

Künstliche Intelligenz in der industriellen Produktion



3DEXPERIENCE®

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

 **DASSAULT SYSTEMES** | The 3DEXPERIENCE® Company



Stephan Erben, NETVIBES Senior Portfolio Manager



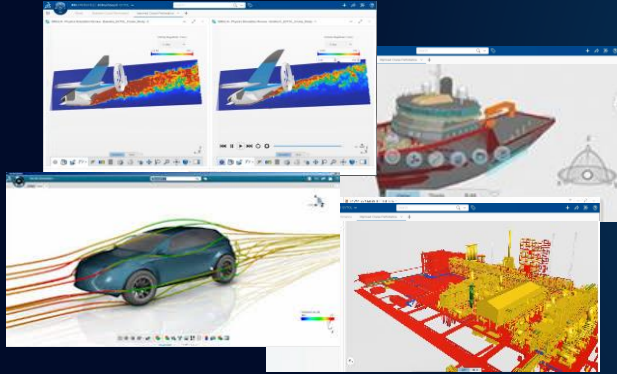
Sebastian Kress, Senior Sales Expert, 3DEXPERIENCE ENOVIA & NETVIBES



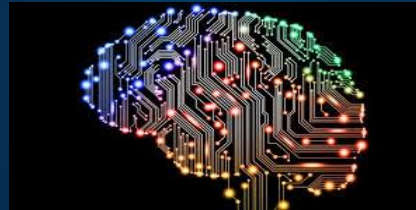
3 Major Pillars to Drive Change

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

SCIENCE
MOD | SIM



DATA SCIENCE
BIG-DATA+
ARTIFICIAL INTELLIGENCE

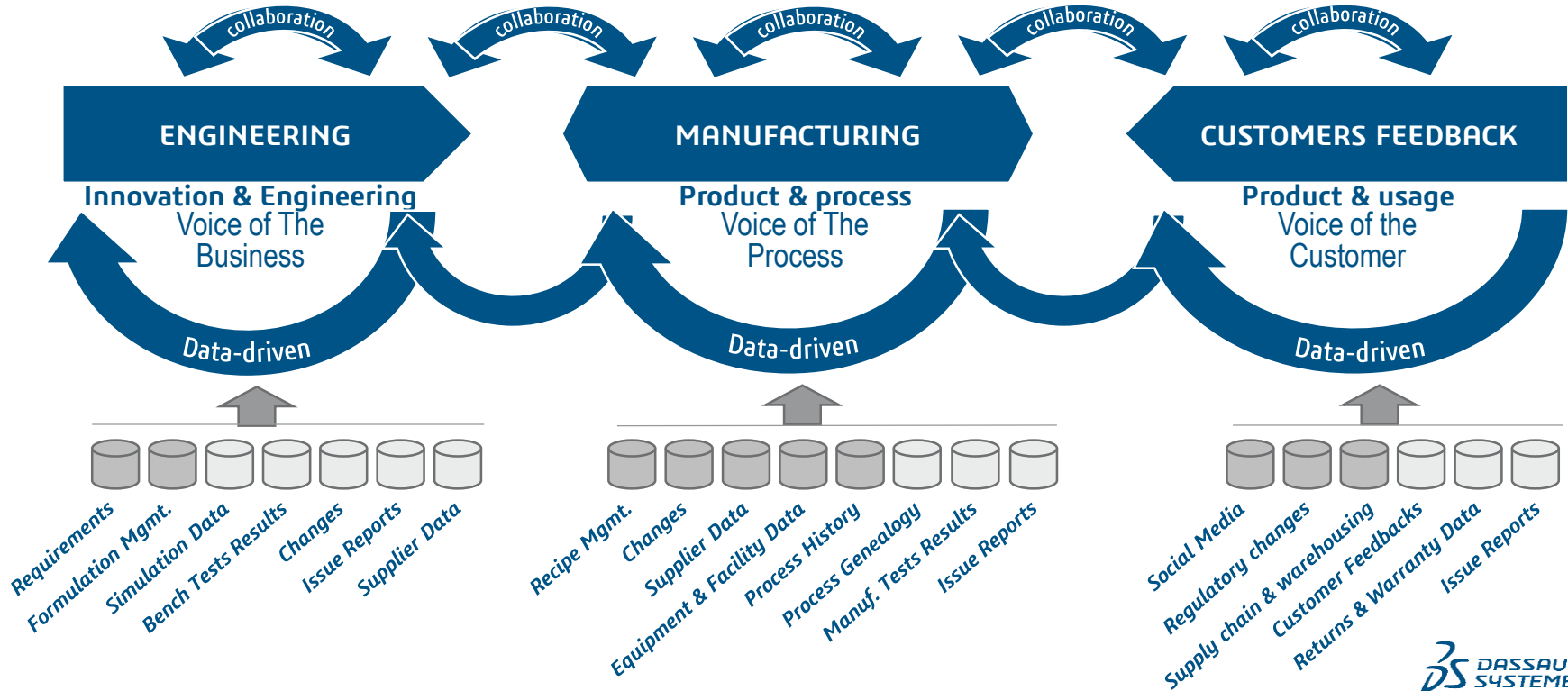


COLLABORATION
& ACTIONABILITY

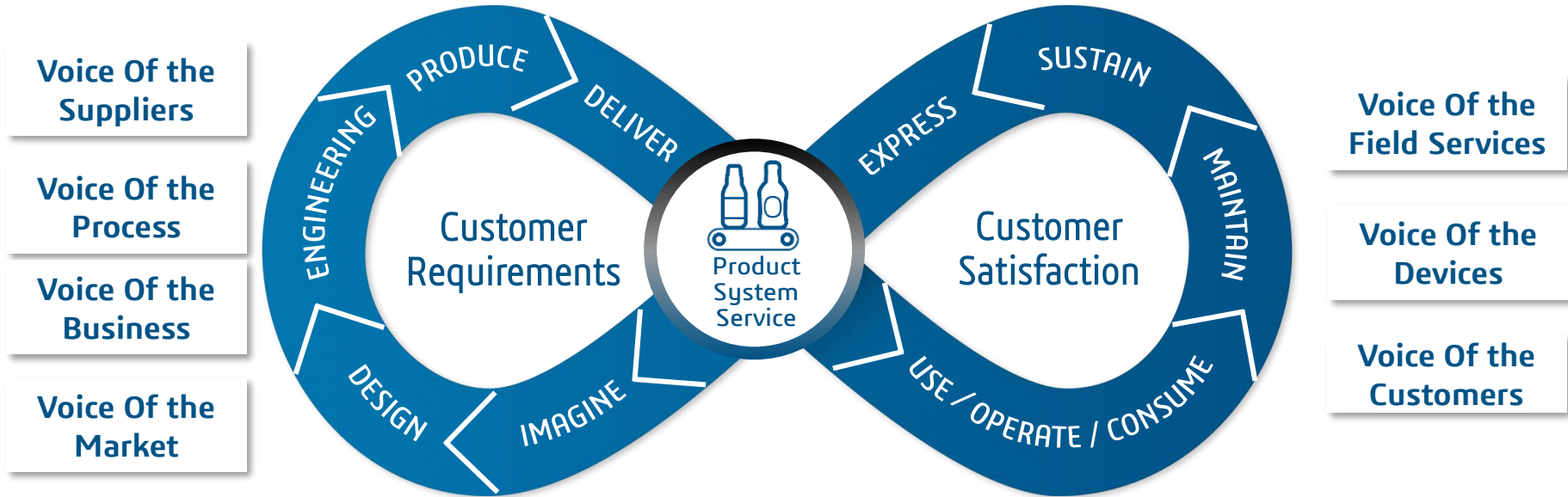


How to Enable Feedback Loops In Siloed Organizations?


















Enabling data-driven communication between processes & collaboration between people



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

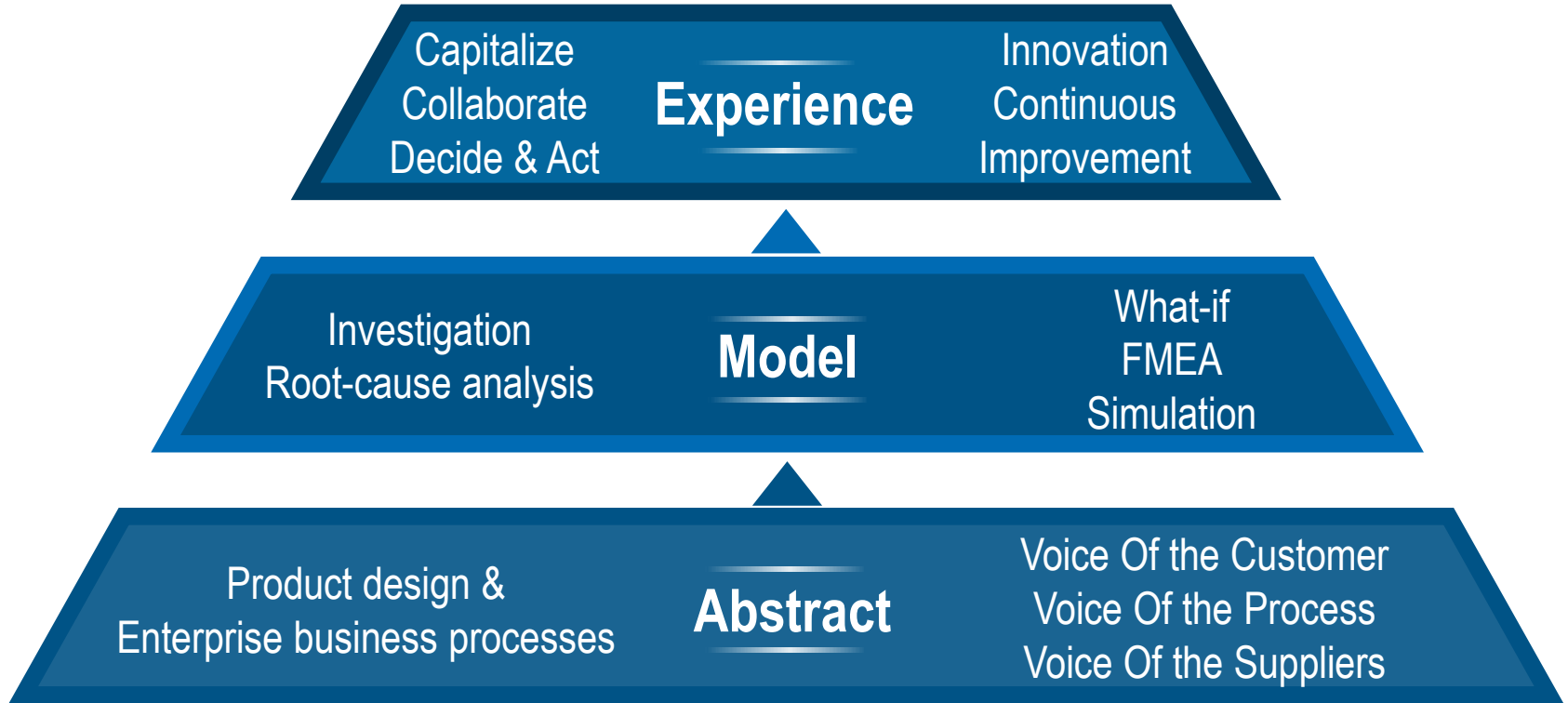


Consolidation of Multiple & Heterogeneous Data Sources

 Technical Requirements	 Design & Engineering	 Simulation data	 Bench test results	 Engineering Changes	 Failure mode & Effect Analysis
 Processes Design	 Manufacturing BOM	 Supplier data	 Quality & derogation Mgmt	 Production & Assembly	 Process history
 Product genealogy	 Maintenance & repair activities	 Spare parts	 Performance and IoT data	 Customer complaints	 Returns and warranty data

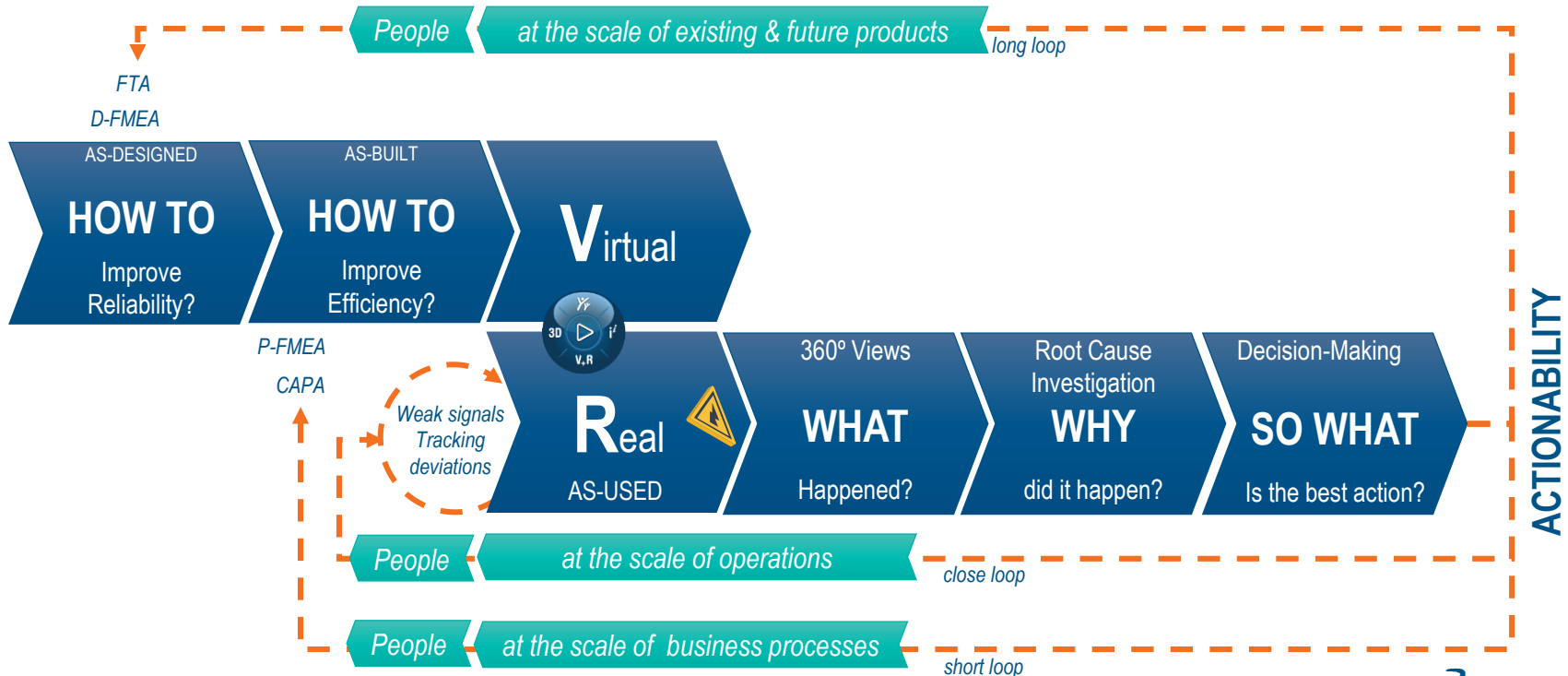
Engage Continuous Improvement & Enable Innovation

Capitalize Knowledge, Collaborate, Decision-Making



Connecting Operations / Engineering / Design

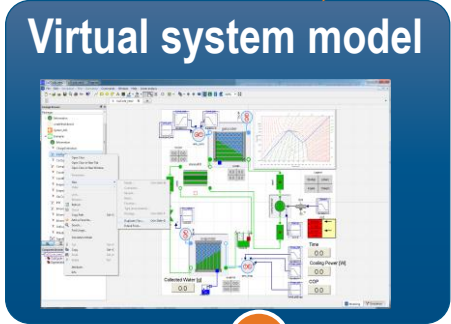
Mapping Operational Data on a Model-Based System referential to know-what, why, how



Using System Modeling To Speed-Up Model Training

Contribution to efficient reliability model creation

1 Create Virtual System simulating behavior of physical system

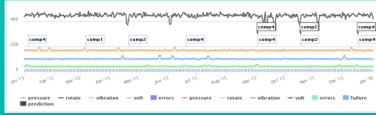



2 "Teach" ML model with "clean" data

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

Train ML model to identify patterns reflecting simulated errors

Real physical system



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

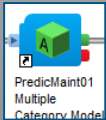
Process (observable) Data

Train ML model with historical process data

ML Model for pattern detection



3 Learning, Training, Validating, Running





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TIME FOR QUESTIONS

Thanks for your participation!

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