

# **Lockheed Martin and the Digital Tapestry**

**Purdue PLM Center Fall Meeting**

**October 19, 2017**



**Jeff Gleeson  
Sr. Manager of Manufacturing Systems**

# Lockheed Martin Corporation



## AERONAUTICS

- Tactical fighters
- Tactical and strategic airlift
- Advanced Development



## ROTARY AND MISSION SYSTEMS

- Maritime Solutions
- Radar and Surveillance Systems
- Aviation Systems and Rotorcraft Platforms
- Training and Logistics Solution



## MISSILES & FIRE CONTROL

- Air and missile defense
- Fire control and situational awareness
- Nuclear systems and solutions



## SPACE SYSTEMS

- Surveillance and navigation
- Global communications
- Human space flight
- Strategic and defensive systems

# Lockheed Martin Aeronautics



- 22,000+ employees
- Ten locations
- Global partnerships



# Production Lines



F-35



C-130J



F-16



# Sustainment Operations



F-22



F-16



C-130



C-5



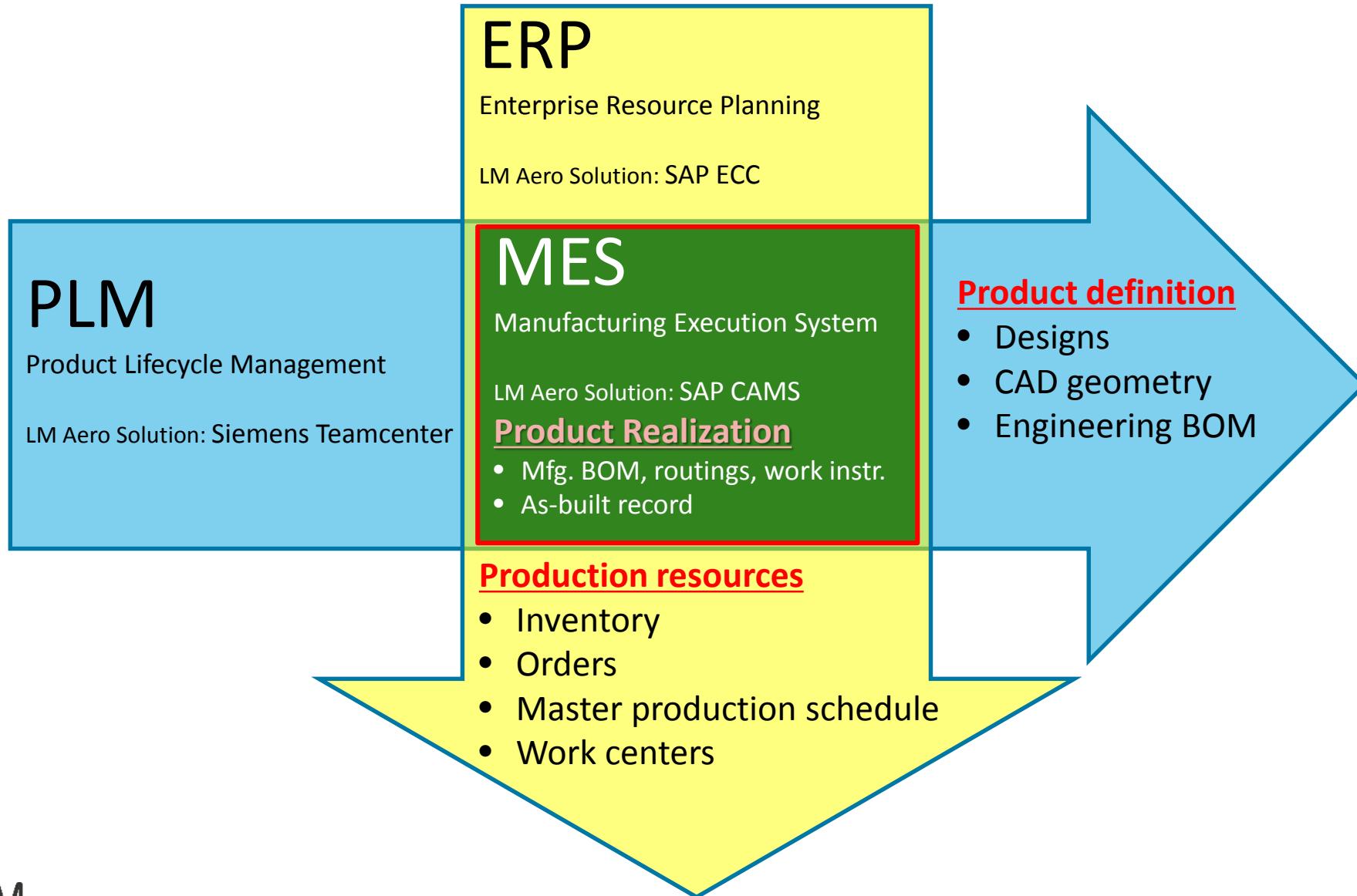
P-3

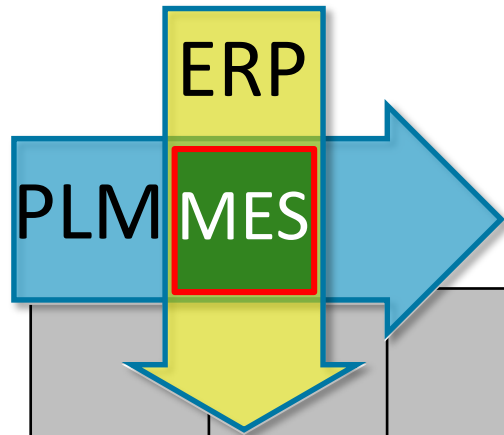


U-2

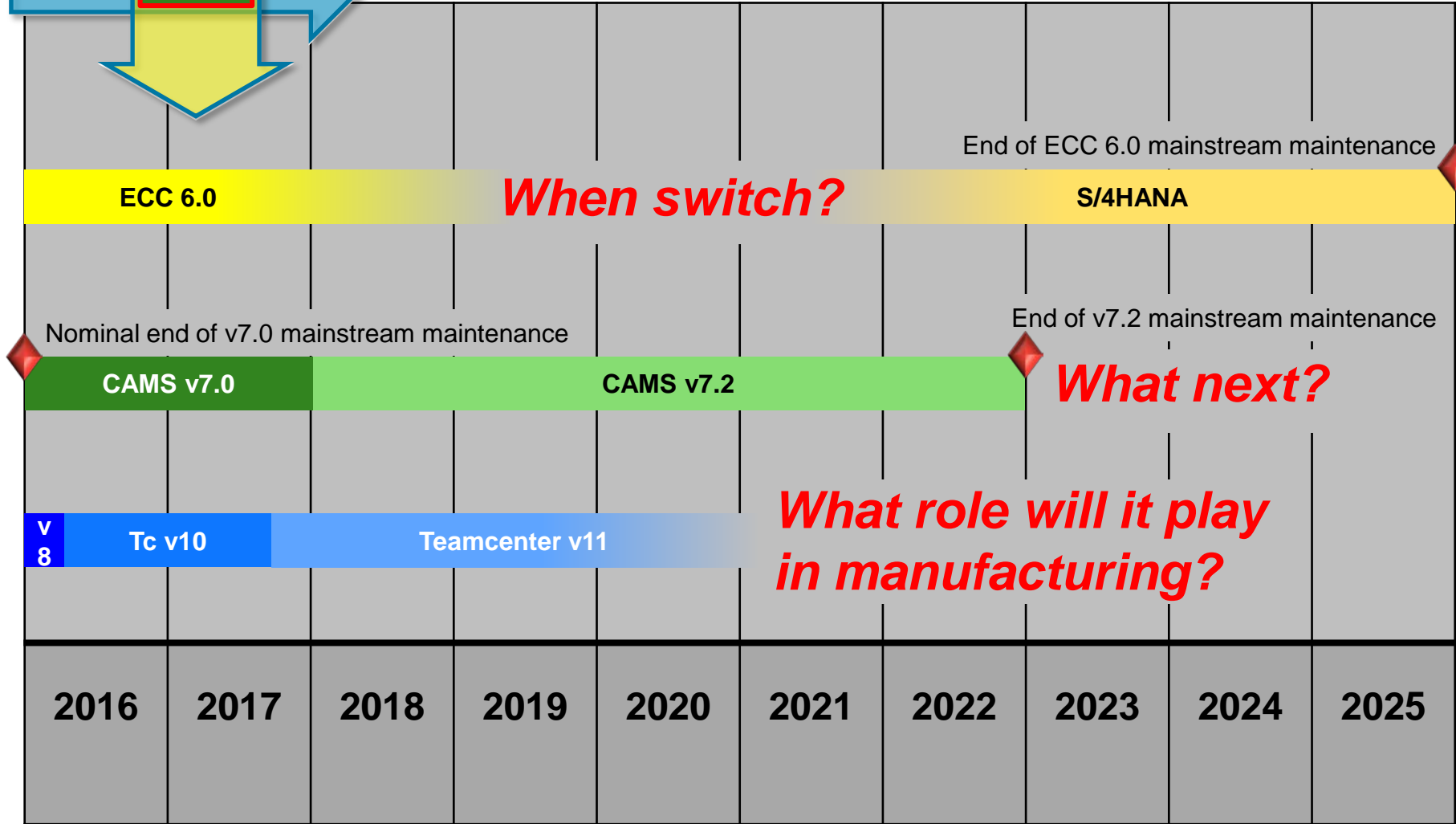


# LM Aero's Linchpin Manufacturing Systems

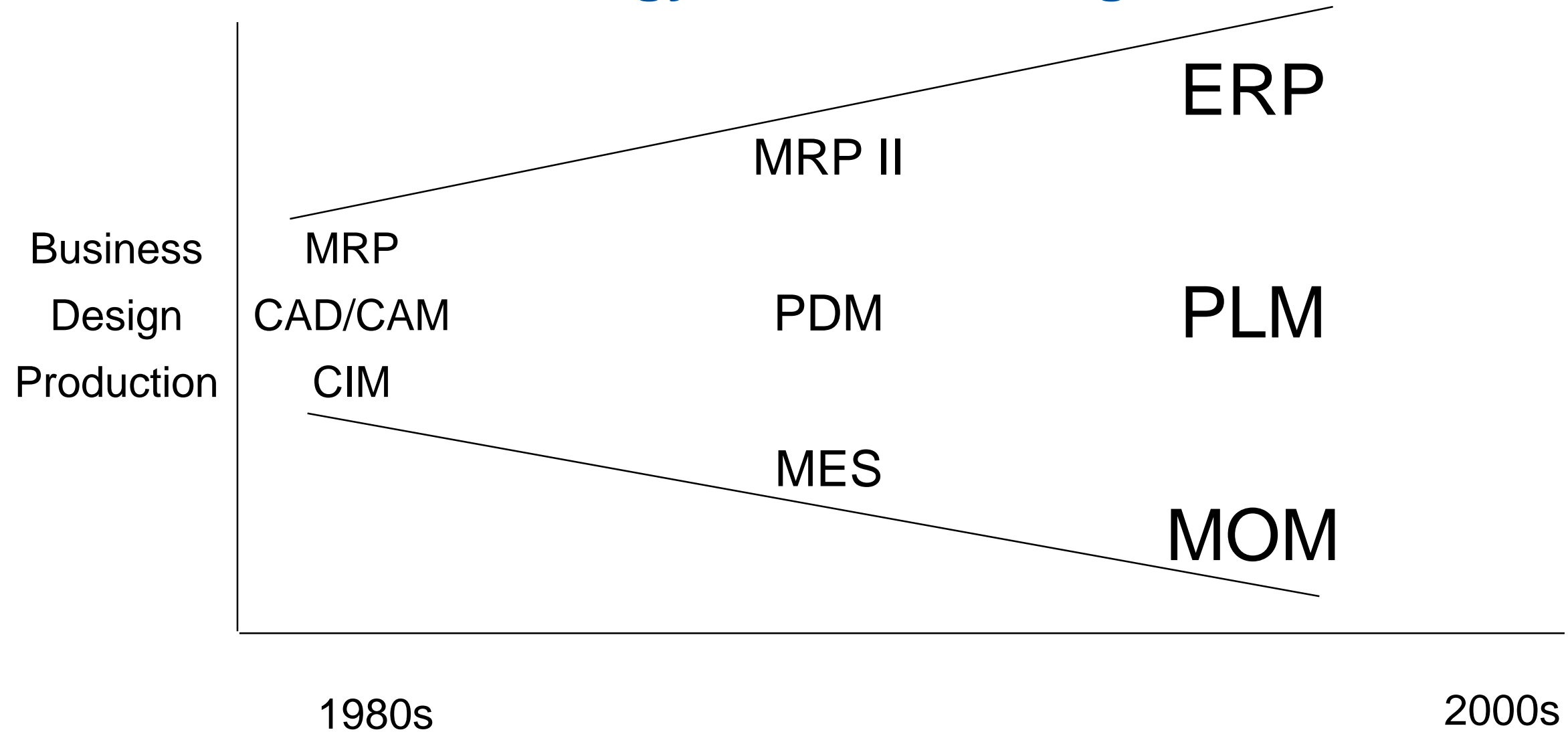




# Aero ERP / MES / PLM Roadmap



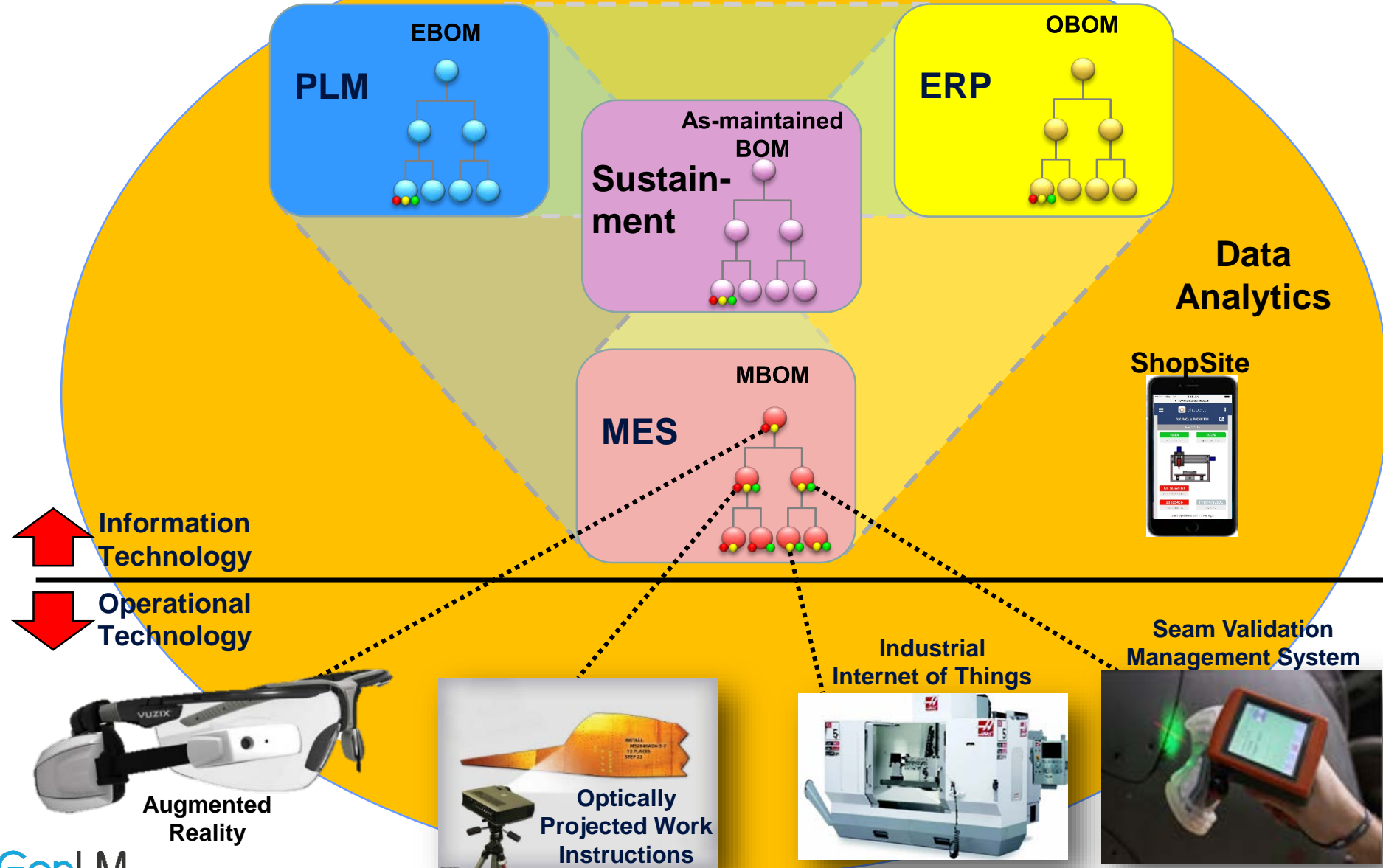
# MOM – Part technology, Part marketing



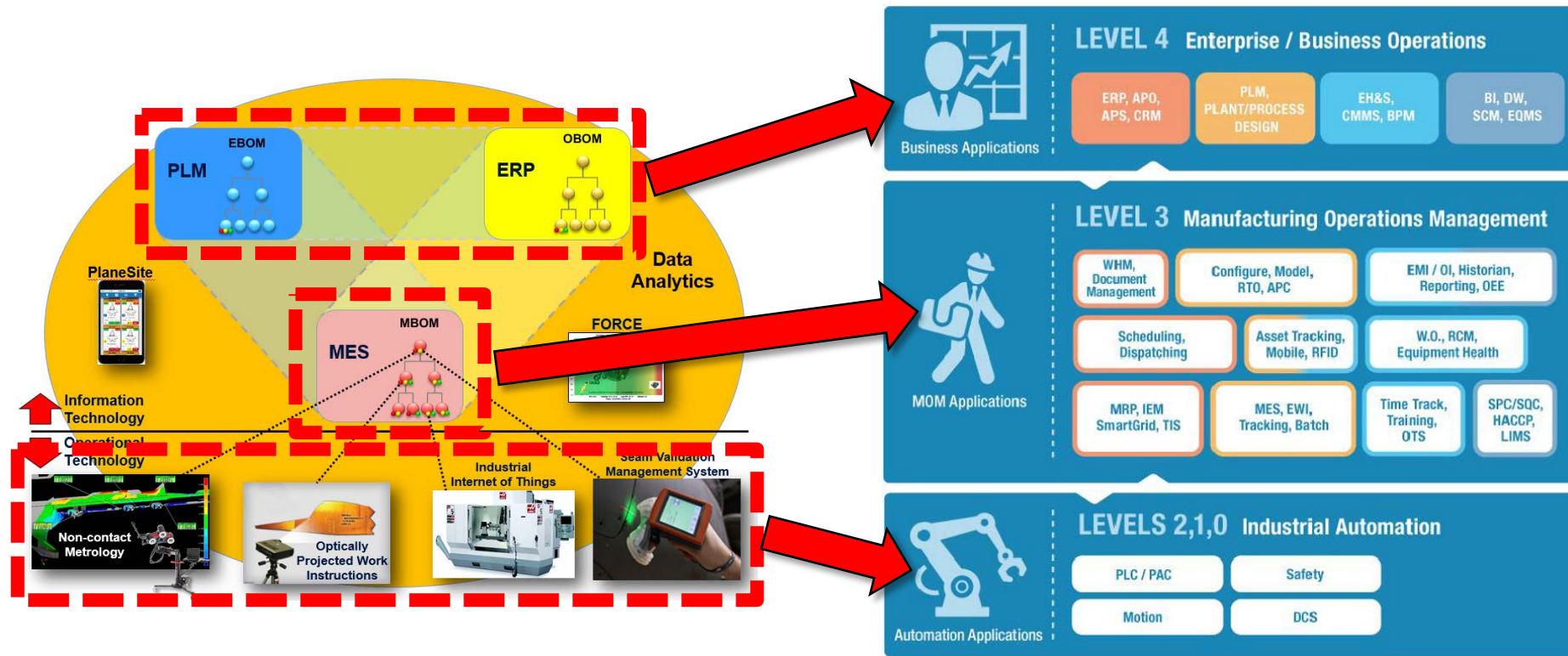


# IT and OT are Converging

## The Digital Thread Begins in PLM

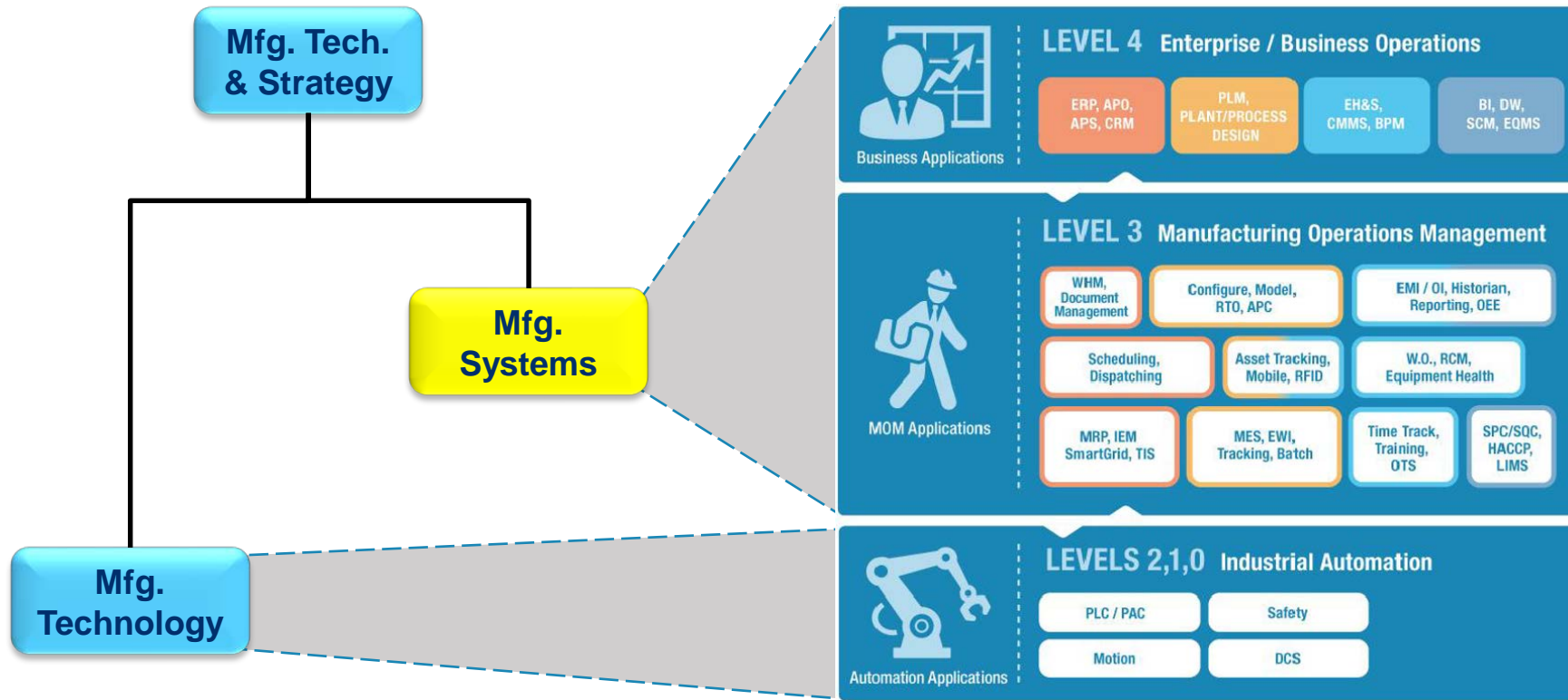


# ISA-95 is a Standard Reference Architecture for Manufacturers



***Using a common reference architecture facilitates communication.***

# New Manufacturing Systems Team Will Formulate Production Operations' Capability Roadmap

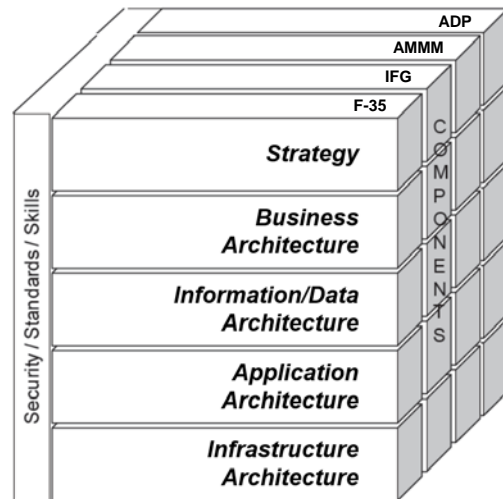


***Not a shadow IT organization;  
The central steward of Prod Ops' IT requirements.***



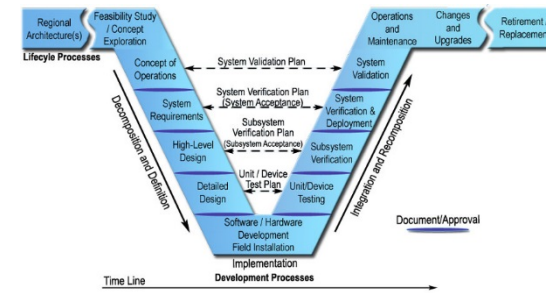
# The Systems Analysis & Design Approach

## Enterprise Architecture "EA<sup>3</sup> Cube"

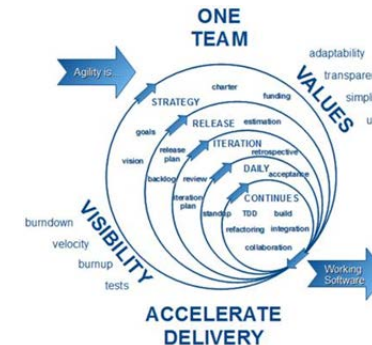


Scott A Bernard:  
*An Introduction to Enterprise Architecture*

## Systems Engineering "V"



## Agile Software Development Process

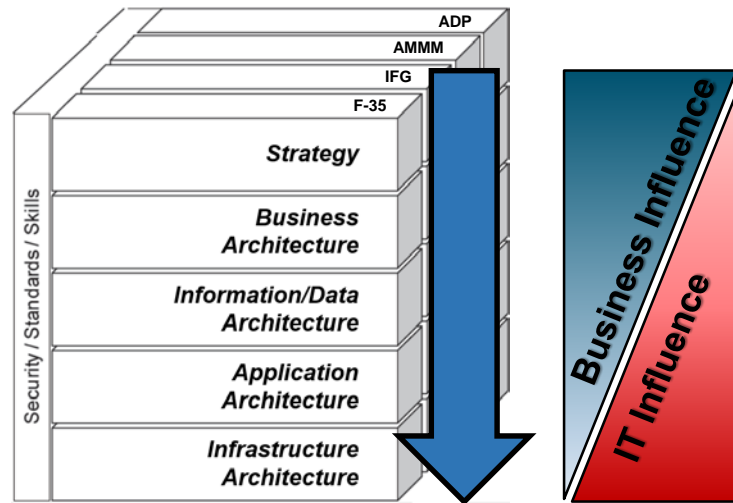


***EA<sup>3</sup> provides for analysis and design of business information systems, while allowing for differences between lines of business.***

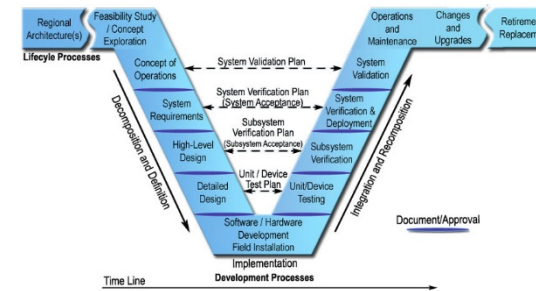
# IT is Aligned to the Business Through the Enterprise Architecture Process



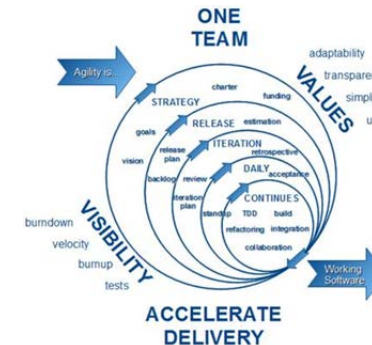
## Enterprise Architecture “EA<sup>3</sup> Cube”



## Systems Engineering “V”

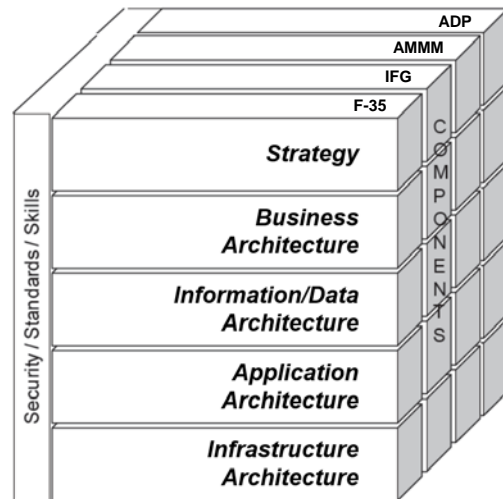


## Agile Software Development Process

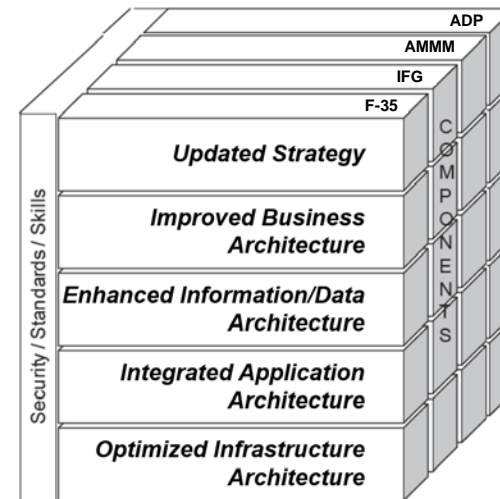
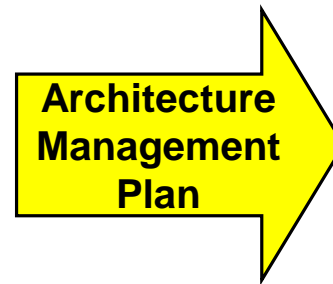


**Enterprise Architecture starts with the business strategy.**

# Architecture Management Plan Provides the Road Map for Getting from Current State to Future State



**Current State Architecture**



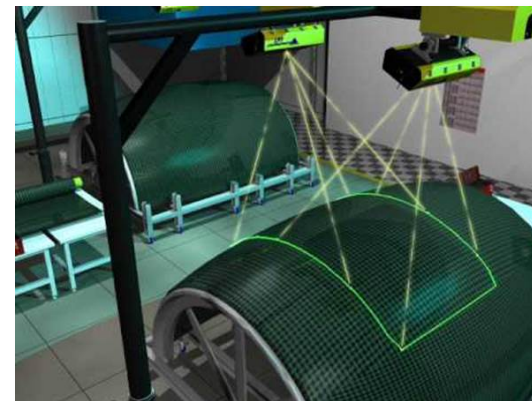
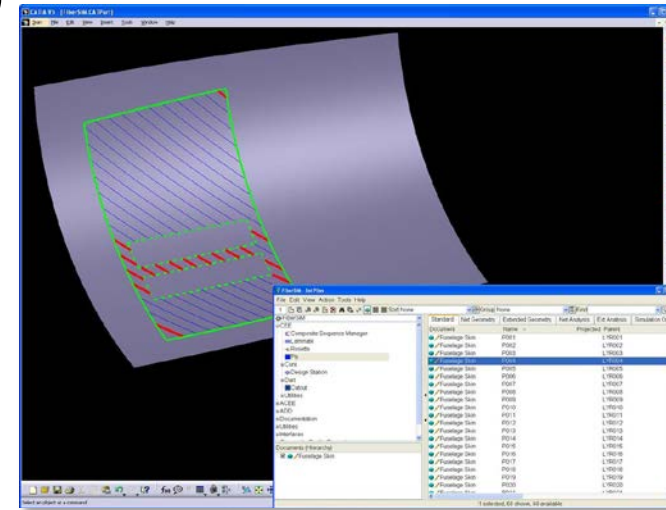
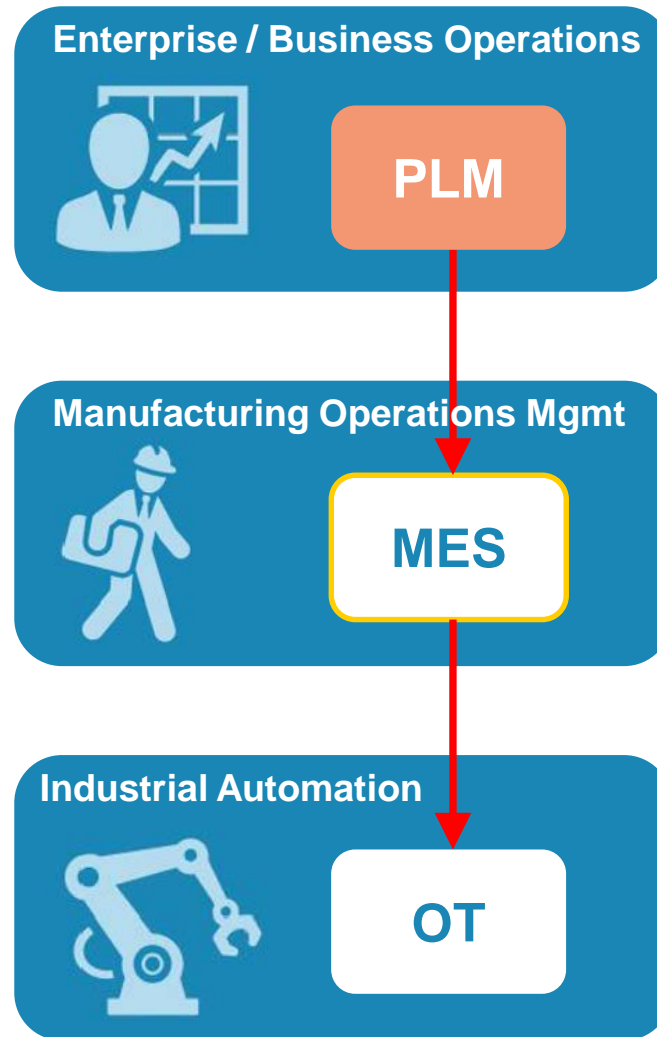
**Future State Architecture**

***Begin with the end in mind.***

# Strategy Drives the Digital Tapestry



## Vertical Thread: Composites Fabrication



# Strategy Drives the Digital Tapestry



## Horizontal Thread: Serialization Data

