Künstliche Intelligenz in der industriellen Produktion

3DEXPERIENCE®

HYBRID-AI
Combining Data-driven & Model-Based Simulation

DASSAULT SYSTEMES | The 3DEXPERIENCE® Company

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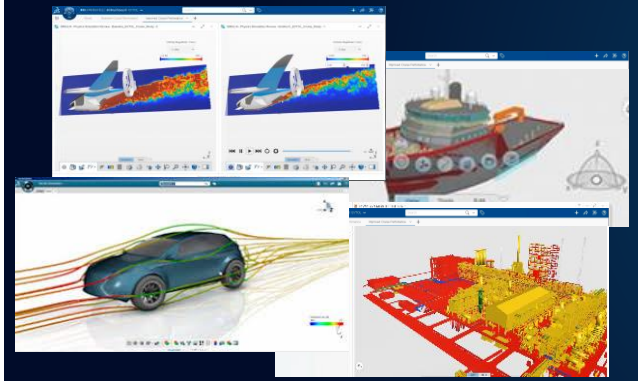
3 Major Pillars to Drive Change

Leveraging “Information Intelligence” to make the right decision, at the right time.

SCIENCE
MOD | SIM



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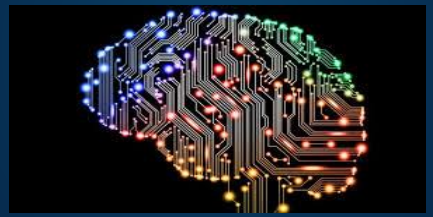
DATA SCIENCE
BIG-DATA+
ARTIFICIAL INTELLIGENCE



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COLLABORATION
& ACTIONABILITY

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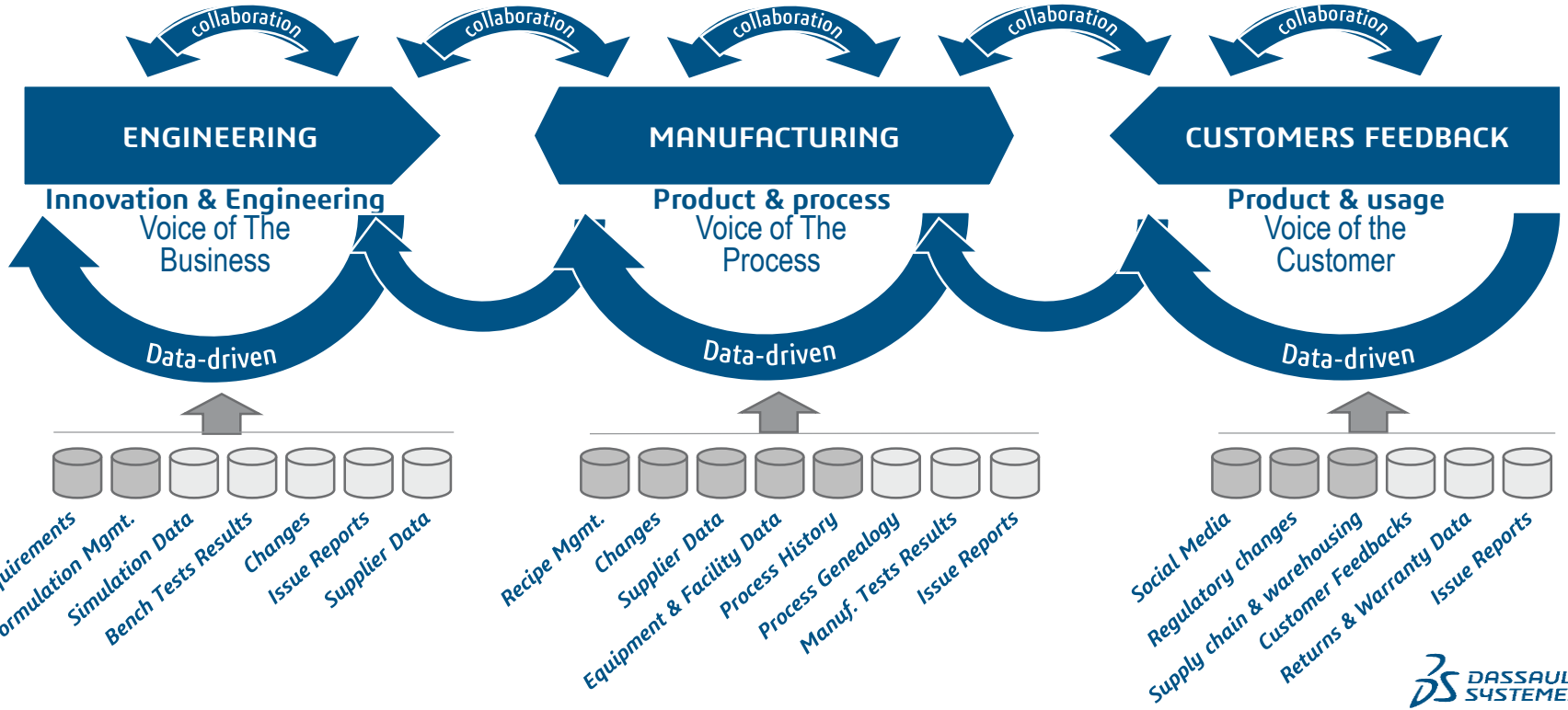
How to Enable Feedback Loops In Siloed Organizations?

Enabling data-driven communication between processes & **collaboration** between people



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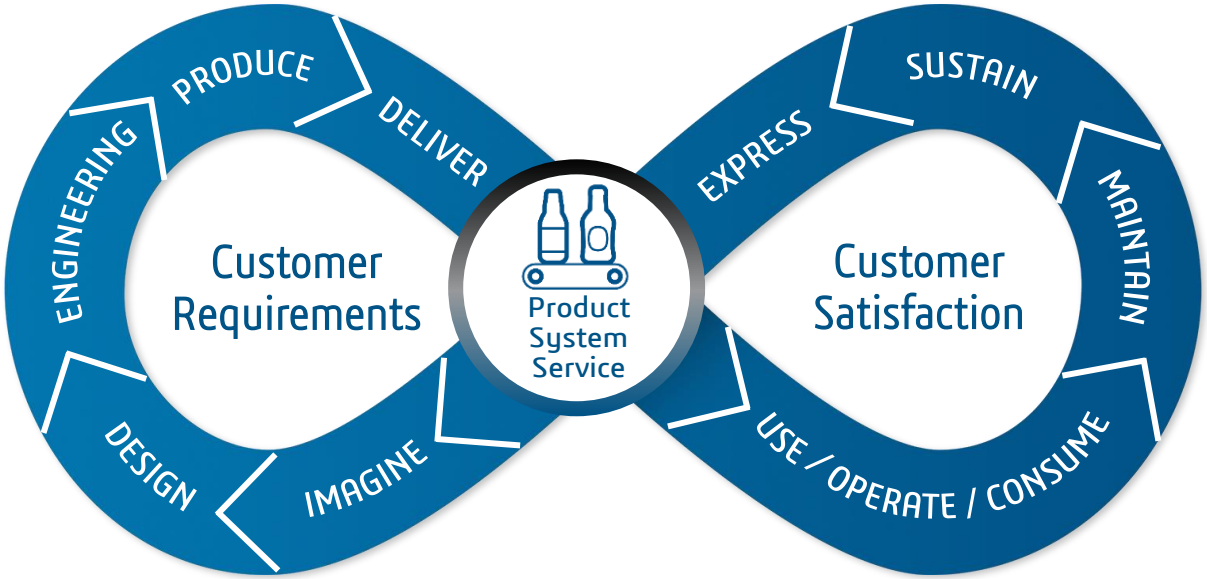
Building Relations between Internal/External Sources is Enabling Continuous Improvement & Fostering Innovation

Voice Of the Suppliers

Voice Of the Process

Voice Of the Business

Voice Of the Market



Voice Of the Field Services

Voice Of the Devices

Voice Of the Customers

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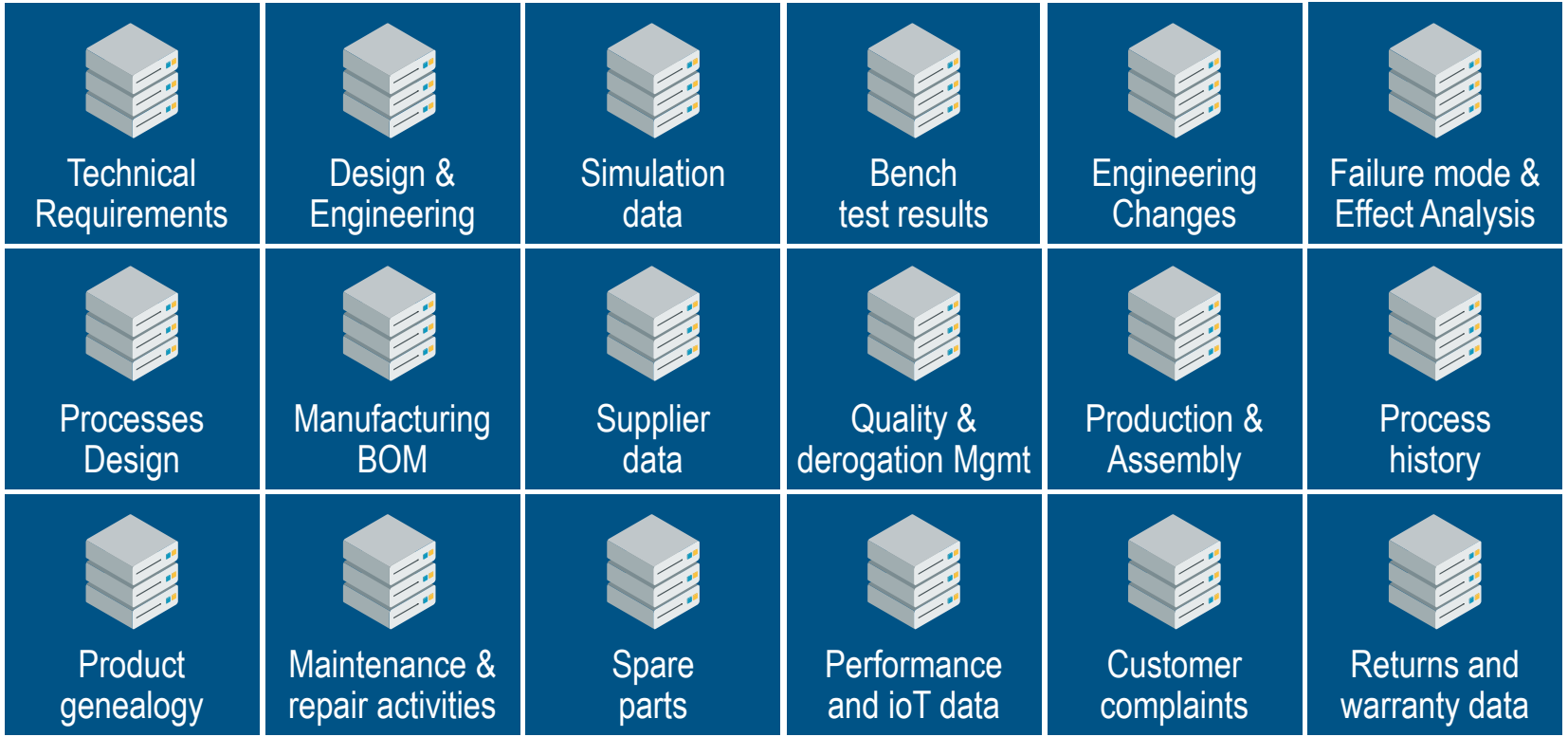
Consolidation of Multiple & Heterogeneous Data Sources



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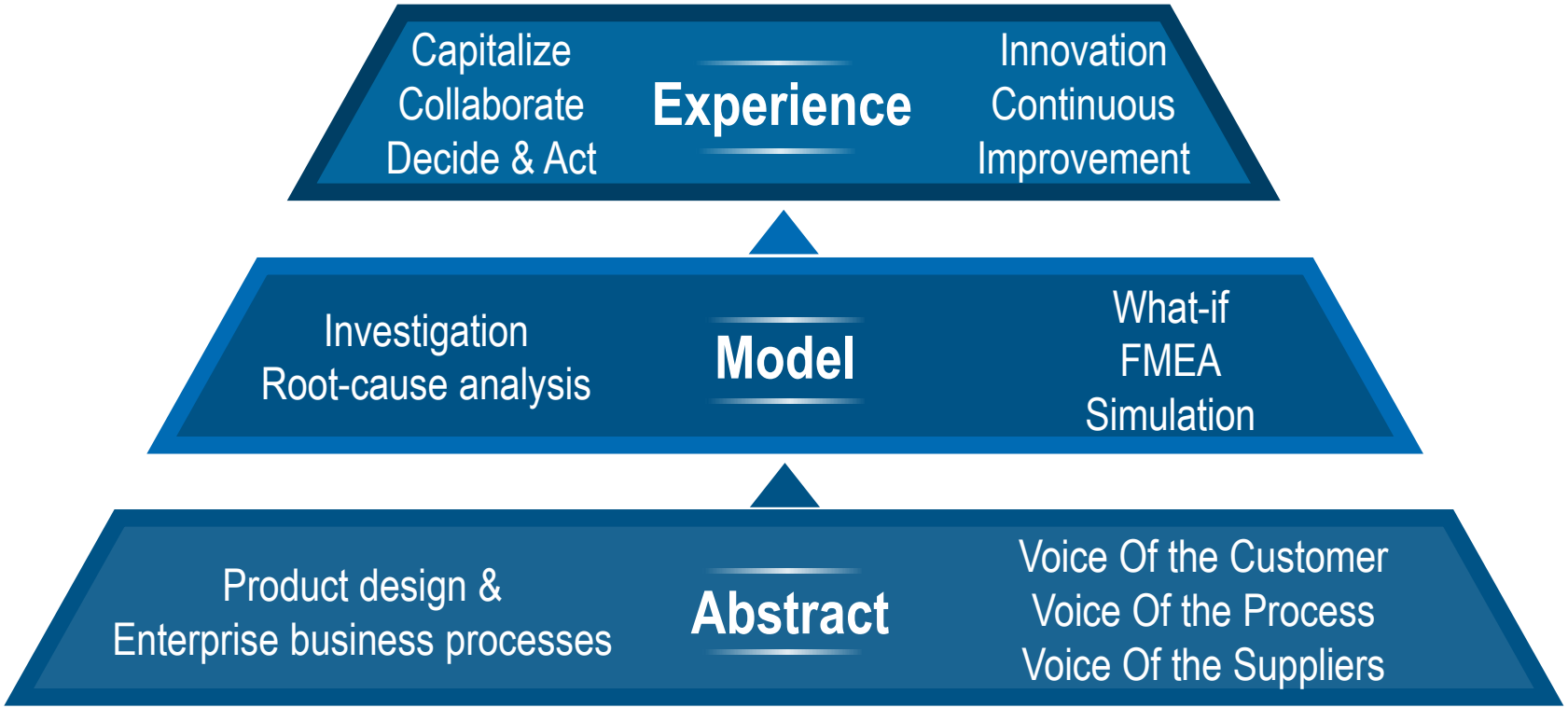
Engage Continuous Improvement & Enable Innovation

Capitalize Knowledge, Collaborate, Decision-Making



FMEA (Failure Modes & Effects Analysis)

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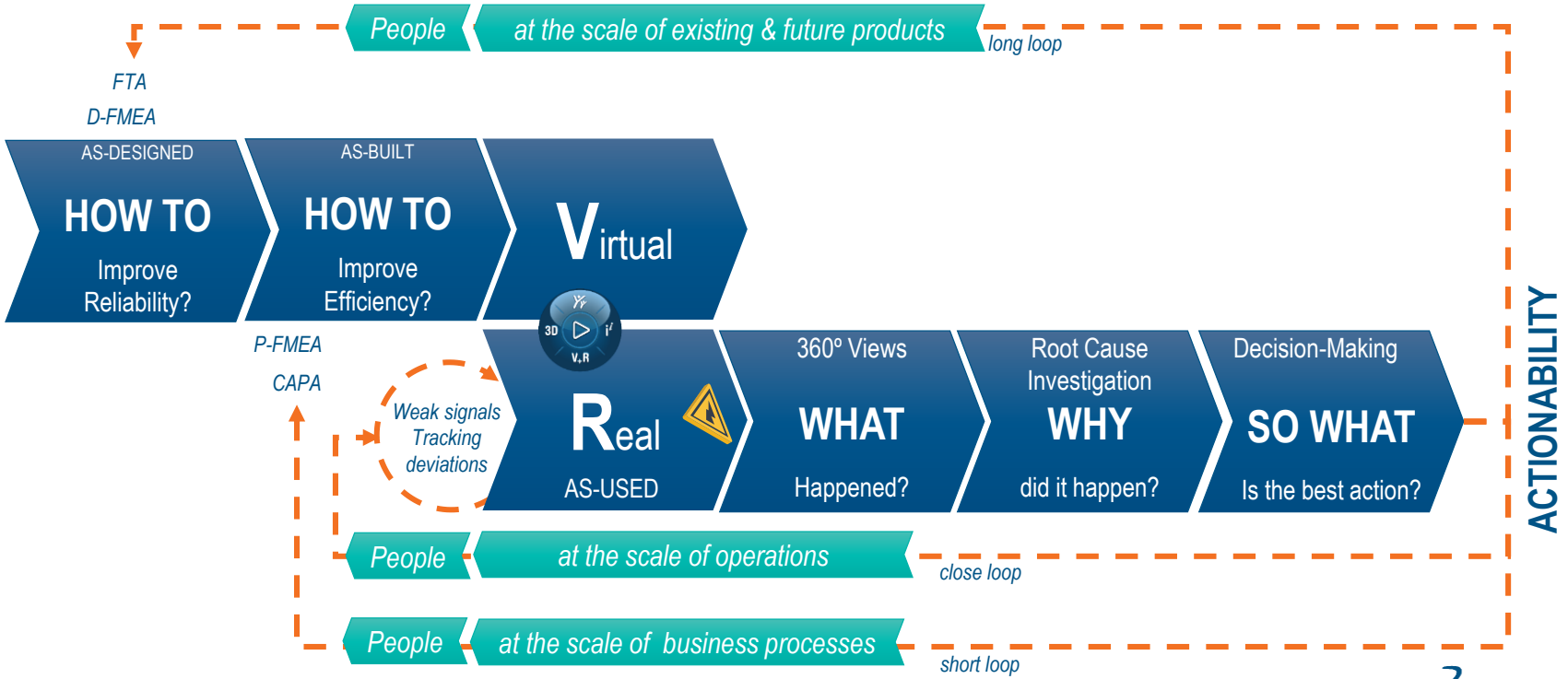
Connecting Operations / Engineering / Design

Mapping Operational Data on a Model-Based System referential to know-what, why, how



CAPA (Corrective Action Preventive Action / FTA (Fault Tree Analysis) / ML (Machine Learning)
P-FMEA (Product/Process Failure Modes Effects Analysis) / D-FMEA (Design Failure Modes Effects Analysis)

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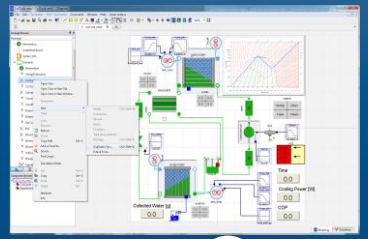
Using System Modeling To Speed-Up Model Training

Contribution to efficient reliability model creation

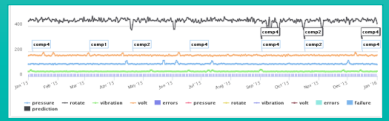
1 Create Virtual System simulating behavior of physical system

Virtual system model



2 "Teach" ML model with "clean" data

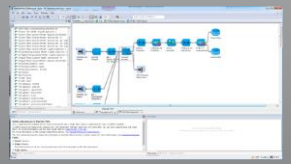
Real physical system

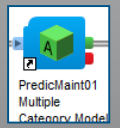


Process (observable) Data

3 Train ML model with historical process data

ML Model for pattern detection





Learning, Training, Validating, Running

4 Improve Virtual System behavior with real data sets containing error situations

5 Simulate failures on virtual system to see how it impacts monitored features

6 Train ML model to identify patterns reflecting simulated errors

8 ML = Machine Learning

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TIME FOR QUESTIONS

Thanks for your participation!

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