

Welcome to the 2020 GPDIS Virtual Sessions!

Global Product Data Interoperability Summit | 2020

Welcome to the 2020 GPDIS Virtual Session # 7

These sessions will be recorded

All attendees will remain on mute.

If you have a question please place it in the chat to “All Attendees”. We are not using Q&A

CAMSC

MBSE

ET/IT

3D MBD

DevOps

PLM Roadmap

PDES

Our Sponsors

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History and Focus of GPDIS

- Global Product Data Interoperability Summit (GPDIS) was formed in 2009. It was the consolidation of two conferences (Data Exchange and SOA Deep Dives) addressing integration technologies along with the non-proprietary exchange of data
- GPDIS functions as a communications hub for industry principals to foster knowledge through the exchange of ideas, solutions and methods.

2020 Theme: The Great Race of Digital Transformation

How is your model based enterprise today?

- Together we will explore digital transformation and what it will take us to FULLY achieve it. Using the Great Race as a metaphor, we will explore the building blocks of digital transformation and how interoperability will enable the digital transformation journey for industry.

CAMSC

MBSE

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3D MBD

DevOps

PLM Roadmap

PDES

Malcolm Panthaki

Malcolm Panthaki has over 30 years of experience developing simulation environments to enhance the effectiveness of the product development process, bringing simulation safely and robustly to the entire enterprise. As an entrepreneur and founder of Comet Solutions and as the founder of the online community, *Revolution In Simulation*, he has helped reshape the dialog on bringing simulation to everyone that needs it, not just the experts. Malcolm has been in the Strategy Team at Aras for 2 years as VP of Analysis Solutions and covers MBSE and Simulation.

Tim Keer

Tim Keer spent the first 25 years of his career at Arup, the global engineering design firm, performing and managing technical project work for clients in the automotive, aerospace, nuclear and built environment industries. He was always looking for ways to improve the efficiency of simulations and in 2013 joined Comet Solutions, the developer of simulation automation software. In 2018, Comet Solutions was acquired by Aras in order to broaden Aras's digital platform. Tim is now Director North America Pre-Sales at Aras.

Systems Thinking and an End-to-End Digital Thread must support “All-D”, including 3-D



Malcolm Panthaki
VP Analysis Solutions | Aras



Tim Keer
Director Pre-Sales | Aras

Engineering Complex Systems in Aras



GLOBAL PRODUCT DATA
INTEROPERABILITY
S U M M I T
2020



**Virtual
Session 7**

Accelerating Rate of Change & Disruption

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Smart Connected
Products



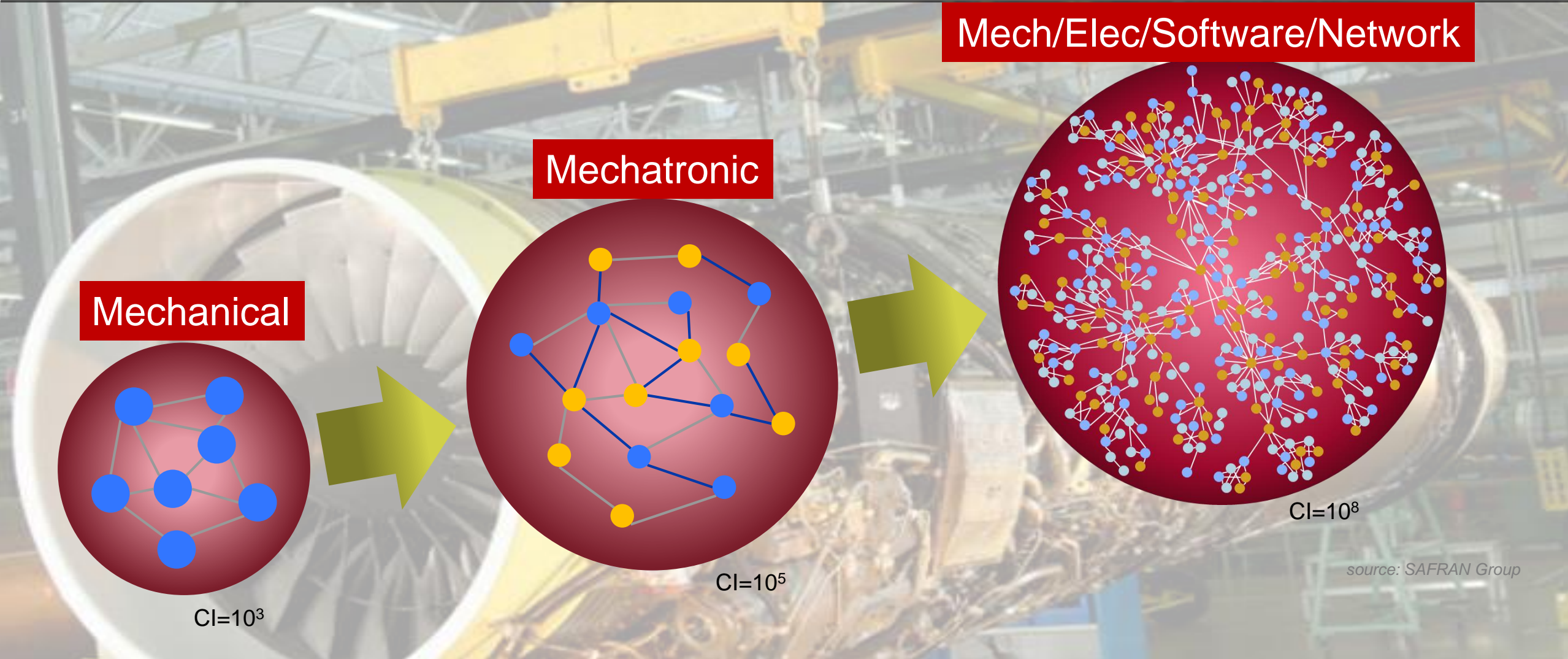
Industrial Internet &
Industrie 4.0



Product-as-a-Service

Explosion of Complexity

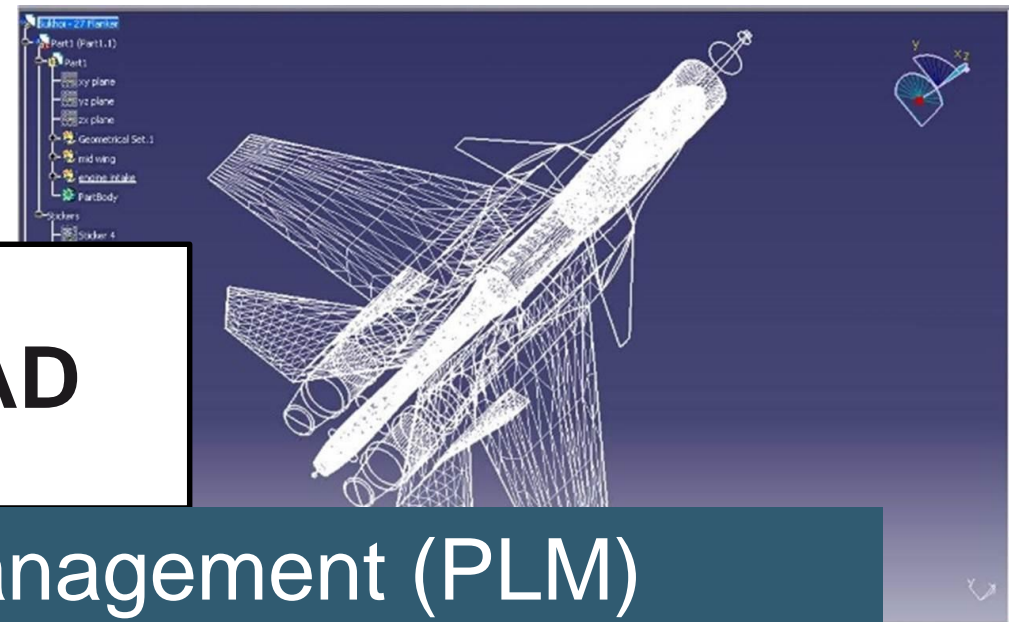
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Legacy PLM focused on Mechanical Design...

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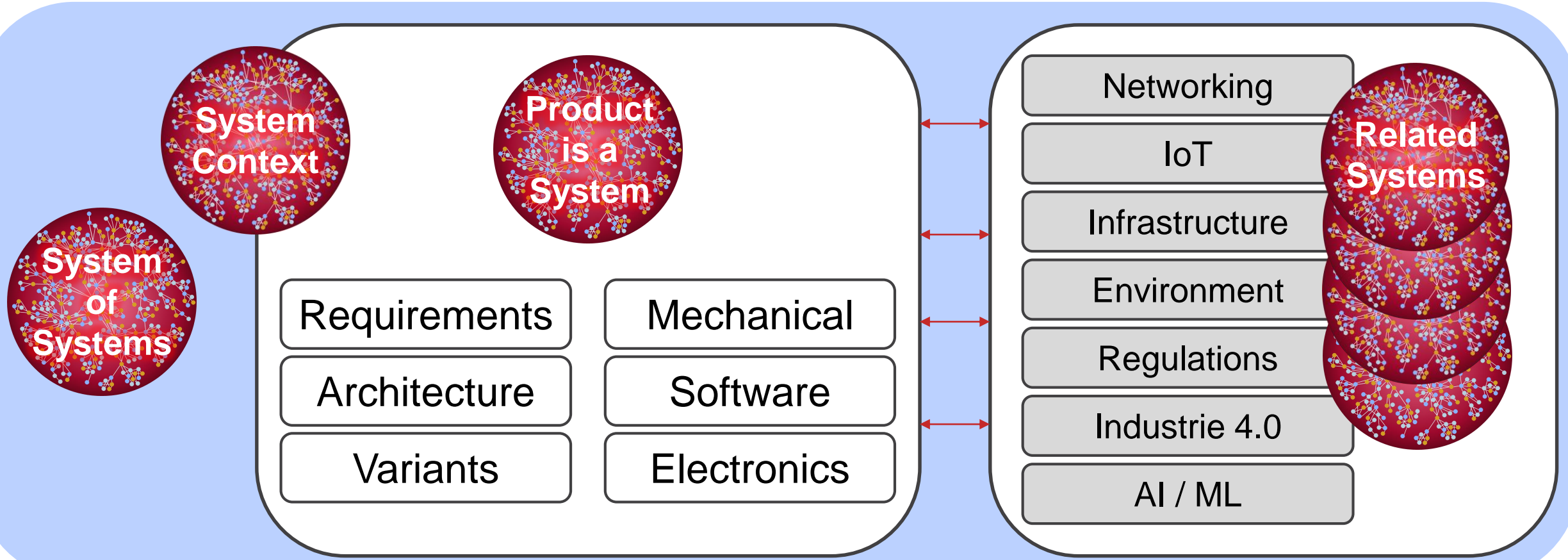
3D CAD



Product Lifecycle Management (PLM)
Mechanical BOM-Centric Approach

PLM must be about *Systems Thinking*

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System-Centric Approach Required

Digital Transformation and the Digital Thread

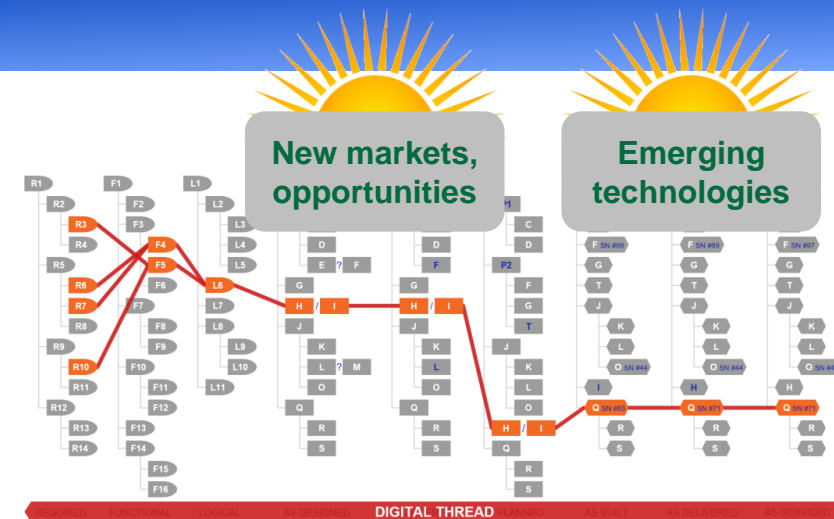
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Silos: Tools, Data, Processes



Systems Thinking and Digital Transformation



Digital Thread (intent and data) – now and future

Evolution of Digital Thread



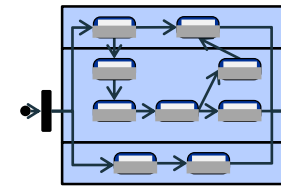
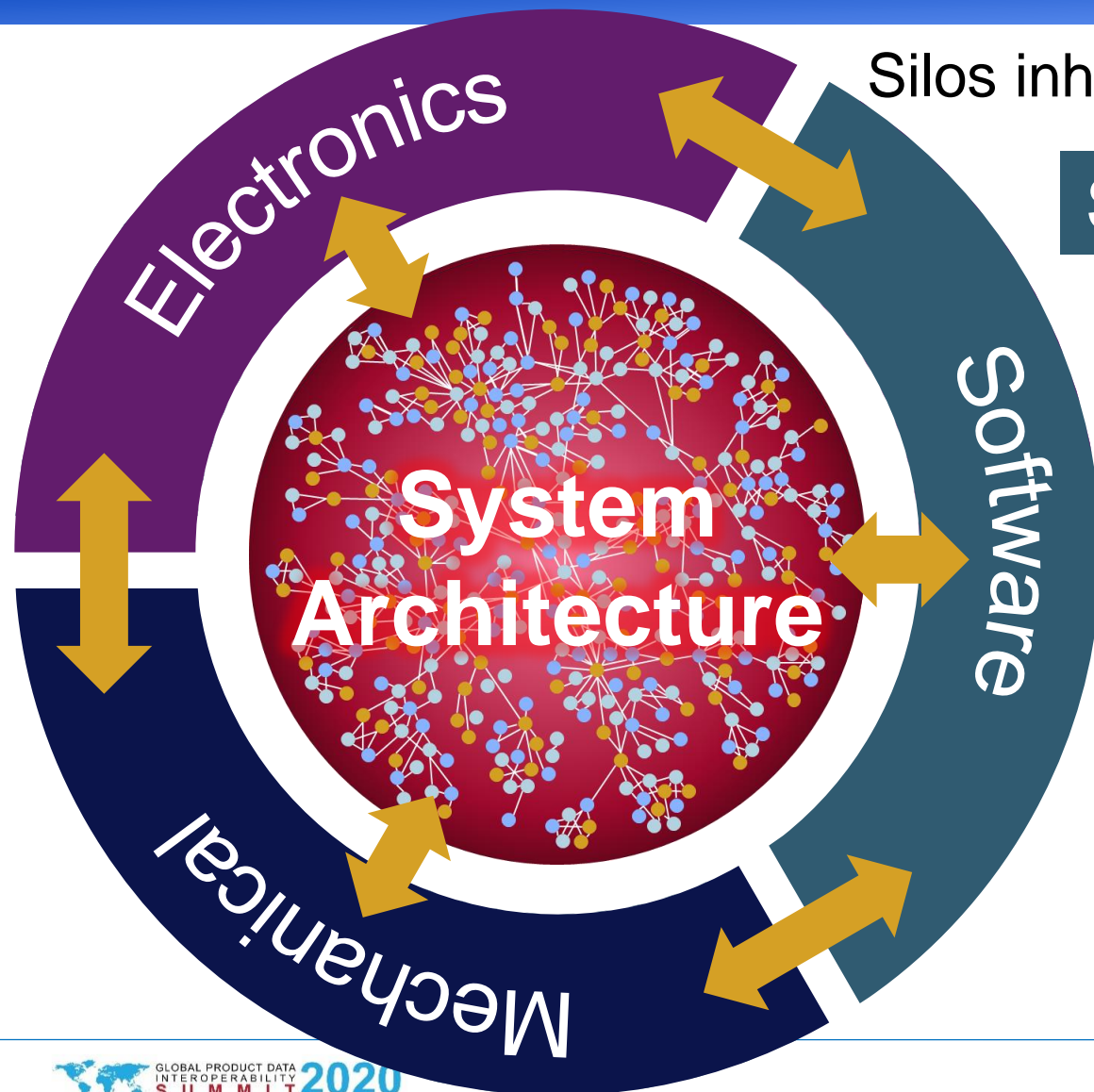
Systems Thinking – a continuous journey

System Architecture at the Core: Connecting Data Silos

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Silos inhibit cross-discipline collaboration

System Architecture as connective tissue



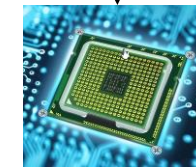
SysML Models

System Architecture



Parts/CAD

...

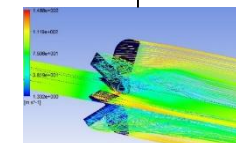


Electronics

...



Software



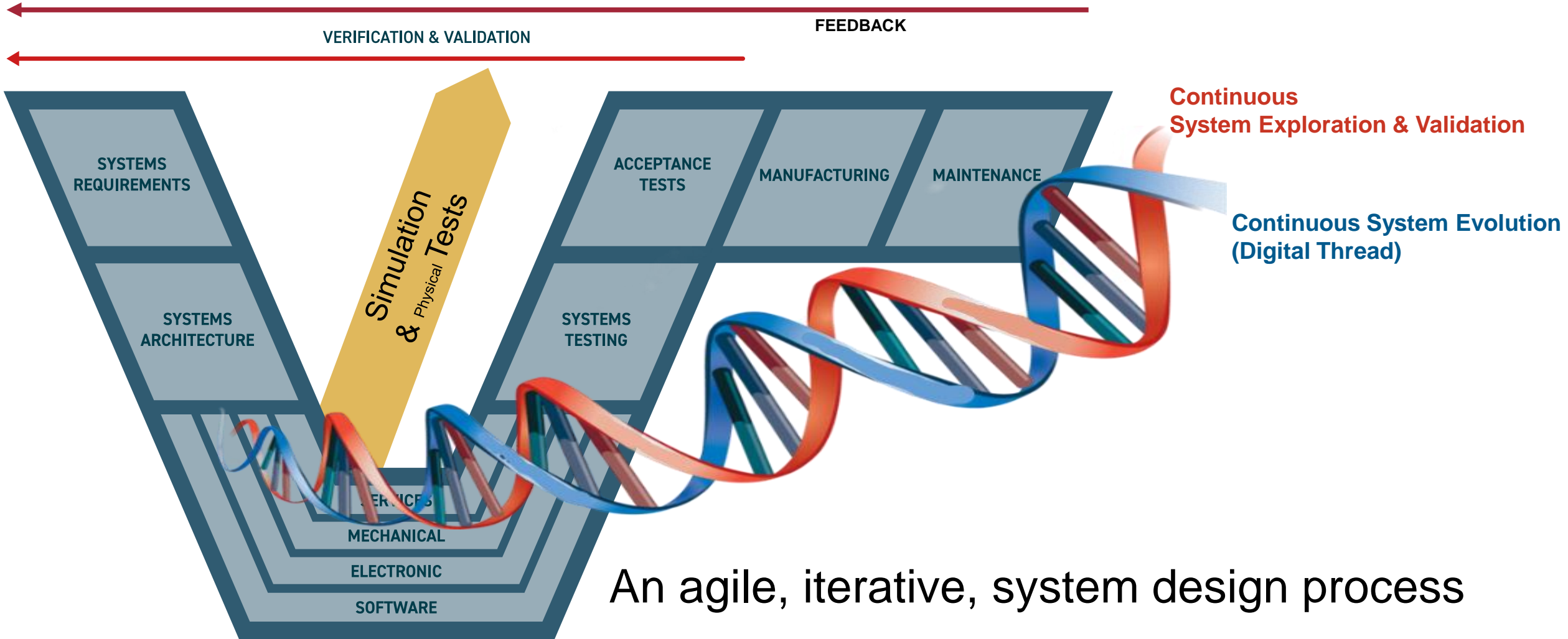
Simulation Data



Test Data

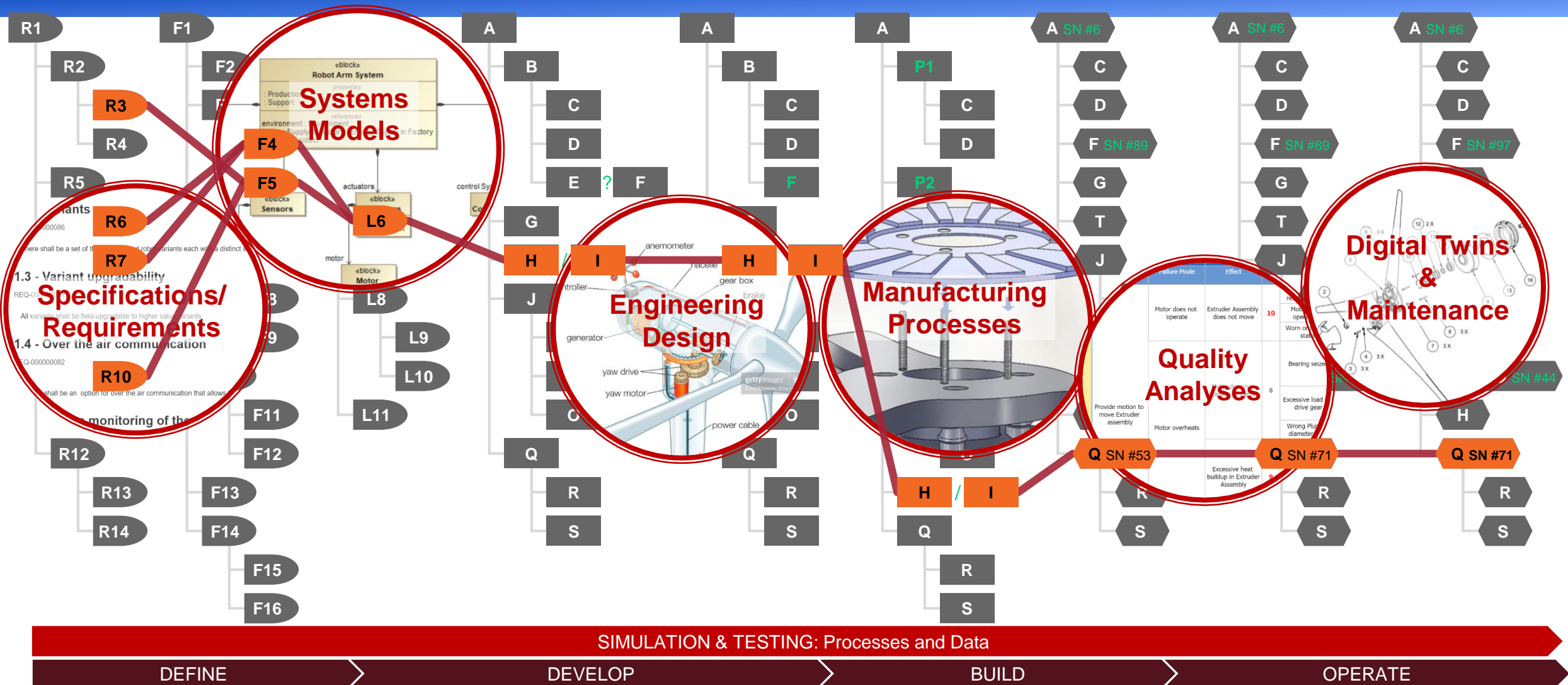
Continuous System Exploration & Validation

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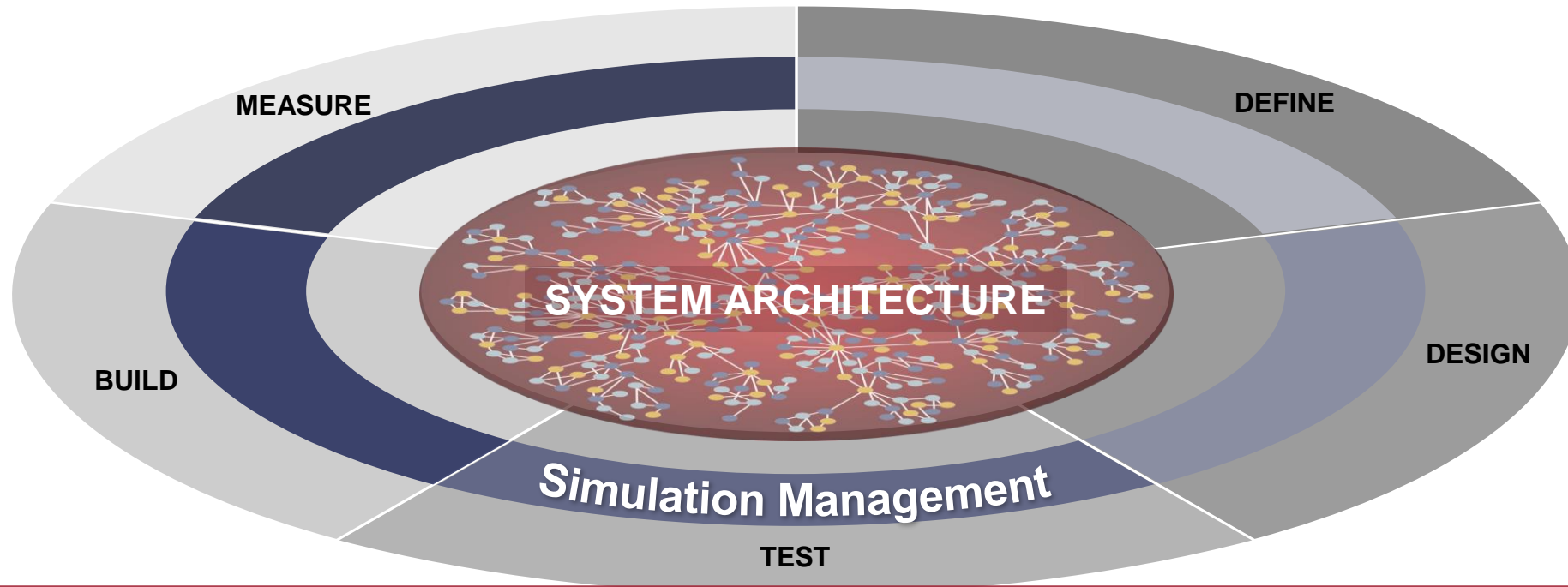
Data Through the Product Lifecycle

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Connecting All Data – *From Data to Knowledge*

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DIGITAL THREAD

CONNECTED to All External Applications & Data Stores



Spreadsheets



Databases



In-House Tools



Parts Libraries

Case Study: *A Flexible, Custom Digital Thread*

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Technical Pilots at Toyota Motor Europe

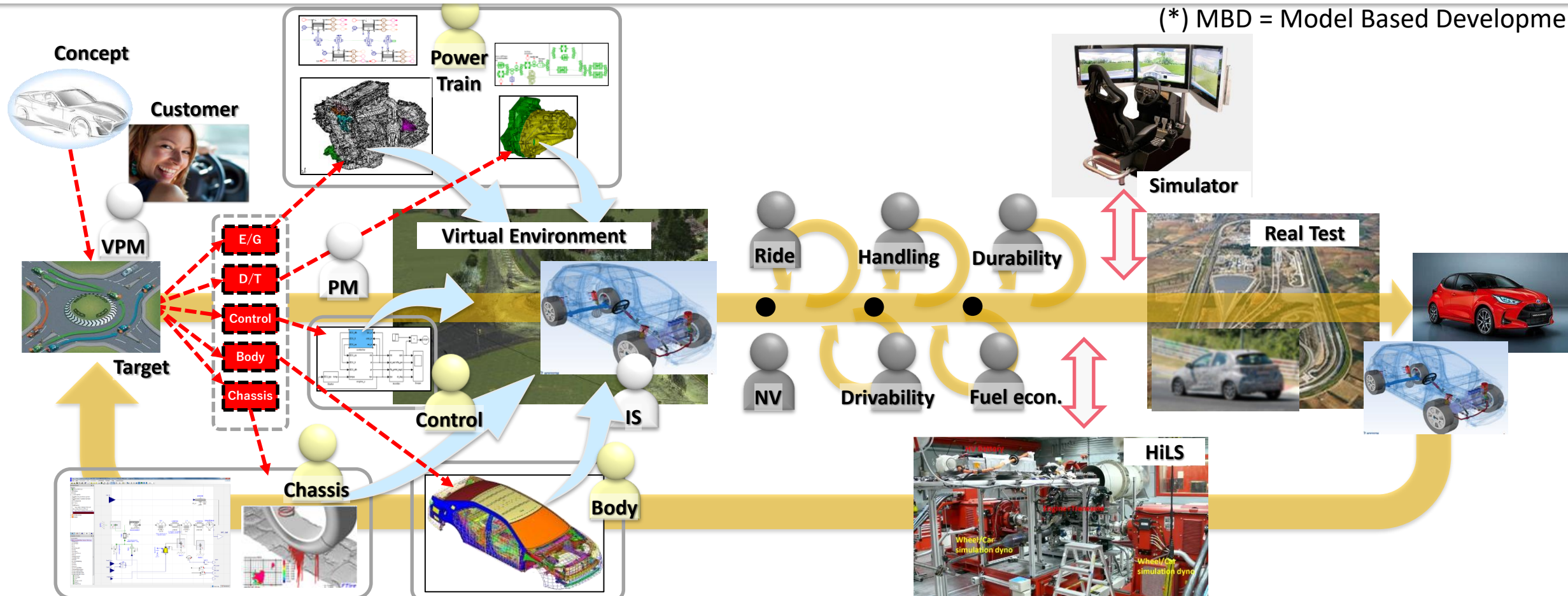
Slides courtesy of Toyota Motor Europe: Presented by Ernesto Mottola, Toyota Motor Europe, at Aras Digital 2020

How systems thinking is developing

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MBD* to realise a holistic vehicle/systems development approach through simulation

(*) MBD = Model Based Development



Slides courtesy of Toyota Motor Europe: Presented by Ernesto Mottola, Toyota Motor Europe, at Aras Digital 2020

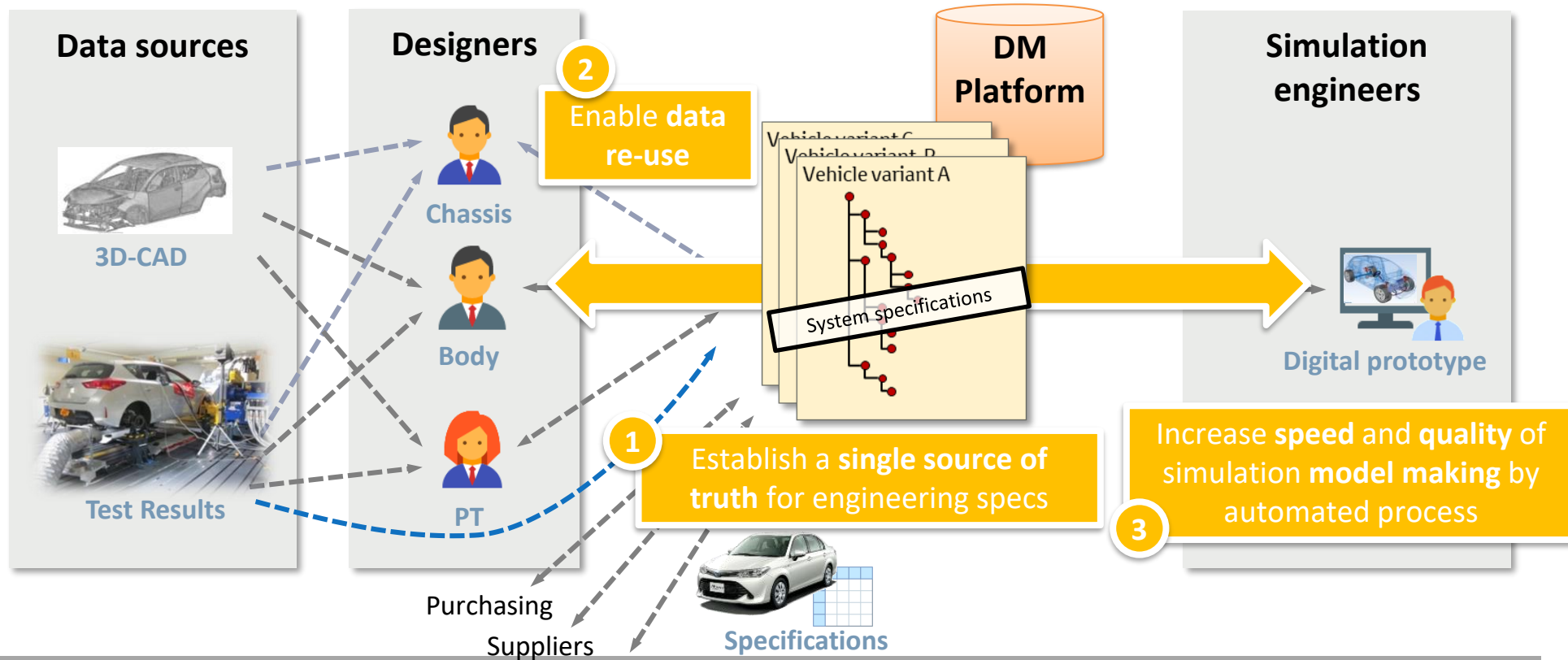
TME's proof of concept project on systems lifecycle

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Demonstrate the feasibility of improved process between data producers and consumers

Scope of proof of concept project

Benefits when fully developed



1. Reduce data gathering effort
2. Capitalise past knowledge
3. Enable faster simulation studies, with higher quality data

Slides courtesy of Toyota Motor Europe: Presented by Ernesto Mottola, Toyota Motor Europe, at Aras Digital 2020

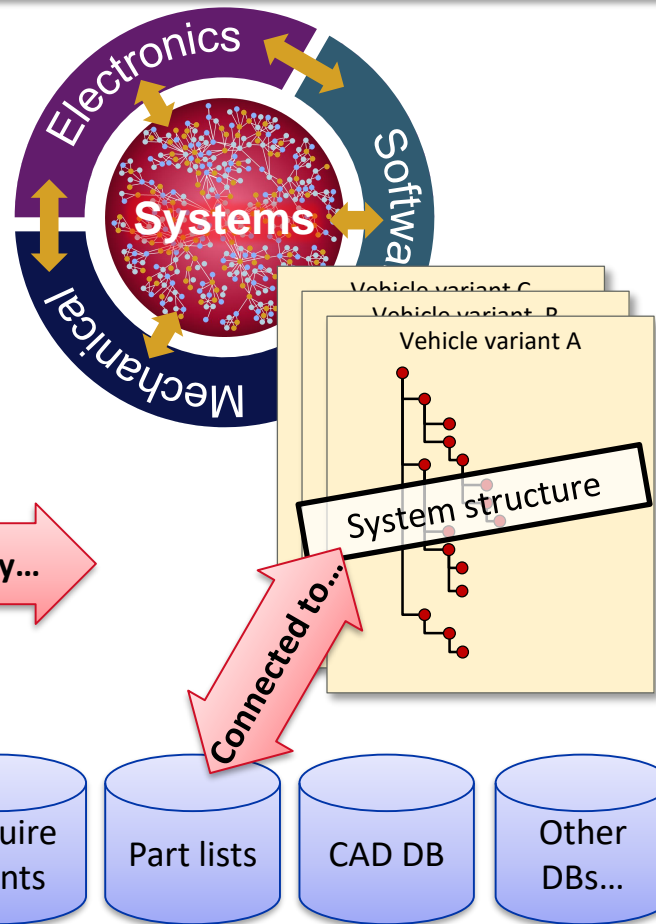
What are the characteristics of this data structure?

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A structure flexible enough to support current simulation tools and developing SE thinking

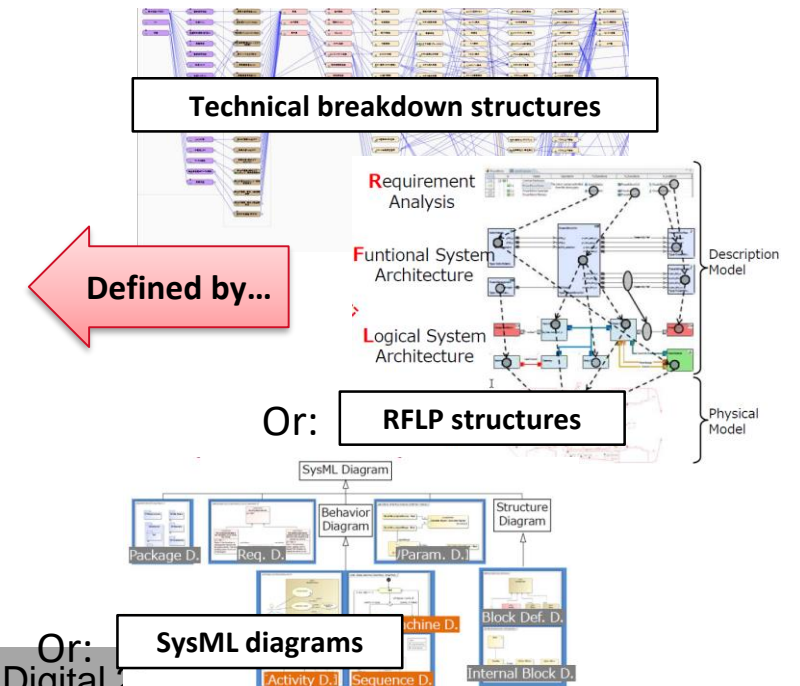
Today

A container for all parameters required by existing simulation models



Tomorrow

A **system structure** defined by more formal methods → The data model for **Systems Lifecycle Management**



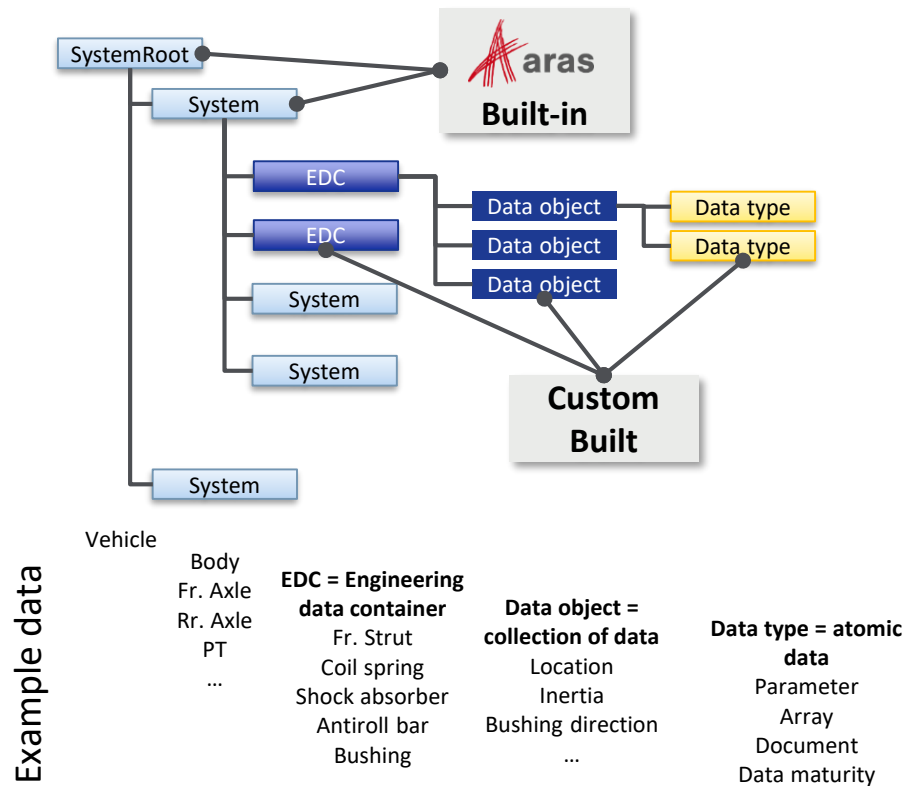
Slides courtesy of Toyota Motor Europe: Presented by Ernesto Mottola, Toyota Motor Europe, at Aras Digital Summit

TME's proposed system centric approach

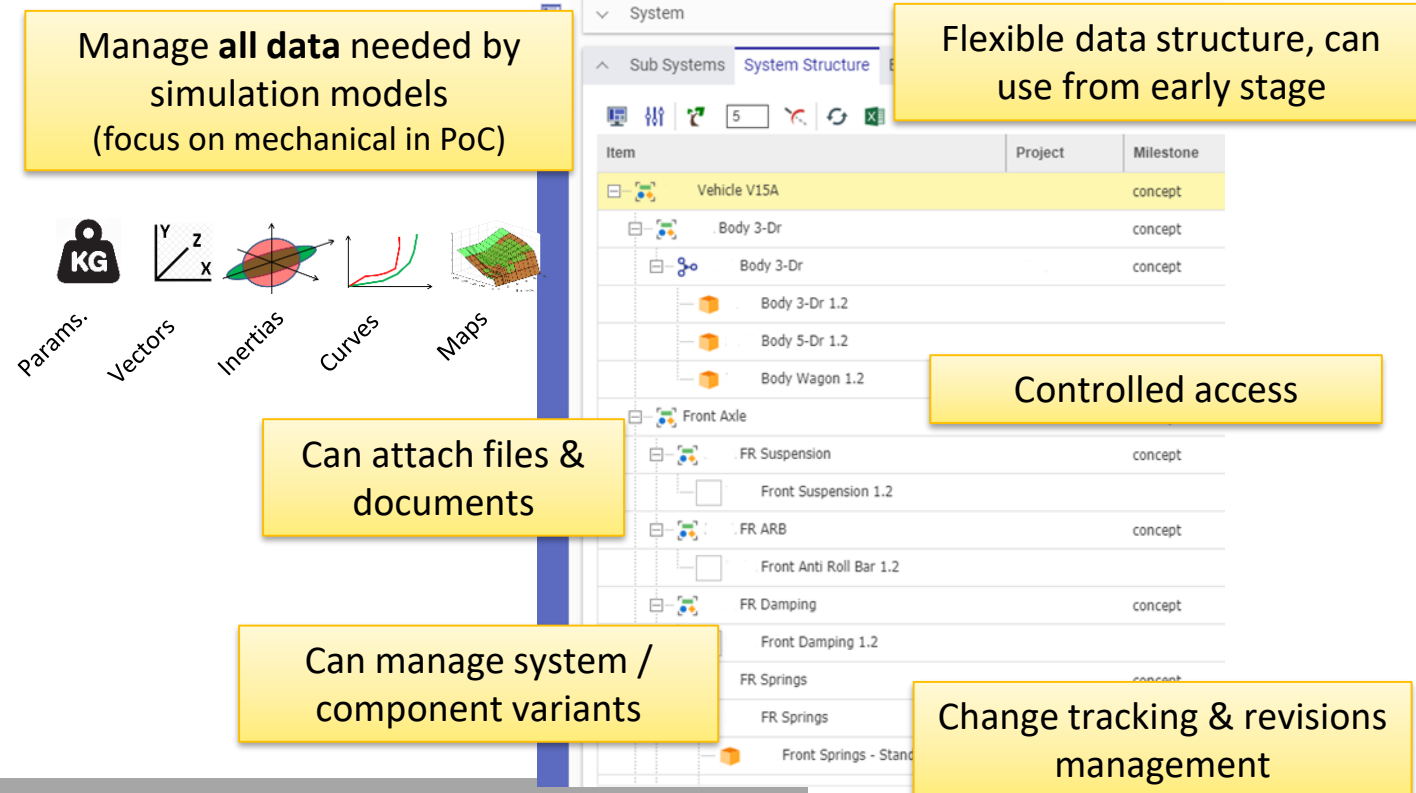
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We designed a system lifecycle management architecture and implemented on ARAS

Architecture of system data model



Implementation in Aras Innovator



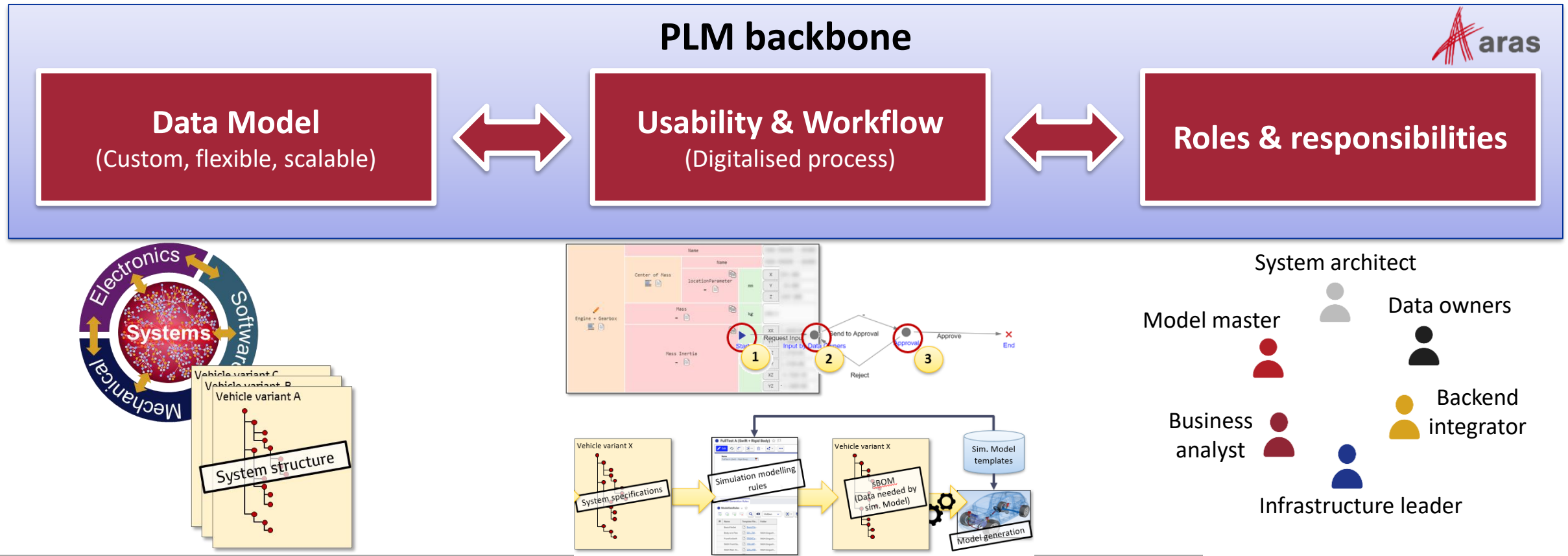
Slides courtesy of Toyota Motor Europe: Presented by Ernesto Mottola, Toyota Motor Europe, at Aras Digital 2020

Conclusion – the importance of the digital thread

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Connecting data = Connecting processes = Connecting people

TME's case study of engineering data management and vehicle performance management



Slides courtesy of Toyota Motor Europe: Presented by Ernesto Mottola, Toyota Motor Europe, at Aras Digital 2020

Practical Implementation of A Custom Digital Thread in Action

Thank you attending this session

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Please join us for the next Session on Tuesday, November 24th

2:00 PM - 2:55 PM ET

Rusty Rentsch, VP, Aerospace Industries Association (AIA)
Bassam Zarkout, Chair, Industrial Internet Consortium Digital Transformation (IIC)
Dr. Ravi Kumar, Chair, SAE International Digital Communications committee

Panel Discussion

How Emergent Technology is Transforming the Aerospace and Defense (A&D) industry

Link to Abstract

3:00 PM - 3:30 PM ET

Abhijit Bhattacharjee, Senior Applications Engineer
MathWorks
Building AI Systems

Recordings and presentation decks can be found under the 2020 Presentations at <https://gpdisonline.com/event-history/>