

A Practical Approach to Implementing STEP

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GLOBAL PRODUCT DATA INTEROPERABILITY SUMMIT 2023



Abstract

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Implementation of STEP in the Digital Enterprise offers tremendous potential benefits for MBD design and manufacturing but it is also a large disruptor to current system architecture ecosystems, authoring methods, and processes. How do OEMs ensure internal STEP implementations are a full solution to meet business needs and manage the change?

Multiple entities, including academia, standards organizations, and industry experts have invested thousands of hours developing MBD requirements for maturing the STEP standard. And while Boeing has been involved in these efforts the lack of an internal comprehensive view of what use cases are currently supported, future development roadmap, and understanding of what hasn't been accounted for has contributed to chaos in designing future production systems.

This presentation will describe the approach Boeing has taken to pause in the storm of change, define the baseline of use cases and MBD requirements for STEP, benefits and liabilities, and outlines a path forward for a complete implementation within the company.

Presenters Bio

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1 Mechanical & Electrical Drafter– Shah Smith & Associates

- 2007 - 2008:
 - Supported the designing and creation of CAD drawings for HVAC system schematics and riser diagrams under direct supervision of Master Drafters.

2 Tech Designer- Boeing

- Aug 2008 – Oct 2009:
 - Performed regression testing for engineering systems used to validate engineering package process for BCA.
- Oct 2009 – June 2012:
 - Defined engineering requirements for Change Orders- to improve and optimize solutions for complex engineering processes.

3 Product Data Management Specialist– Boeing

- Jun 2012 – Oct 2012:
 - Assisted in the analysis of engineering design for manufacturing build and inspect processes. Analysis resulted in contributions to the value stream mapping of fit-for-use requirements for the development of the 3DPDF for MBD in REDARS|EID.
- Oct 2012 – Sept 2014:
 - Led outsourcing project for manual engineering packages to supplier management including authoring best practices and authoritative documentation, and conducting training.
- Sept 2014 – Jan 2022:
 - Analyzed future state impact of transition from proprietary format to industry standards in BCA MBD supplier distribution. Resulted in implementation proposal for high value targets to transition.

4 Computing/System Architect – Boeing

- Jan 2022-Present:
 - Analyzing MBD CATIA V5 & 3DX to STEP AP242 interoperability. This supports Enterprise/BCA use of STEP AP242 in the design and manufacturing processes.

Education:

2008	Computer Drafting & Design AS (Valedictorian/Honors) ITT Technical Institute
2017	Business Administration BS City University
2021	Masters in Information Systems (Computer Science) (Honors) University of Phoenix

Certification in Model Based Systems Engineering 2017
MIT

Certification in Product Lifecycle Management 2018
Purdue University

Certification in Additive MFG 2018
MIT

Certification in Business Analytics 2021
University of Phoenix



Drafter/Tech Designer

Product Data Management Specialist

Computing System Architect

2007

2010

2015

2020

2025

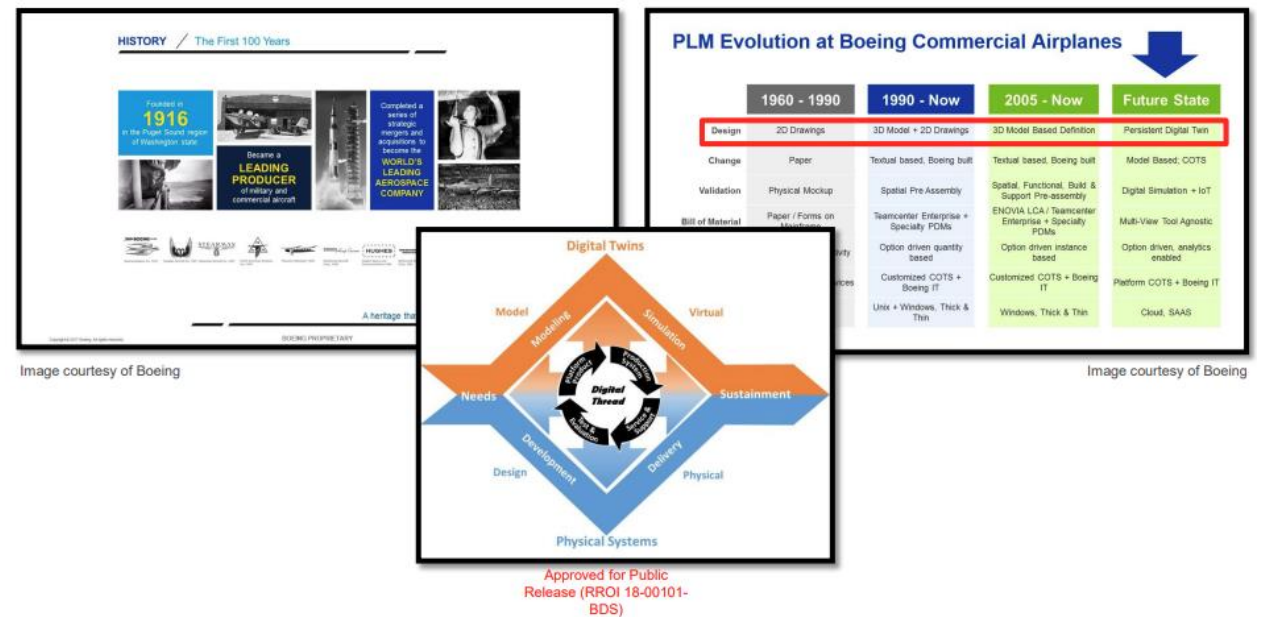
Agenda

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- **Opportunity**
- **Approach**
- **Current Findings**
- **LLAI Example**
- **Key Take Away**

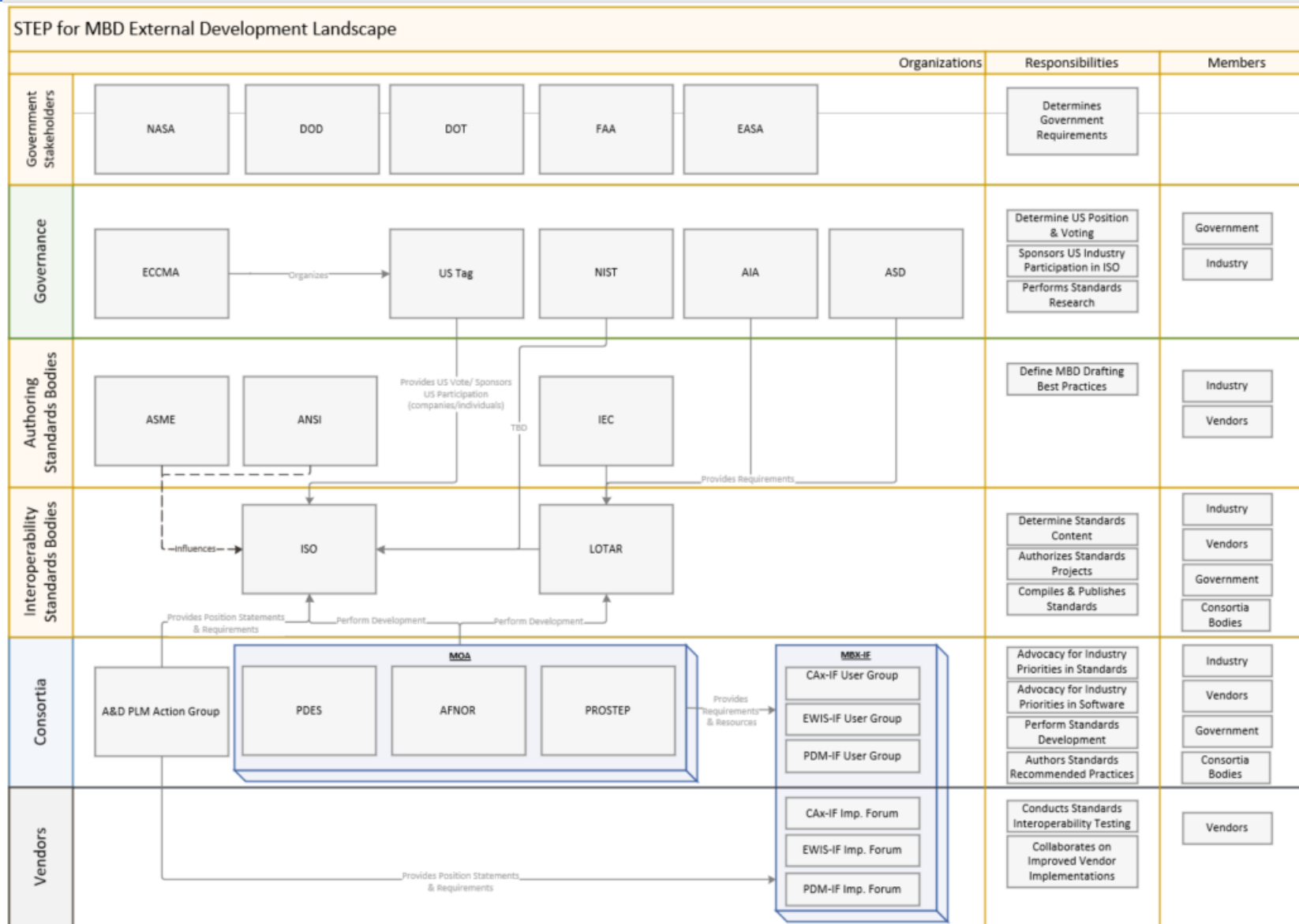
- **Digital Thread (DTh) has a central role**
 - Addressing Emerging Technology
 - Data-Driven Decision Making
 - Automating Product Development
 - Automating Manufacturing
- **Data Standards enable the DTh**
 - What are the key areas to enable Data Standards?
 - How do we know where we are at?
 - How do we move them forward?

From DWGs to MBDs to Digital Thread and Beyond



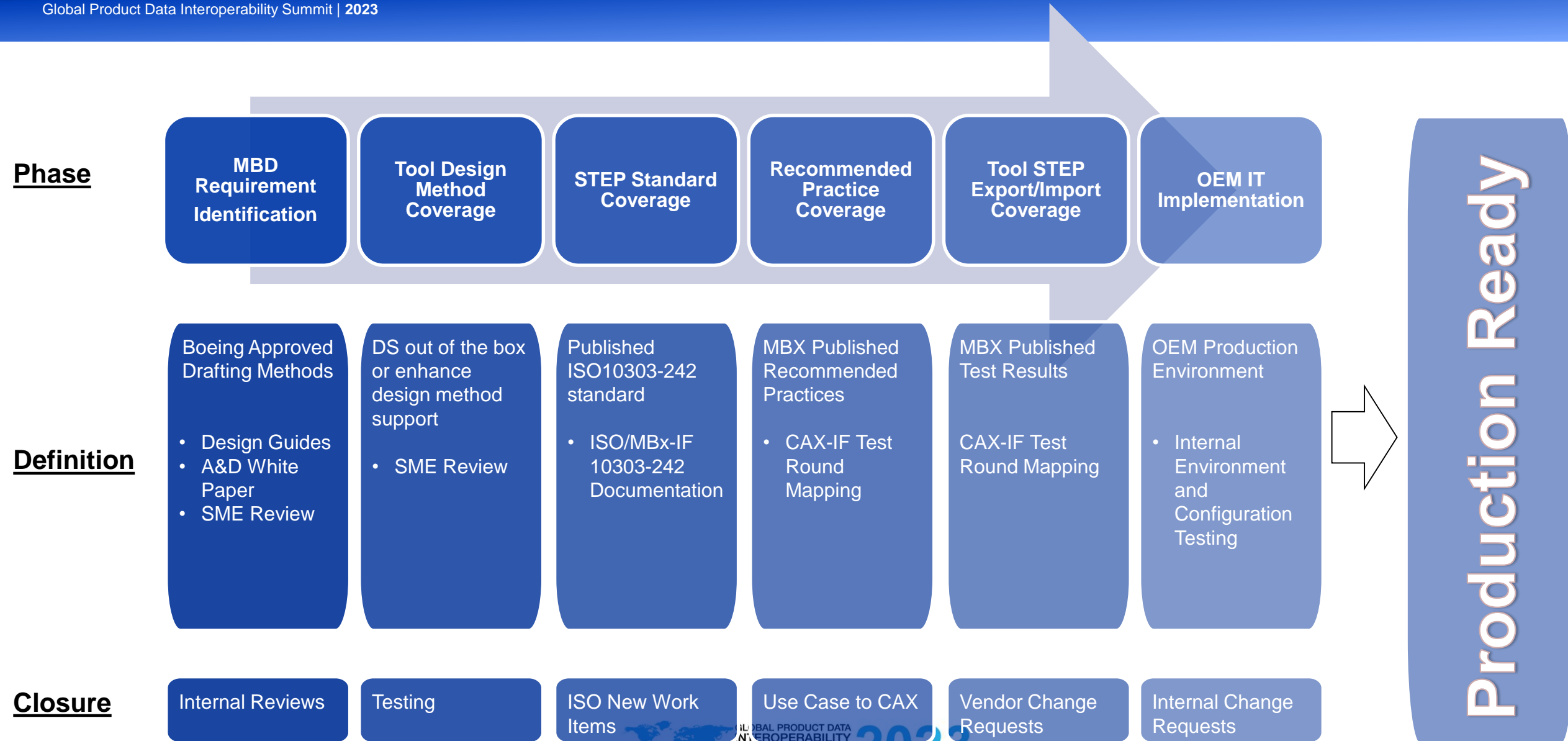
External Landscape Chart

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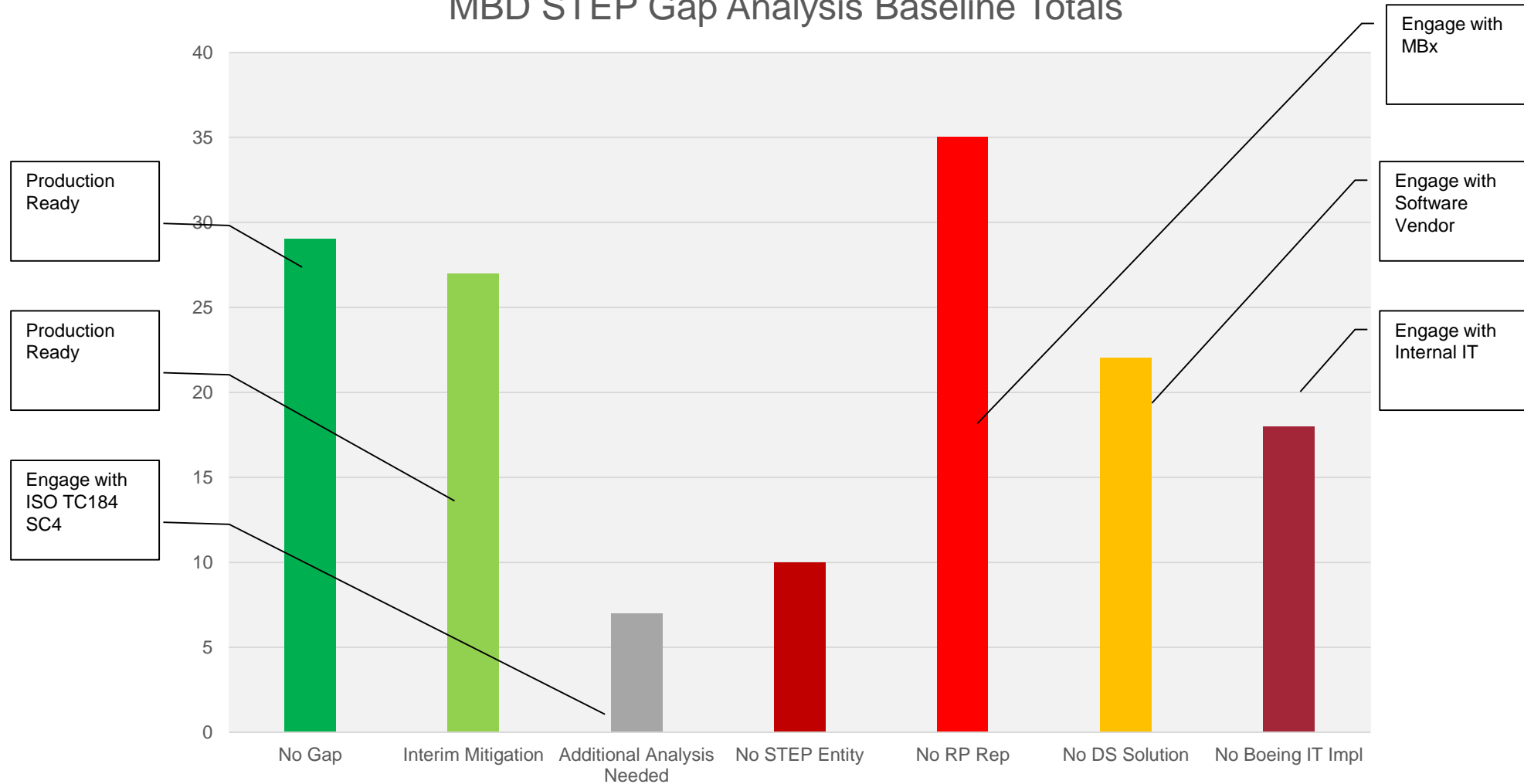
Approach: Evaluation Process

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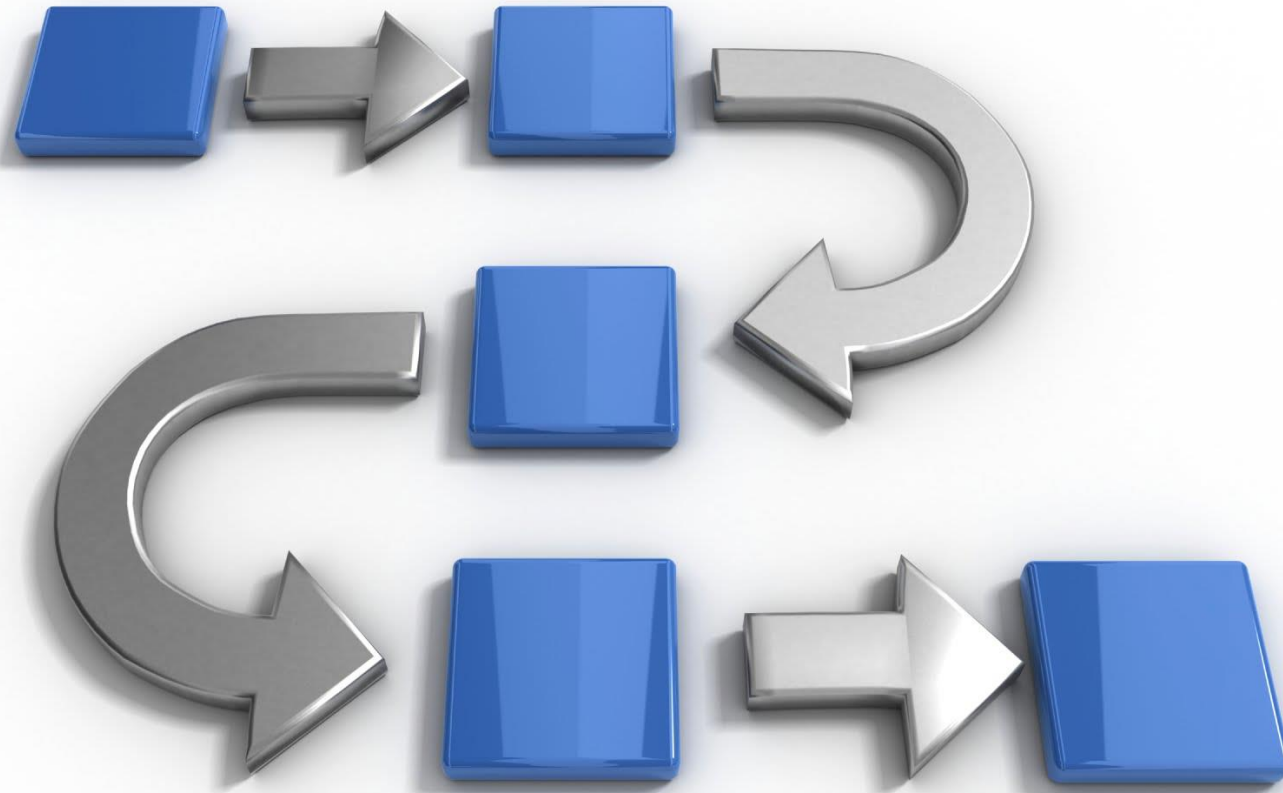
Production Ready

MBD STEP Gap Analysis Baseline Totals



LLAI Example

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Team Appreciation

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- **John Van Horn**
- **Andrea Celori**
- **Keith Huntten**

Questions?