

Five Ways to Accelerate Your 5-Yr MBE Transformation Plan

Karen Kontos, Sr. Manager - Capgemini
Antonio Mazzoldi, Sr. Manager - Capgemini
MBSE Workshop
September 27, 2022



PRESENTER BIO

Global Product Data Interoperability Summit | 2022



Antonio Mazzoldi

Senior Manager Systems and Mechanical Engineering, North America

Competencies

- Systems Engineering and MBSE
- Mechanical Engineering
- Digital Continuity & MBE
- Team Lead
- Business processes
- Training, Support
- Aircraft Design

Education

- MSc Aerospace Vehicle Design, Cranfield University
- BSc Aerospace Engineering, Politecnico di Torino

Profile

Antonio Mazzoldi is Senior Solutions Manager with Capgemini Engineering, currently leading Systems Engineering, MBSE and MBE for the North American market.

He has 12+ years of experience in product development and engineering services, having been involved in different projects spanning from conception and detail design of new products to industrial ramp-up and in-service support activities. Strongly focused on aerospace, He led teams developing manned commercial and military aircraft and UAVs in university and industry.

Passionate about technology and innovation, he's always looking for new challenges and gladly engage in large transformation programs and solutions at the forefront of the intelligent industry, helping customers adopting innovative model based best practices for their product development.

Selected Work Experience

Capgemini – Senior Manager Systems Engineering

- North America Lead Solutions Architect for Systems Engineering, MBSE, MBE and leading customer's solutions architecture in Aerospace, Auto and Transportation. Driving team enablement and development with dedicated training solutions and research activities.

Capgemini – Technical Lead Engineer Virtual Engineering

- Coordination and development of the team offering Systems Engineering, MBSE and MBD/MBE. German representative in the global Capgemini MBSE CoC and network. Lead digital transformation teams developing business processes, best practices and training material for aerospace and defense customers and internal MBSE and MBD solution benchmark labs

Capgemini – Technical Lead Engineer Design Engineering

- Coordination and supervision of design activities, workload estimation and distribution, resource planning and team development for all aerospace customer in south Germany. Ensure deliveries are on quality and on time. Performed trainings of design and PLM methods and tools to internal and client's teams for aerospace and automotive customers

CAPGEMINI, WE PIONEER THE INTELLIGENT INDUSTRY



Global Product Data Interoperability Summit | 2022



€18bn
revenue

325,000
people

50+
countries
with more than 120
nationalities

#1
in ER&D market
since 30+ years

52,000
engineers & scientists
in Capgemini engineering

50+
clients ranked us as
strategic partner by

2/3rd
of the top 500 global
R&D spenders are clients

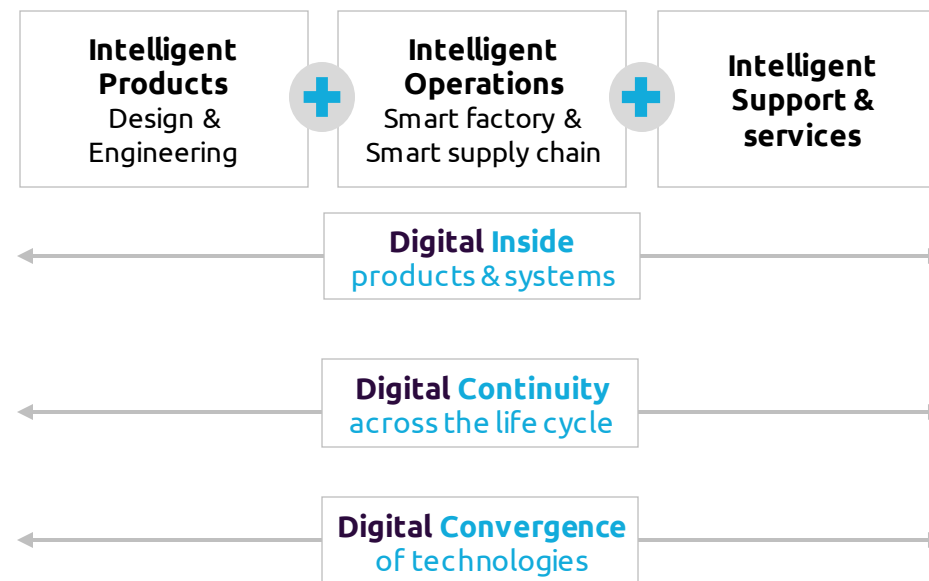
LONG-STANDING PARTNER OF INNOVATION LEADERS IN
R&D INTENSIVE SECTORS

AUTOMOTIVE AERONAUTICS SPACE, DEFENSE & NAVAL ENERGY
LIFE SCIENCES CONSUMER RAIL, INFRASTRUCTURE & TRANSPORT INDUSTRIAL

AND THE ER&D PIONEER IN PIVOTAL INDUSTRIES

COMMUNICATIONS SEMICONDUCTOR & ELECTRONICS SOFTWARE & INTERNET

“We foster synergies between the Digital and the Engineering worlds to help any company build intelligent **products, operations** and **services** at scale with digital **inside** everything, digital **continuity** throughout lifecycle and digital **convergence** with its ecosystem, allowing the rise of a sustainable Intelligent Industry era.”

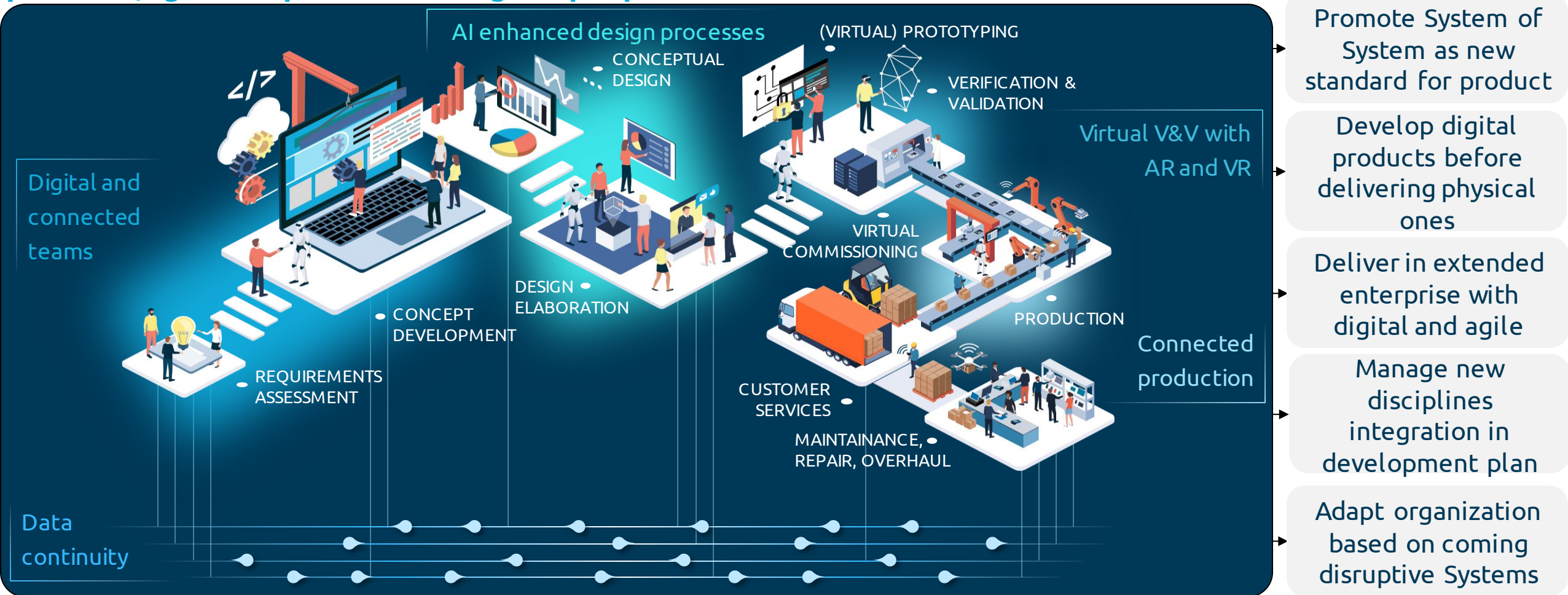




THE NEXT EVOLUTION OF PRODUCT DEVELOPMENT

Global Product Data Interoperability Summit | 2022

Current context is an ecosystem made of more and more **versatile markets, complex expectations towards products, agile competitors and digital people:**

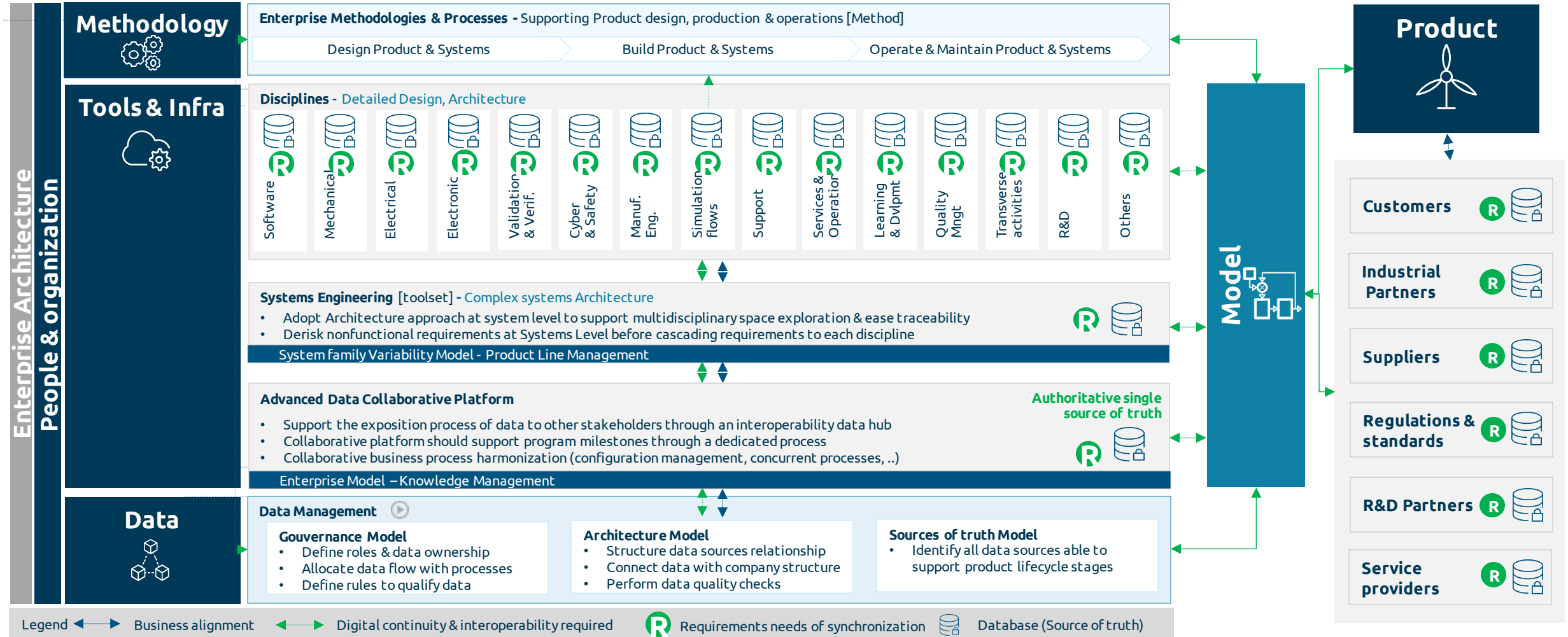


MODELS TO ADDRESS THIS HIGHLY INTER-RELATED ENVIRONMENT

Global Product Data Interoperability Summit | 2022



Strategic objectives of the Enterprise - Enabling company set-up to face next generation challenges



FOUNDATIONS FOR DIGITAL TRANSFORMATION



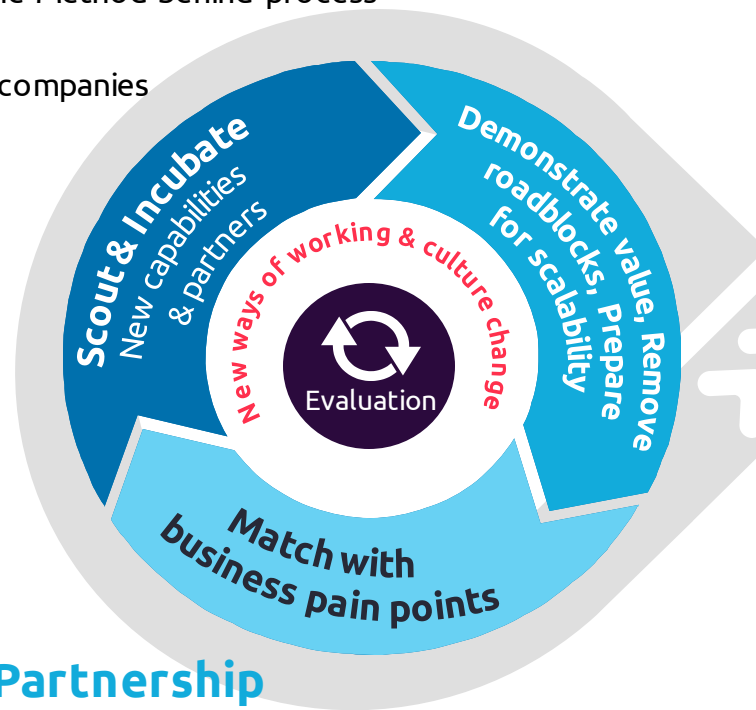
Global Product Data Interoperability Summit | 2022

Transformation to break silos

Drive transformation across IT & Business

Get unique chance to re-baseline Method behind process based on best of the tools.

Re-Invent collaboration across companies



Strengthen Editor Partnership

Warrant of the best of the platform

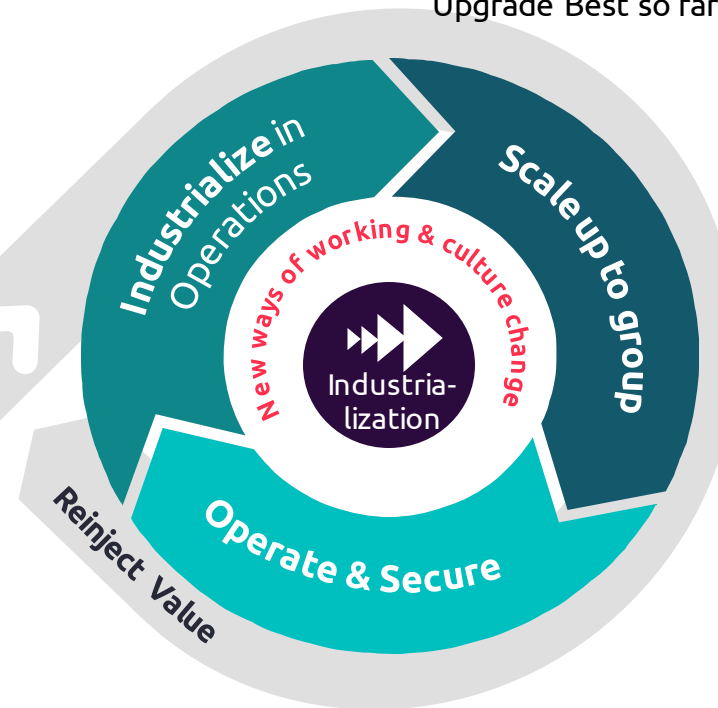
“Follow the version” strategy

Manage gap btw solutions & business needs

New Generation & Industrialization

IT Seamless based on business needs

Upgrade Best so far technologies to manage platform



Data Legacy Management

Synchronize data from legacies to open new services

Accelerate use of platform & solutions.

PRESENTER BIO

Global Product Data Interoperability Summit | 2022



Karen Kontos

Senior Manager Systems Engineering

Competencies

- New Product Introduction
- Program Management
- Engineering Leadership
- Model Based Enterprise
- Product Lifecycle Management
- APQP, DFMEA, PFMEA, SPC
- Manufacturing Engineering

Educations

- M.S. Engineering, Acoustics & Vibration
University of Cincinnati; Cincinnati, OH
- B.S. Engineering, Engineering Acoustics
University of Hartford; Hartford, CT
- 2008 Six Sigma Black Belt

Profile

Karen Kontos is a Senior Engineering Manager with Capgemini Engineering, with over 30 years of experience in the Aerospace industry. She has held a variety of leadership roles in Engineering, Manufacturing, Product Lifecycle Management, APQP and Business Management. She is certified Six Sigma Belt and has driven large business transformations. Karen previously served as Vice-Chair of PDES Inc, leading industry efforts supporting model-based enterprise and standard based data exchange. She is currently working as Senior Manager/Expert in model based enterprise client delivery.

Selected Work Experience

Senior Product Manufacturing Engineering Manager:

- Leading manufacturing engineering team in factory support as well as strategic initiatives that innovate manufacturing engineering processes for increased efficiency and factory of the future. Lead large team (up to 30 direct reports) of Manufacturing Engineers. Deployment of SPC and analytics for proactive control of quality/zero escapes. Process transformations to improve producibility and reduce cycle time by 50%. Planning and implementation of IIOT factory solutions and digitalization supporting quality and delivery

Senior Manager – Production Support Engineering Strategic Programs

- Lead engineering and supply chain strategic initiatives that innovate engineering processes for producibility and highly successful product launches. Strong track record for results. Lead Advanced Quality Product Planning (APQP) and Flawless Launch global teams to innovate solutions to improve producibility at all Aerospace sites. 100% of programs launched on time in 2018 (global team of 20, team supports over 80 programs) with over 96% Rolled Throughput Yield, on target unit part cost, and delivering to “zero escapes”. Innovated early supplier engagement process to ensure robust supplier feedback and design incorporation on all new product introductions (mechanical and electrical). Established scalable infrastructure to manage resources, priorities, and programs

Technical Manager – Product Lifecycle Management

- Managing global team of 15 direct reports for engineering tools and process development. Leading model-based enterprise strategies into deployment. Implemented technologies for improved data quality and bi-directional data exchange (Industrial Internet of Things IIoT) with external suppliers and partners. Deployed Model Based Enterprise (MBE) for Electrical Hardware, streamlined digital thread for suppliers. Strategized and deployed automation of standards-based, closed-loop supplier feedback supporting Design for Manufacturing. Implemented on major new program with hundreds of electrical and mechanical suppliers.

MODEL BASED ENTERPRISE TRANSFORMATION – IT'S A JOURNEY

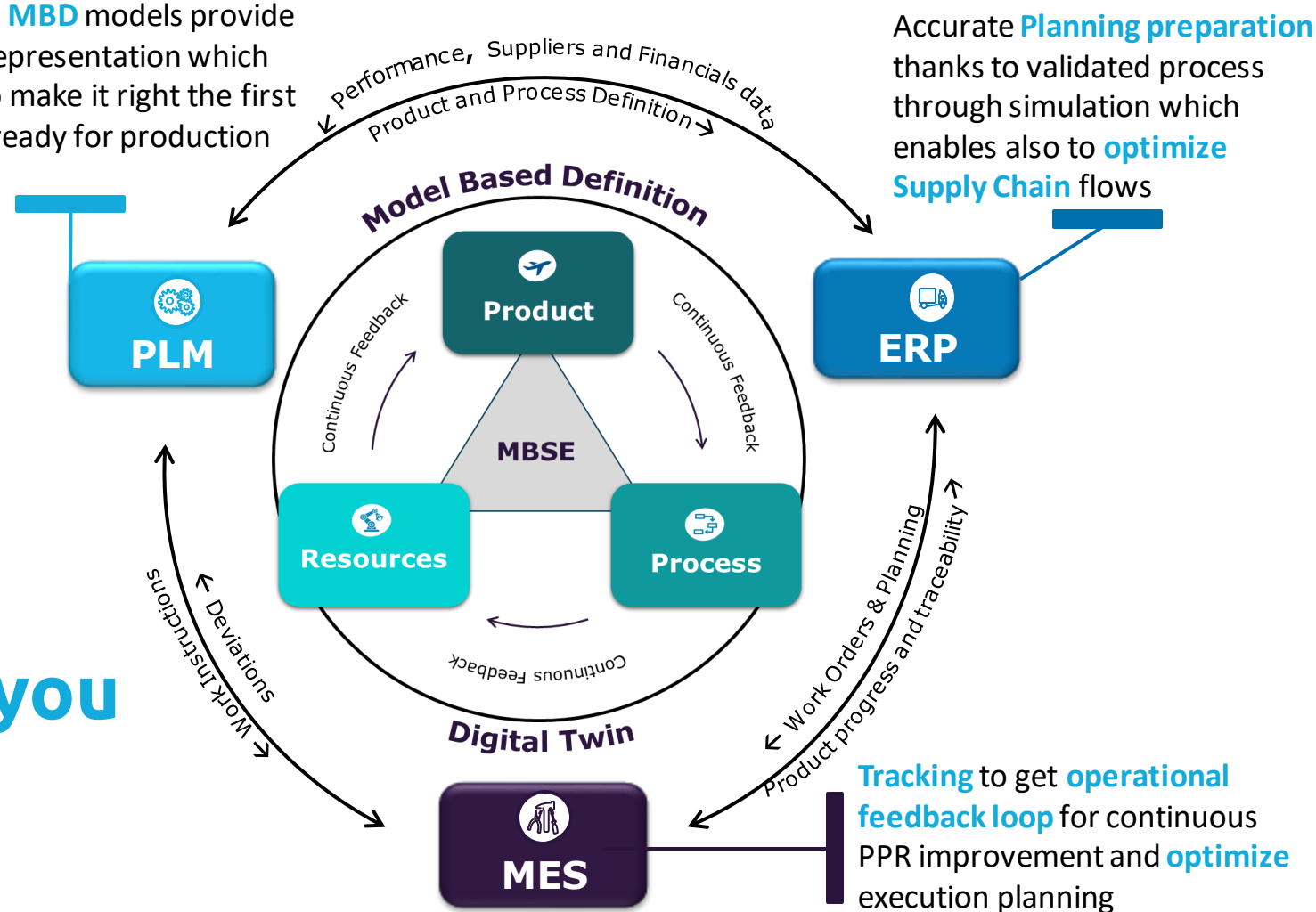
Global Product Data Interoperability Summit | 2022



Is Your 5-Year Transformation Plan more than 5 years old now?

It's a complex world, and you are not alone!

MBSE and **MBD** models provide a virtual representation which enables to make it right the first time and ready for production ramp-up.



MODEL BASED TRANSFORMATION – COMMON REASONS FOR DELAYS



Global Product Data Interoperability Summit | 2022

What are some of the primary reasons that 5-yr plans become delayed?

(Hint: they are the things that are typically “not on the charts”)



Competing Priorities

- Lack of resources
- Lack of understanding of business value
- Lack of specific goals and metrics to measure progress



Difficulty to scale from pilots to production

- Many tools and platforms
- Complex products, processes, organizations



Lack of cross-functional engagement

- Engineering push vs. supply chain pull



Management of large change

- People, Suppliers, Customers, Regulatory



IF YOUR ISSUE IS.....THEN ACCELERATE BY TAKING THESE ACTIONS

Global Product Data Interoperability Summit | 2022



Issue: Competing Priorities

Ask yourself...

- Is there a detail plan based on the value stream?
- Is the return on investment clearly defined? Is the level of effort clear?
- Are the cross-functional leaders all engaged and sending consistent messages?
- Is everyone working to common goals that are being measured?

Actions to Accelerate

1. Understand the value stream – evaluate the current state and all the points of disconnected models/information.
2. Target the biggest pain points to improve
3. Use the data from the value stream to analyze the Return on Investment
4. Take an Agile approach – deliver small wins, often!

IF YOUR ISSUE IS.....THEN ACCELERATE BY TAKING THESE ACTIONS



Global Product Data Interoperability Summit | 2022



Issue: Lack of Cross-Functional Engagement

Ask yourself....

- Is your organization leveraging an “engineering push” of model-based definition? Or is there a customer or supply chain “pull” demanding the results that only a streamlined digital thread can deliver?
- How are objectives and results communicated?
- How are project results driven?
- Is there a cross-functional governance team that supports technical development of SMEs and overall knowledge-sharing?

Actions to Accelerate

1. Secure value-driven supply chain pull
2. Ensure goals are driven from high level of leadership and there are common metrics
3. Create an environment where peer to peer knowledge is shared
4. Consider involvement of an Organizational Development team

IF YOUR ISSUE IS... THEN ACCELERATE BY TAKING THESE ACTIONS

Global Product Data Interoperability Summit | 2022



Issue: Difficulty to scale implementation from pilots to production

Ask yourself...

- Are solutions being based on customizations of tools, or on common standards?
- Do pilots involve all (internal and external) stakeholders?
- Is there an architecture team engaged?
- Is there a long-term vision for the digital thread?
- Have enough pilots been done that represent your products?
- Is there a risk management plan?

Actions to Accelerate

1. Leverage standards to build the bridges between systems. Work with vendors and standards orgs to share requirements, encourage development and adoption
2. Develop a two-way communication plan with suppliers and customers
3. Systems Architecture – develop a strategy to support the long-term vision

IF YOUR ISSUE IS.....THEN ACCELERATE BY TAKING THESE ACTIONS



Global Product Data Interoperability Summit | 2022



Issue: Management of large process change

Ask Yourself...

- What is the “catalyst” that will trigger the change?
- Is there a training plan?
- How will success be measured?
- Is there a communication plan?
- Are customers, suppliers, and regulatory agencies on board with the new process?

Actions to Accelerate

1. Define communication plans for all stakeholders
2. Create catalysts – a date, a product line, a new program, etc.
3. Drive common metrics that are measured across functions
4. Work proactively with suppliers, customers, and regulatory agencies
5. Create councils that serve to further develop and share knowledge

DRIVE: DELIVER ROBUST INNOVATIVE VALUE & EMPOWER

Global Product Data Interoperability Summit | 2022

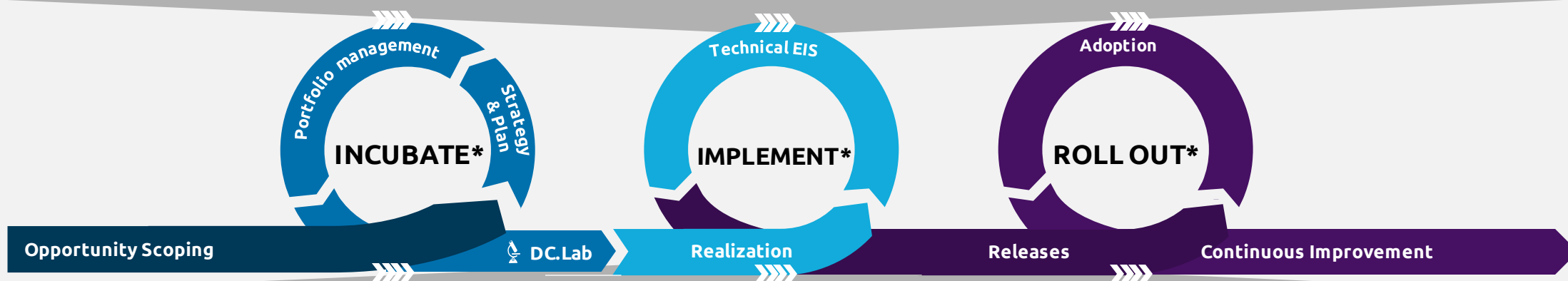


This Execution Model is **systemic** (processes & methods, roles, data model, tools, culture), **agile** to ensure an incremental and sustainable transformation, and **asset-based** to go faster

Based on  SAFe

Program Management

Business Transformation Factory



Integration Factory

Solution Management



(*) Product Increment pace

OUR CONVICTIONS TO SUCCEED IN DIGITAL TRANSFORMATIONS



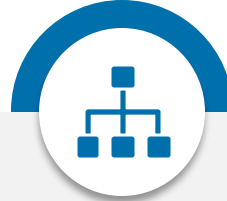
Global Product Data Interoperability Summit | 2022

Our experience on such company changes, the daily business challenges to balance delivery and transformation, and human capacity to cope with change led us to the following recommendations



Results oriented

- Pragmatic Delivery Approach
- Closest to the business
- No Tunnel Effect
- Smooth secure transition from legacy to 3DX



Business Alignment

- Activate our network and leverage our business teams to accelerate processes maturation (Manufacturing engineering, ...)
- Assess and demonstrate the capabilities to the Business before implementation



Change by design

- Continuous involvement of End Users in the definition and acceptance of the solution
- End Users part of the project as ambassadors of the solution



Quick Wins

- Need to deliver quickly a production version with added value for business
- Continuous demonstrations in live systems



Seamless IT

- Automation at right scale to accelerate the value delivery
- Secures the programs by accelerating development and removing the deployment efforts
- Continuous Migration/Integration framework with delta-mode capability



Editors Partnership

- Work closely with editors to ensure that the solution is built respecting the best practices
- Make sure the upgradability of the solution is aligned with Software PLM roadmap

QUESTIONS?

Global Product Data Interoperability Summit | 2022



Thank you!



Karen Kontos

Senior Manager Systems Engineering
Engineering and R&D Services
Capgemini America Inc.
karen.kontos@capgemini.com
+1 (602) 706-3351



Antonio Mazzoldi

Senior Manager Systems and Mechanical Engineering NAR
Engineering and R&D Services
Capgemini America Inc.
antonio.mazzoldi@capgemini.com
+1(617) 992-4595