

Air Force Materiel Command



Product Lifecycle Management (PLM) Capability Initiative (CI) DAU Insight Briefing

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Deliver and Support Agile War-Winning Capabilities



Purpose

Provide an overview of PLM and near-term PLM-CI activities



Overview

- **What is PLM?**
- **Why use PLM?**
- **What is AF PLM-CI?**
 - **AF PLM-CI Vision and Scope**
 - **Materiel (IT) Solution Status**
 - **Non-Materiel (Non-IT) Status**



What is PLM?

"PLM is a strategic business approach that applies a consistent set of business solutions in support of the collaborative creation, management, dissemination, and use of product definition information (product data) across the extended enterprise, and spanning from product concept to end of life-integrating people, processes, business systems, and information. PLM forms the product information backbone for a company and its extended enterprise." Source: [CIMdata](#)

Simply put, PLM is:

Creating Enterprise Product Data

Controlling Enterprise Product Data

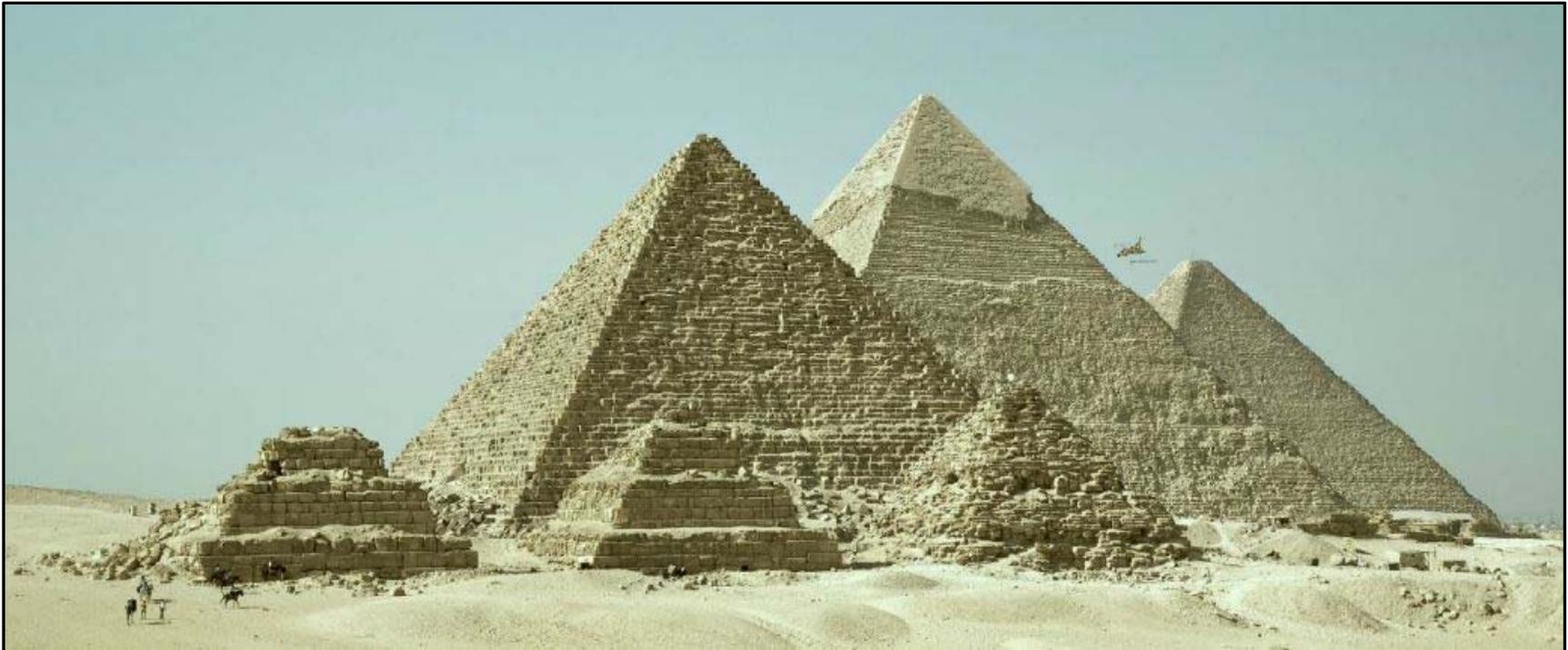
Sharing Enterprise Product Data

This context defines the core of PLM



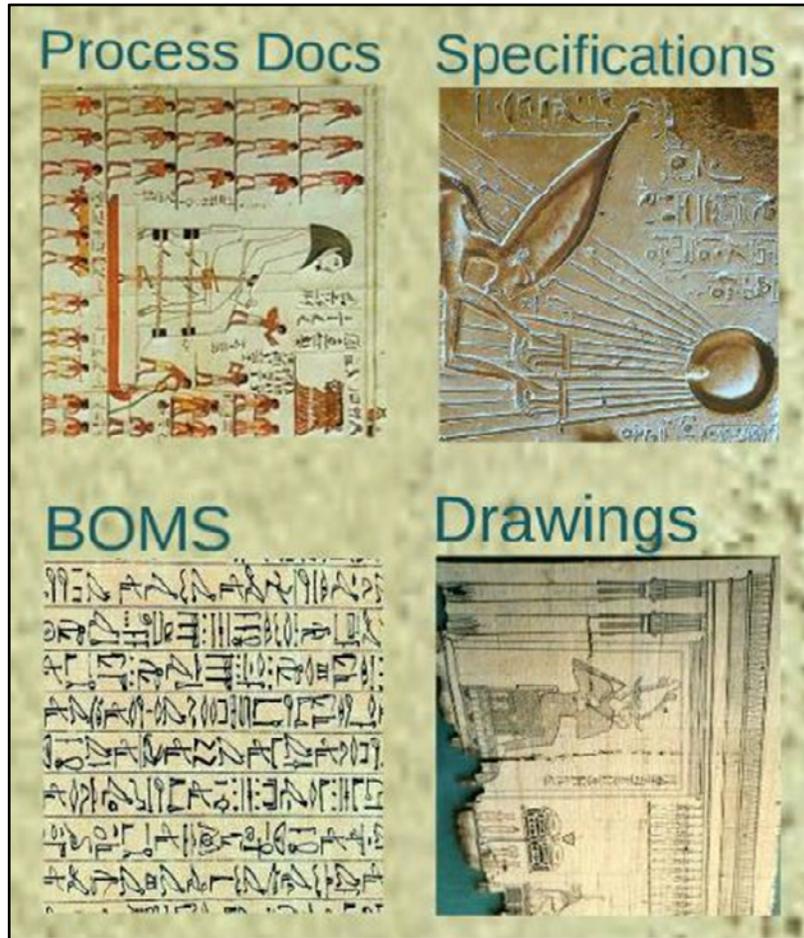
Is PLM New?

- **PLM at its core has always been around, however, it was much simpler.**





PLM Past

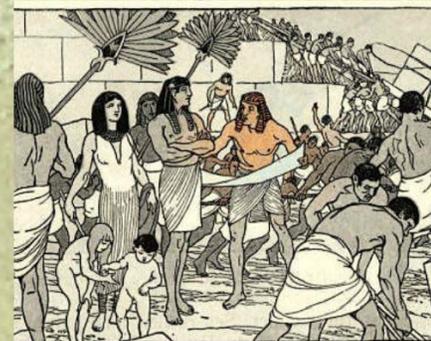


Documents CONTROLLED

"Though shalt NOT take
the Papyrus off the table

or else..."

Documents SHARED





It Worked in the Past

- It was a simple system, but it worked...**if** you had a **Bill of Materials** that was simple

PART NO.	ITEM	QTY	UNIT
1	CMN. LIMESTONE BLOCKS (CUT TO FIT)	2,021,276	EA
2	WHT. LIMESTONE BLOCKS (CUT TO FIT_	397,256	EA
3	GRANITE BLOCKS (CUT TO FIT)	106,721	EA
4	GOLD SHEET	1,465	SQ. CUBITS

4 Items
2.5 Million Parts
50,000 Workers
1 Subcontractor



Overview

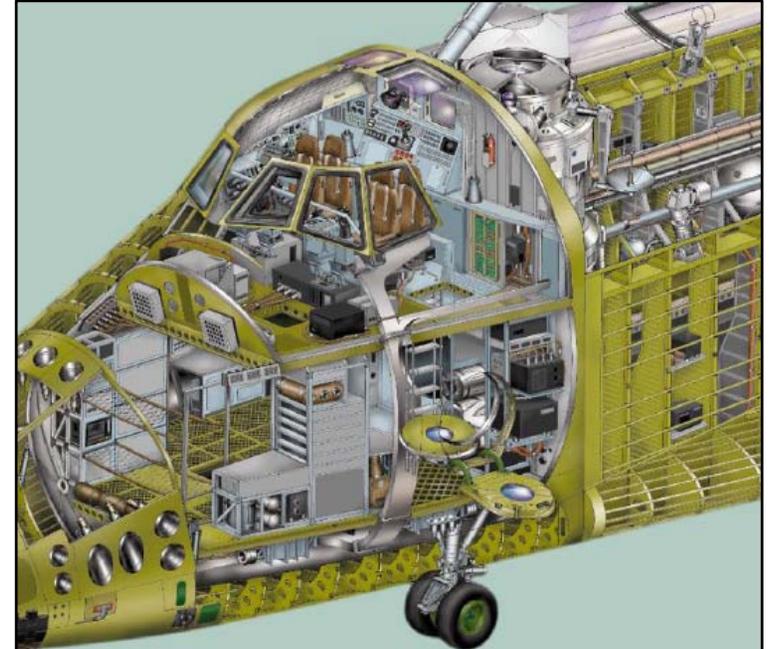
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Why Not Now?

- **Complexity of systems has come a long way in 4500 years**
- **Space Shuttle is widely acknowledged as the most complex machine ever built**
- **Part counts are similar to pyramids, 2.5 million parts; however, that's where similarity ends**

**Over 2.5 Million Parts
7,000 Workers
9 Years
100s of Subs
100s of Locations**

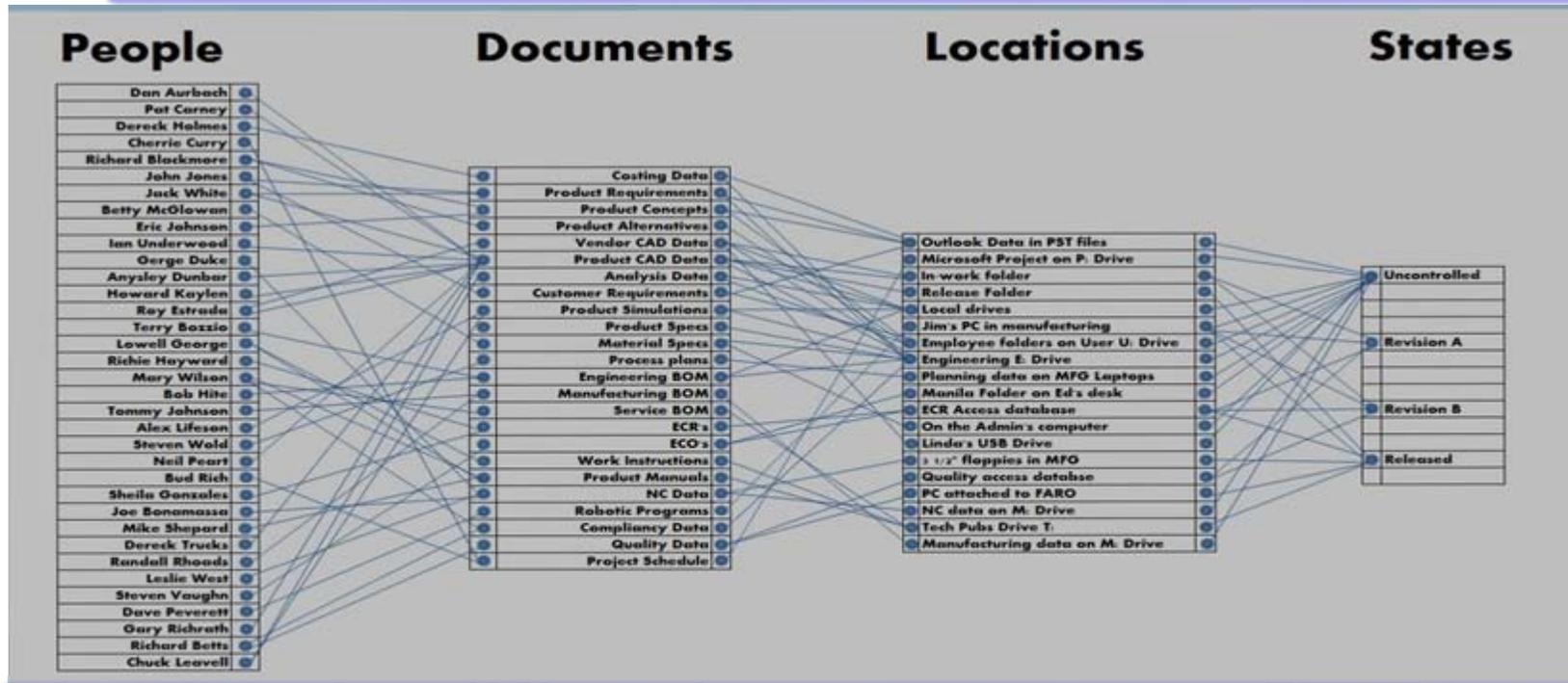




Today's Challenges - Data Complexity

20% of Engr./Mfg. time is spent looking for the right revision of product information – *CIMdata*

47% of ISO certification failures are attributed to poor document control – *British Standards Institute*

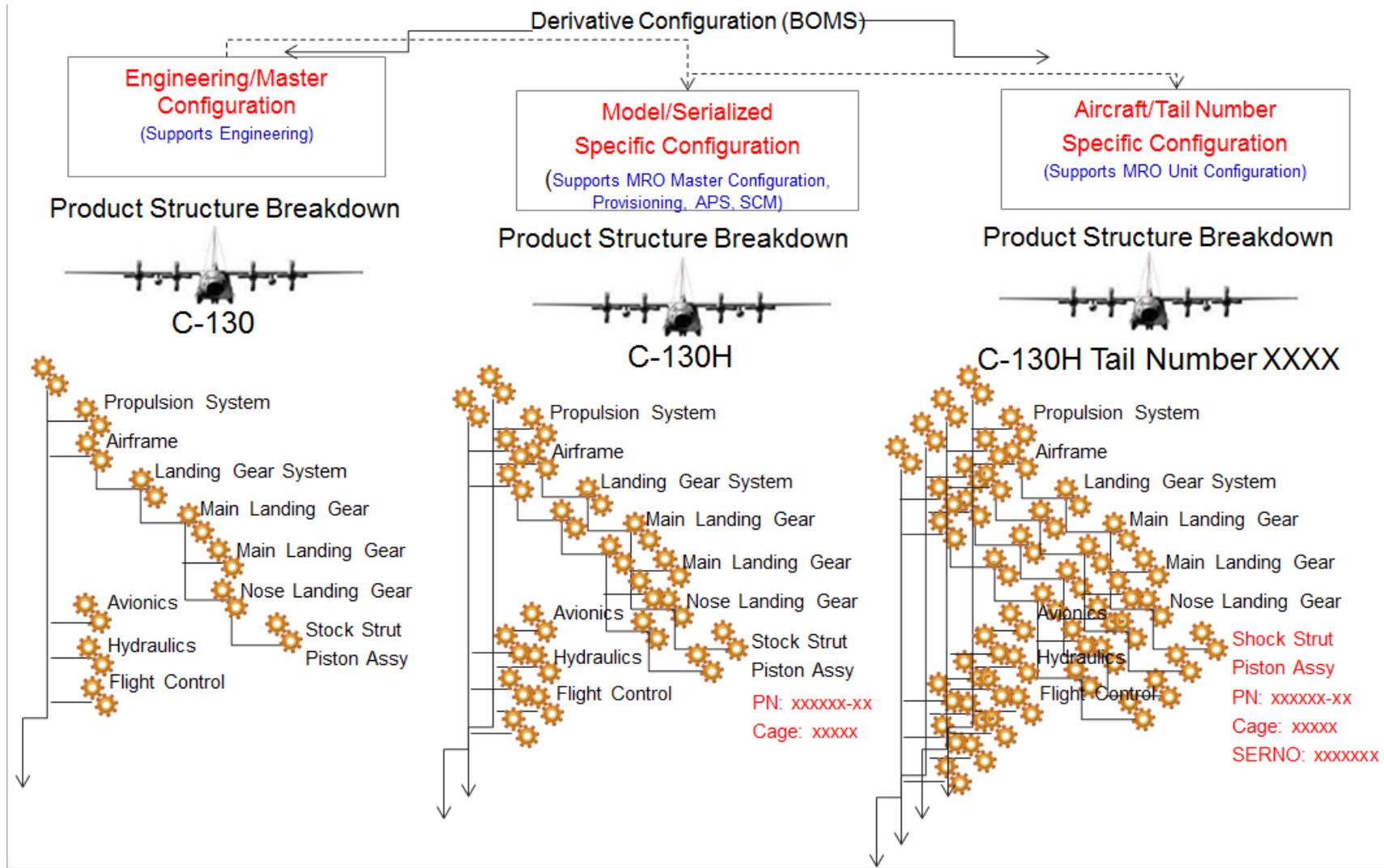


It's easy to see where the source of the problem is:

User * Document Types * Locations * States = OVERWHELMING CHALLENGE



Configurations Complexities

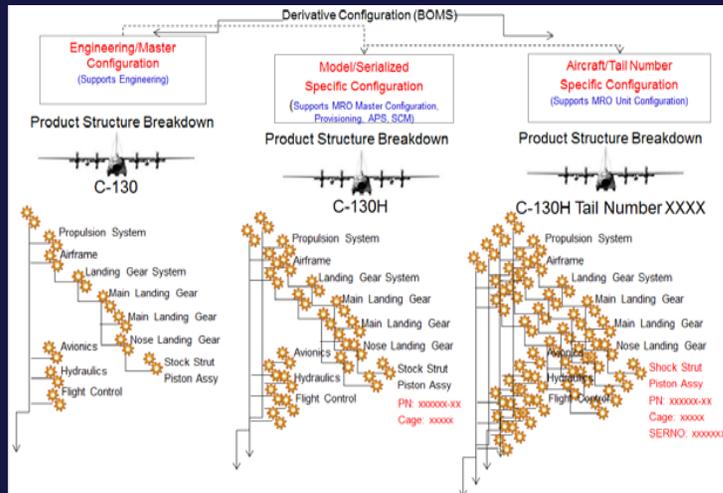




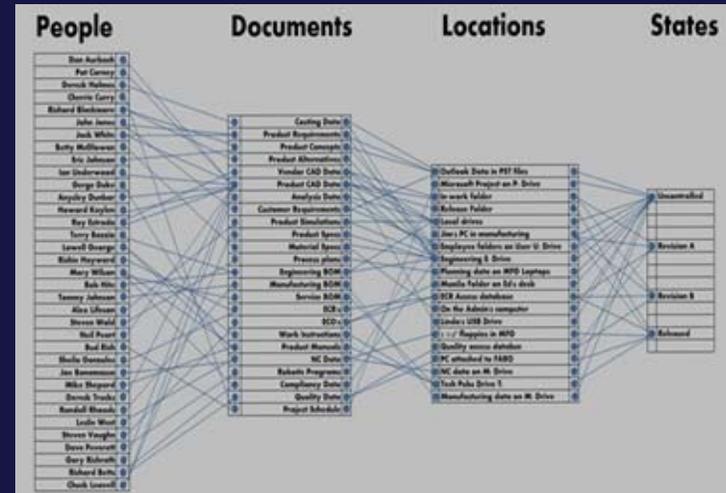
PLM Satisfies Challenges

Provides a single point of access to enterprise product data
 Controls enterprise product data history
 Enhances enterprise collaboration (enterprise is using same product Data)

Configurations and Product Structure Complexities



Data Complexities





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AF PLM-CI Vision

PLM-CI provides the USAF a single comprehensive enterprise capability to manage all program data and business processes from gap identification through disposal

- Requirements Traceability
- Analysis Data
- Test Data
- Reliability Availability Maintainability and Cost (RAM-C) Data
- Product Lifecycle Information (PLI)

**Linked
throughout
the lifecycle**



AF PLM-CI Scope

- **Communities**
 - Sustainment Engineering and Logistics (initial scope)
 - Acquisition (future scope)
- **Key Data (Product Lifecycle Information - PLI)**
 - Bill of Materials (BOM) / Product Structure, Geometry / Drawings and Models, Technical Orders / Illustrated Parts Breakdown (IPB) -4, Process Orders, Part Item Engineering Data
- **Capabilities**
 - Standard enterprise processes with common access
 - Accurate storage and quick retrieval of unclassified PLI
 - Efficient configuration management of PLI
 - Integrated engineering processes among program offices
 - Timely responses to customer requests for engineering and related technical assistance
 - Effective engineering analysis activities
- **Materiel (IT) and Non-Materiel (Non-IT)**



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PLM-CI Materiel Solution Status

- **Oct 15 Materiel Development Decision (MDD) approved PLM-CI prototype termed “Build Zero”**
 - **Developed foundational functionality and data sets necessary for future builds**
 - **Leveraged existing AFMC PLM capabilities (using Siemens Teamcenter)**
- **Interim Report to Milestone Decision Authority (MDA) – end of FY 16**
- **Final report to obtain approval to proceed – end of FY 17**



Foundational Workflows

- **Depot Assistance Request Workflow**
 - Prototyping AFMC Form 202 “Nonconforming Technical Assistance Request and Reply”; AFMAN 21-1 Ch 5
- **Field Assistance Request Workflow**
 - Prototyping 107 Technical Assistance Request (TAR); TO 00-25-107
- **Configuration Management Workflow**
 - Prototyping the control and management of changes to Product Structures and associated PLI; AFI 63-101/20-101, AFI 63-131, AFMCI 63-1201, MIL-HDBK-61A

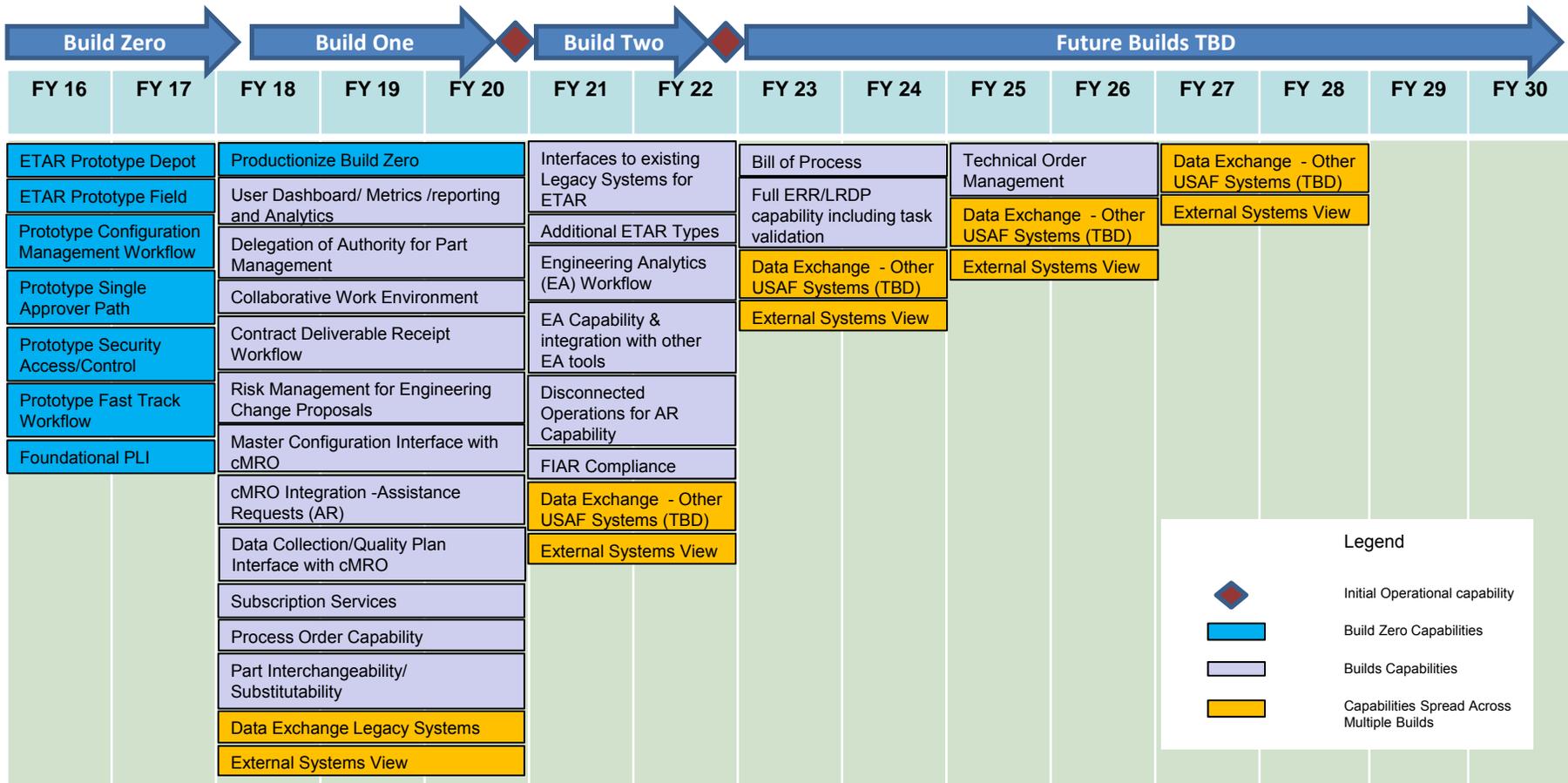


Foundational PLI

- **Bill of Materials (BOM) / Product Structure**
- **Geometry/Drawings and Models**
- **Technical Orders / Illustrated Parts Breakdown (IPB) -4**
- **Process Orders**
- **Part Item Engineering Data**



Notional Future Build Capabilities





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PLM-CI Non-Materiel Solution Status

- **Executing DOT_LPF-P Plan (DIP)**
 - Executing approved PLM-CI Communication Plan
 - Developing Organizational Change Management (OCM) Plan
 - **Initial DIP impacts:**
 - Organizational role changes to support future state roles
 - Business processes and solution training
 - Leadership advocacy and community engagements
 - Policy updates



Enterprise PLM-CI Technical Interchange Meeting (TIM)

- **Enterprise PLM-CI TIM with AFLCMC Chief Engineers (CE), Product Support Managers (PSM), and Organizational Senior Functionals (OSF) – 26-28 Jul 16**
- **TIM Purpose:**
 - **Discuss a common data standard to enable Owning the Technical Baseline (OTB)**
 - **Define a strategy to decrease the risk and conversion efforts for future enterprise PLM-CI deployments (on boarding)**
 - **Ensure emerging programs' PLM-CI functional needs and capabilities are identified**
- **PLM-CI Subject Matter Experts (SME) participating in-person or via conference call**



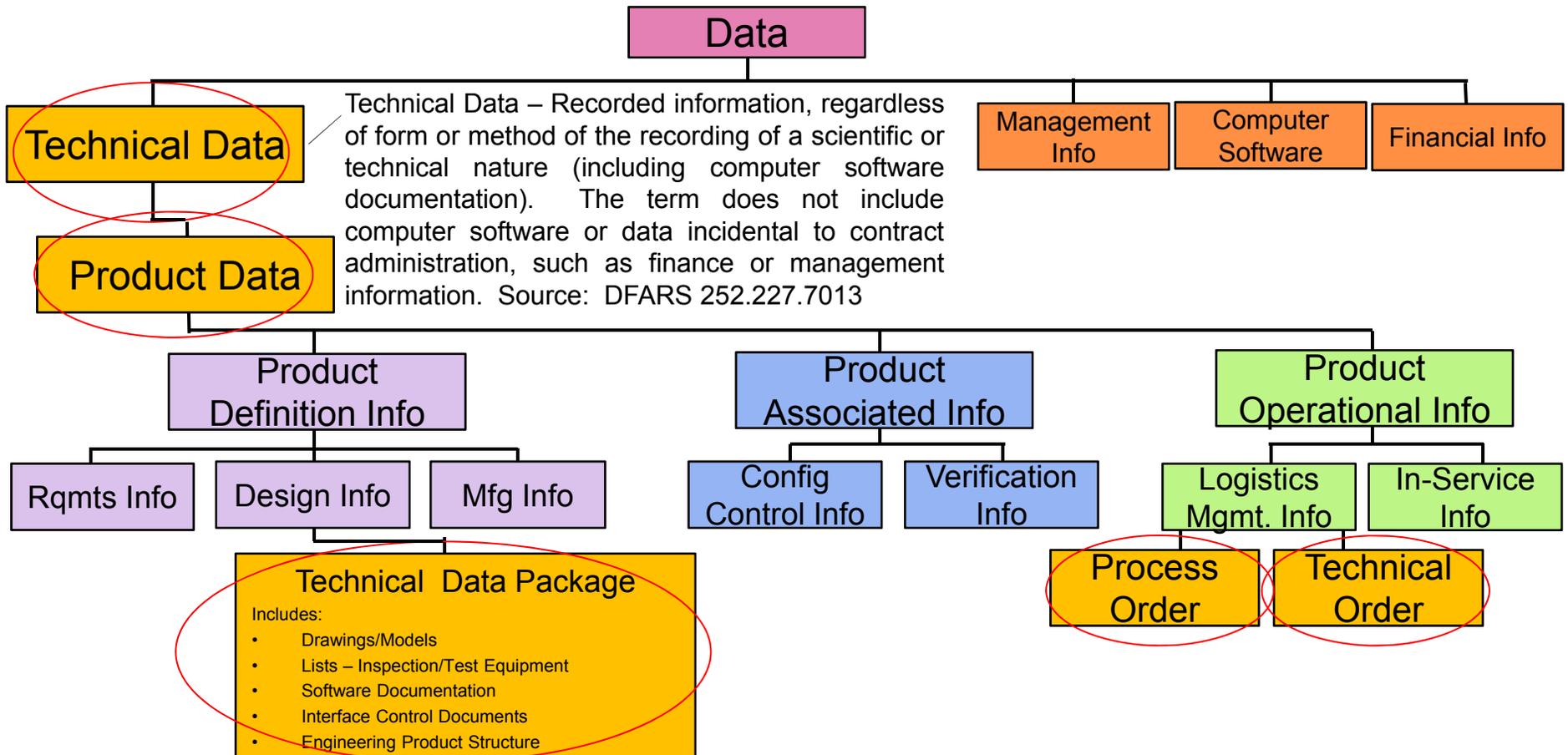
PLM Additional Information

- **More information on the PLM-CI can be found at the following links:**
 - [PLM-CI Newsletter](#)
 - [PLM-CI Frequently Asked Questions](#)
 - [PLM-CI 101 Intro Briefing](#)
 - [PLM-CI Key Messages](#)
 - [PLM-CI Vision](#)
- **Points of Contact**
 - **Brian Kinkade – Project Director**
 - 937-257-0138, Brian.kinkade@us.af.mil
 - **Capt Brian Bendele – Acquisition Project Manager**
 - 937-904-0752, Brian.bendele@us.af.mil





Product Data Hierarchy



TDP – A technical description of an item adequate for supporting an acquisition strategy, production, and engineering and logistics support. The description defines the required design configuration or performance requirements, and procedures required to ensure adequacy of item performance. It consists of applicable technical data such as models, drawings, associated lists, specifications, standards performance requirements, quality assurance requirements, software documentation and packaging details, Source: MIL STD - 31000

Legend
 PLI

PLM-CI creates, documents and controls the Product Data used to manage AF Assets