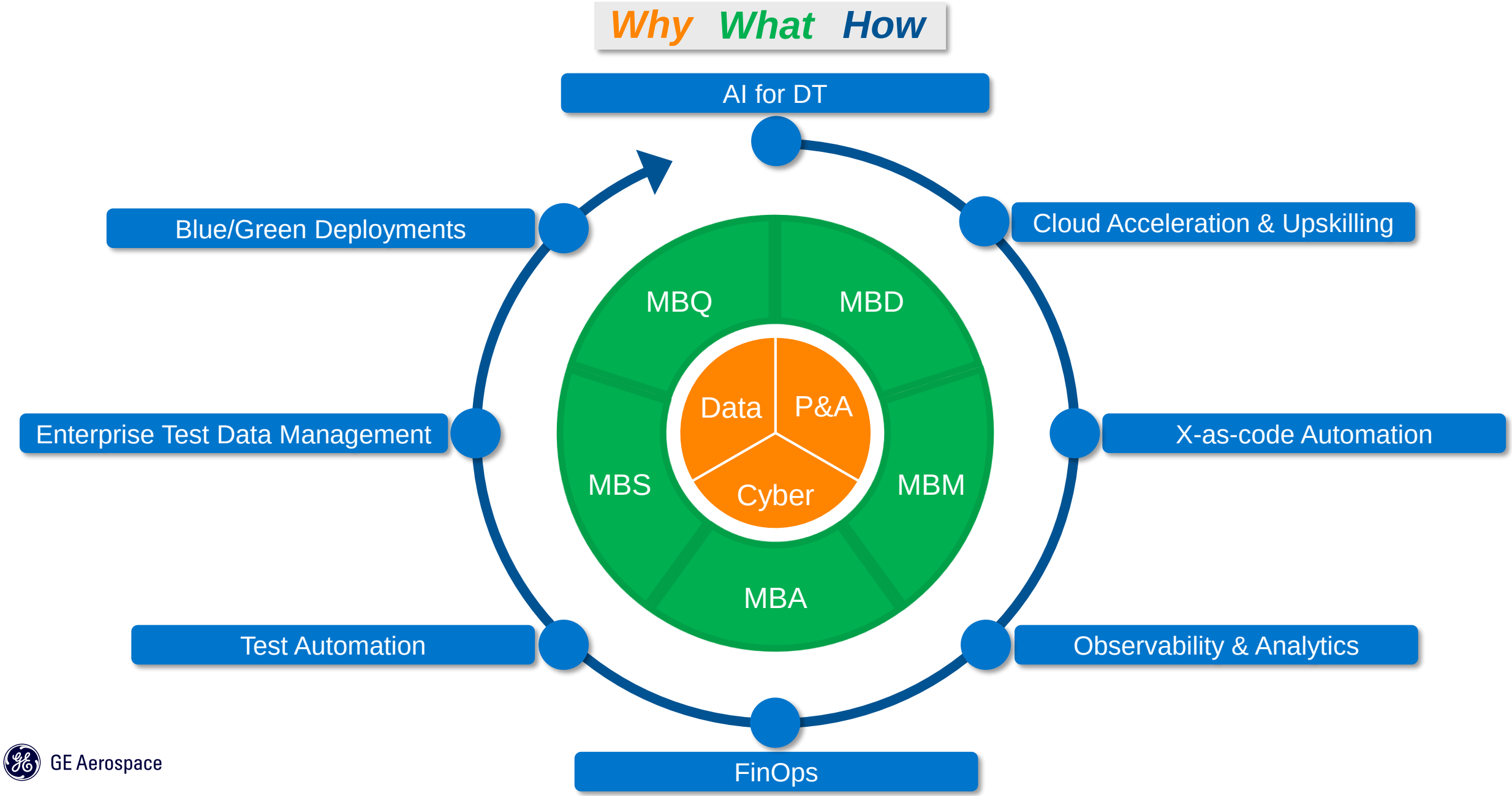


How

Best in Class PLM Platforms
People, Processes
& Technology

Strategy Solution Elements

Strategy Solution Elements



AI for DT

Outcome

Uncomfortably ambitious productivity improvements

Outcome Examples:

Natural Language Requirements	Manual Test Case	Robot Framework	→	**Automated Test Case**
PLM Vendor Release Notes	Design Standards	Best Practices	→	**Code Upgrades**
Custom Code	Design Standards	Best Practices	→	**Code Reviews**
Systemic Issues	Platform Data	Arch. & Code	→	**Performance Analysis & Visualization**

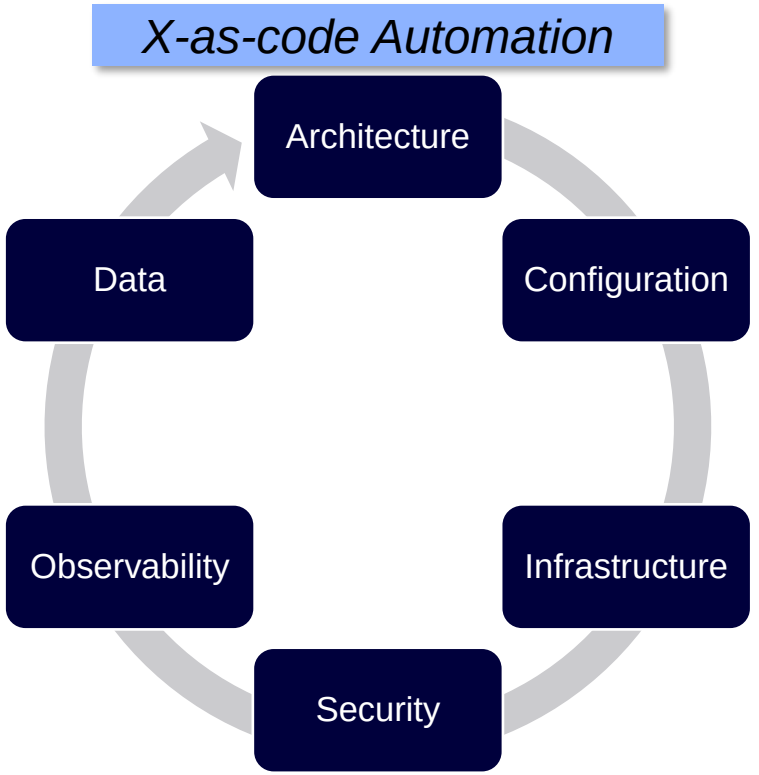
Cloud Transformation & Automation

Outcome

Uncomfortably ambitious productivity improvements

Outcome Examples:

- Reduction in PLM Environment Build Cycle Time
- Parallel Development Programs on Different Timelines
- Shifting Testing Left & Improved Quality
- Automated Datasecurity Tests
- ↑ Development Capacity

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What’s Next?

Where To Go Next

Scale environment build automation across Enterprise

On-demand, short-lived, connected enterprise Digital Thread test environments

Enterprise test data management

Automated & fit for purpose connected enterprise digital thread end-to-end tests on demand

Stateless PLM user sessions

High performing & fully scalable PLM production environments with enhanced performance

Blue / Green PLM Releases & Upgrades

Zero downtime 24/7/365


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