DASSAULT SYSTEMES

DASSAULT SYSTEMES TAIWAN SUMMIT

達梭系統臺灣年度高峰論壇

2025 年 9 月 11 日 | 臺北喜來登大飯店 | 臺北 | 臺灣

擁抱 3D UNIV+RSES - AI 驅動產業革新

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TRANSFORMING MODELING & SIMULATION USING GENERATIVE EXPERIENCES

Klaus Krohne | SIMULIA APAC Senior Sales Director

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Dassault Systèmes Reveals “3D UNIV+RSES” and Related AI-Based Services

- Next-generation Dassault Systèmes technology offers an environment for combining virtual twins, Training AI engines and protecting customer IP

VELIZY-VILLACOUBLAY, France – February 4,2025

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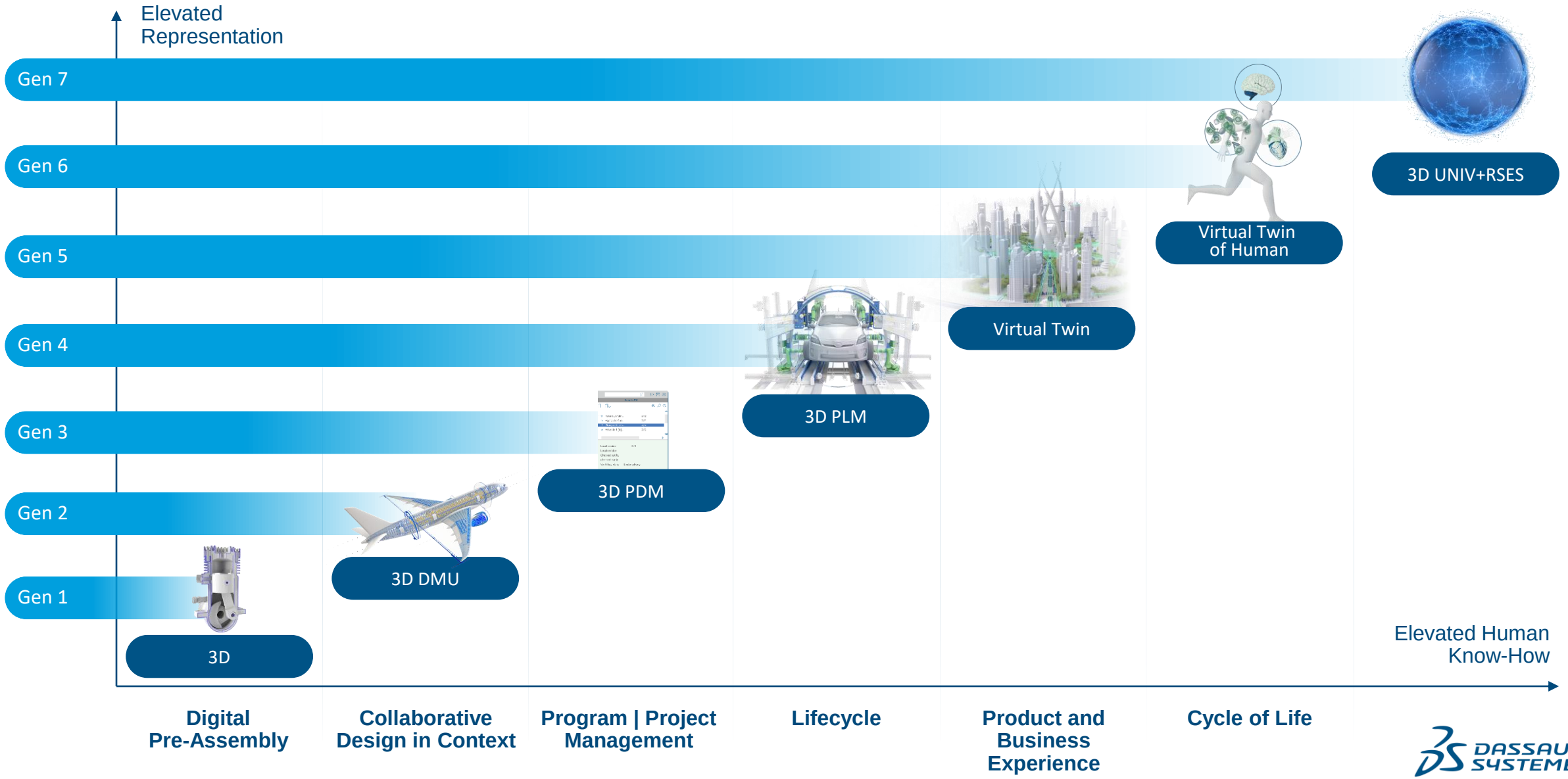
ENABLING GAME-CHANGING WORKING METHODS



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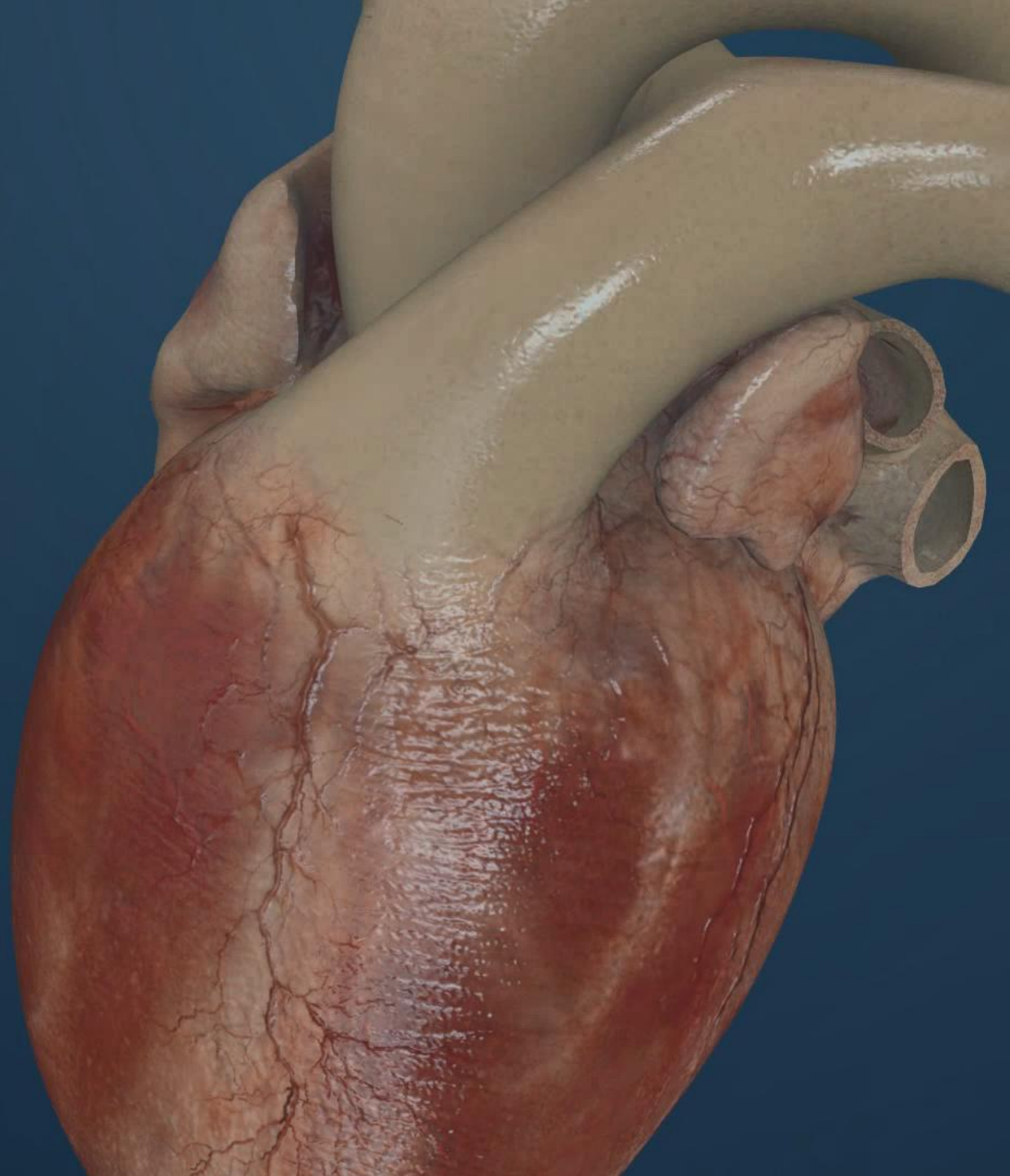
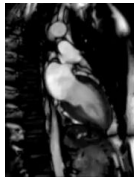
The Living Heart Model

Your actual twin



BUILDING THE LIVING HEART

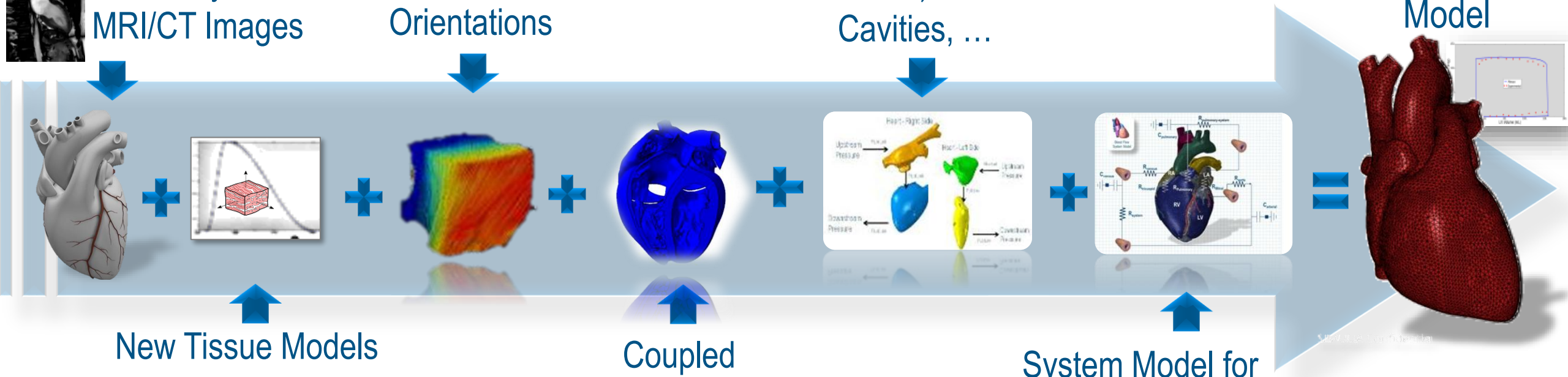


Geometry from MRI/CT Images

Detailed Fiber Orientations

Valves, Fluid Cavities, …

Living Heart Model



New Tissue Models

Coupled Multiphysics

System Model for hemodynamics

$$\psi_{dev} = \frac{a}{2b}\exp[b(I_1-3)] + \sum_{i=f,s}\frac{a_i}{2b_i}\left\{\exp\left[b_i(I_{4i}-1)^2\right]-1\right\} + \frac{a_{fs}}{2b_{fs}}\left[\exp\left(b_{fs}I_{8\,fs}^2\right)-1\right]$$

$$T_a(t,E_{ff}) = T_{max}\frac{Ca_0^2}{Ca_0^2 + ECa_{50}^2(l)}\frac{1-\cos(\omega(t,l))}{2}$$

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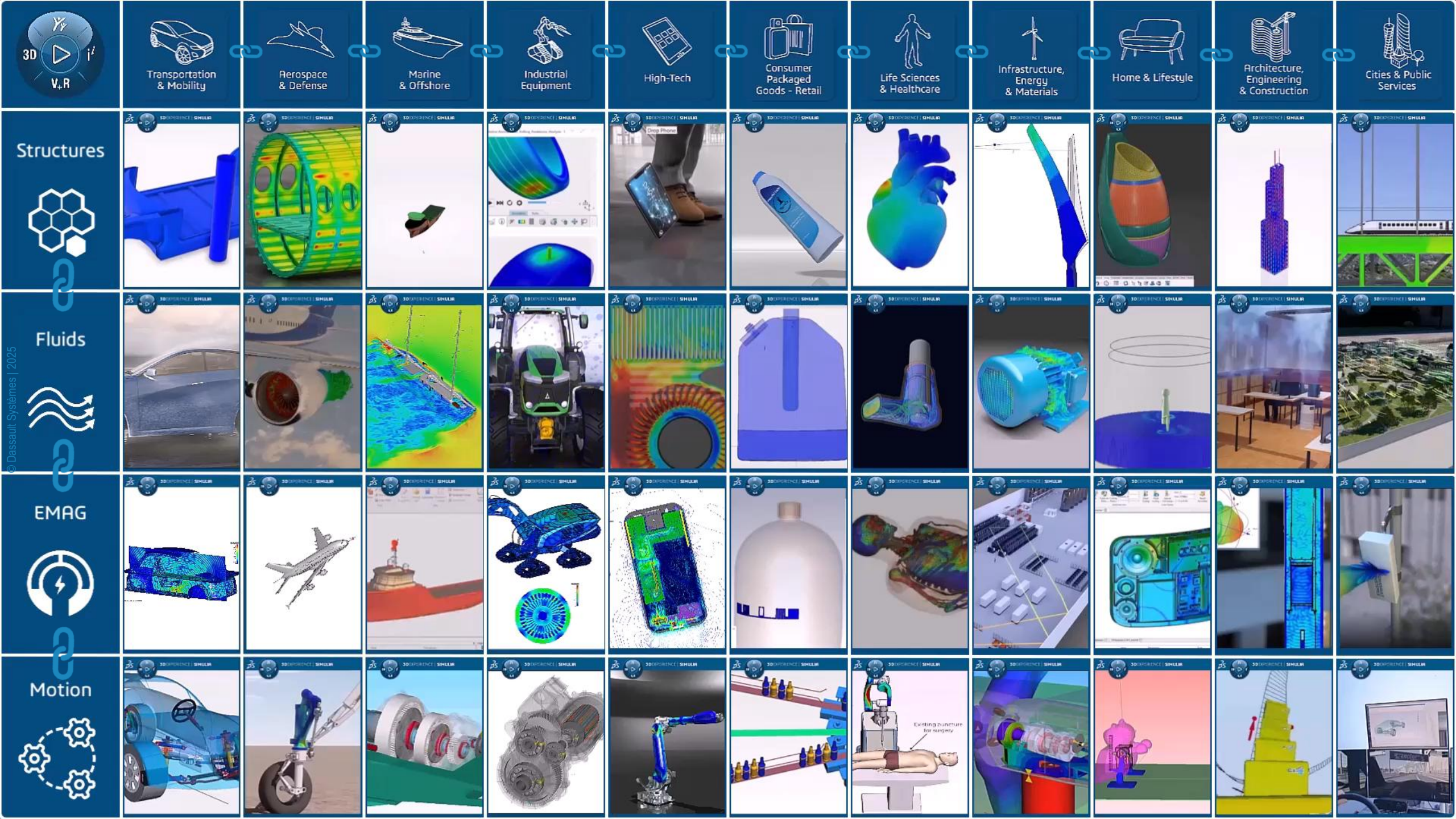
3D
V+R
Transportation & Mobility
Aerospace & Defense
Marine & Offshore
Industrial Equipment
High-Tech
Consumer Packaged Goods - Retail
Life Sciences & Healthcare
Infrastructure, Energy & Materials
Home & Lifestyle
Architecture, Engineering & Construction
Cities & Public Services
Structures
Fluids
EMAG
Motion
Existing puncture for surgery
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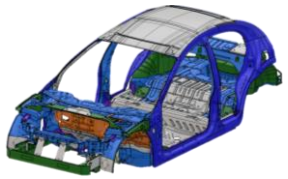
”AS-IS” VEHICLE ENGINEERING PROCESS

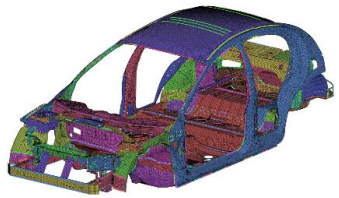
Disconnected with design

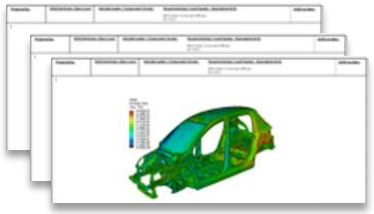
Disconnected with CAE model

Manual Report (ppt/pptx)

Design







Defeatured CAD | **Pre-Processing** | **Solving** | **Post-Processing**

PLM

Convert → **Export** → **Export** → **Export**

- File Based Exchange
- 2 – 5 tools
- Files in local drive
- 30 – 40 tools
- Files in local drive
- 2 – 5 tools
- Files in local drive

Repeat

Design change?

100’s of workflows per vehicle program

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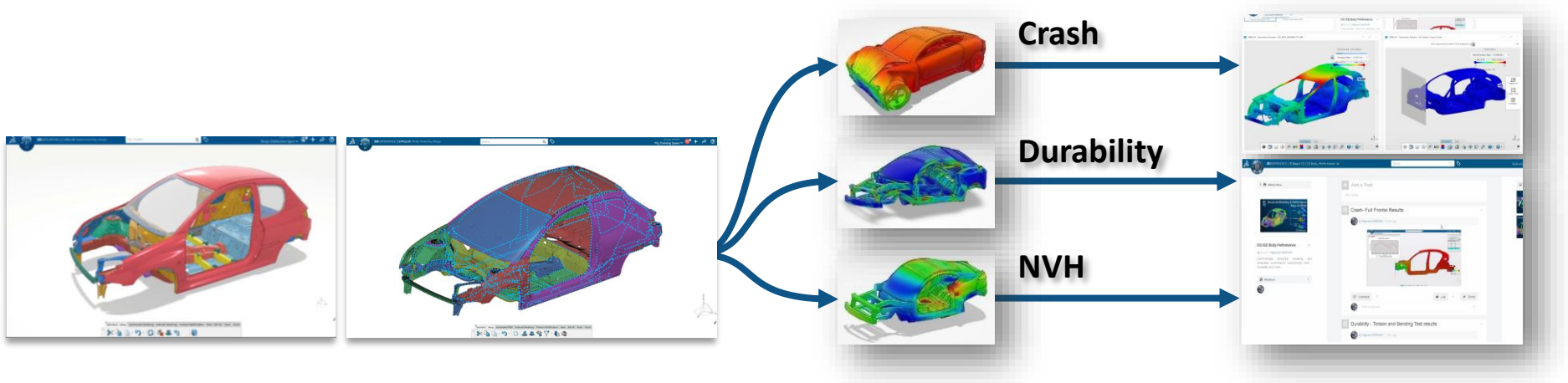
3DEXPERIENCE® MODSIM



CAD-CAE model

Scenarios

Results

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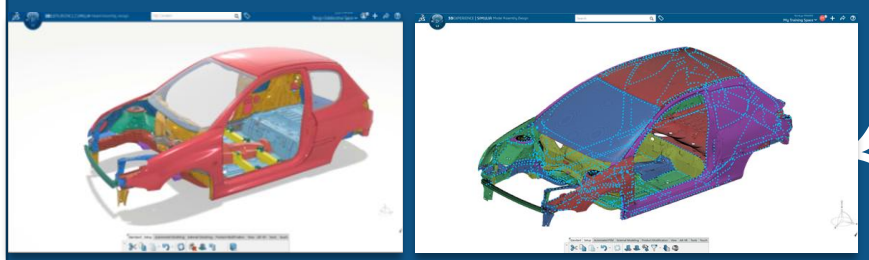
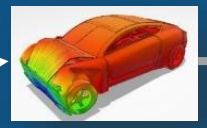
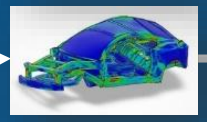
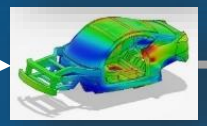
3DEXPERIENCE® MODSIM



CAD-CAE model





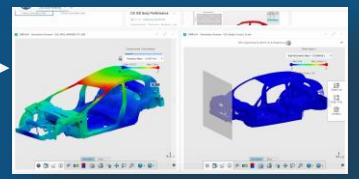


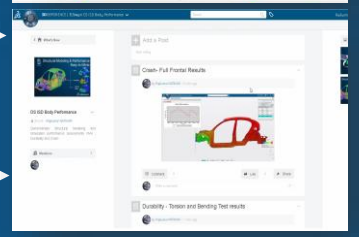
Crash

Durability

NVH

Scenarios





Results

	V1	V2	...	Vn
NVH				
Crash				
Durability				
CFD				
Weight				

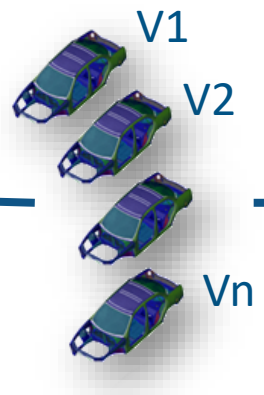
Comparison

Design Change

Parametric Design Exploration

Re-run with automatic updates (associativity)

Automated DOEs



Enable Simulation-Driven Design

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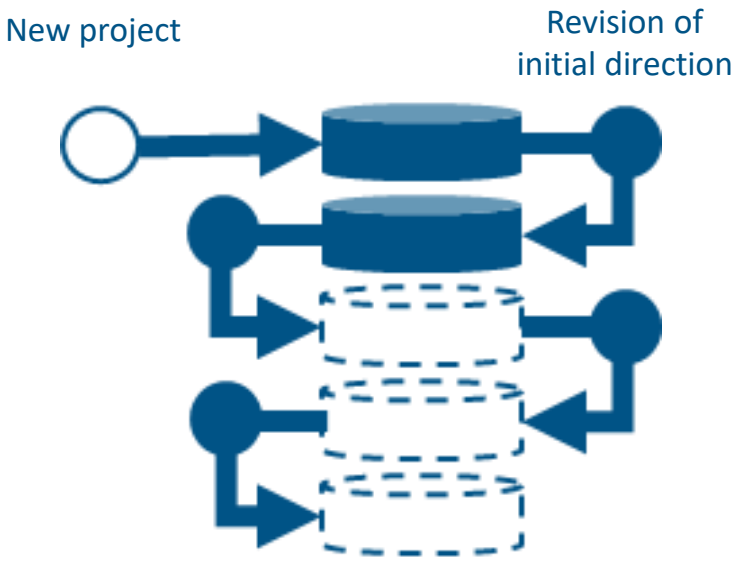
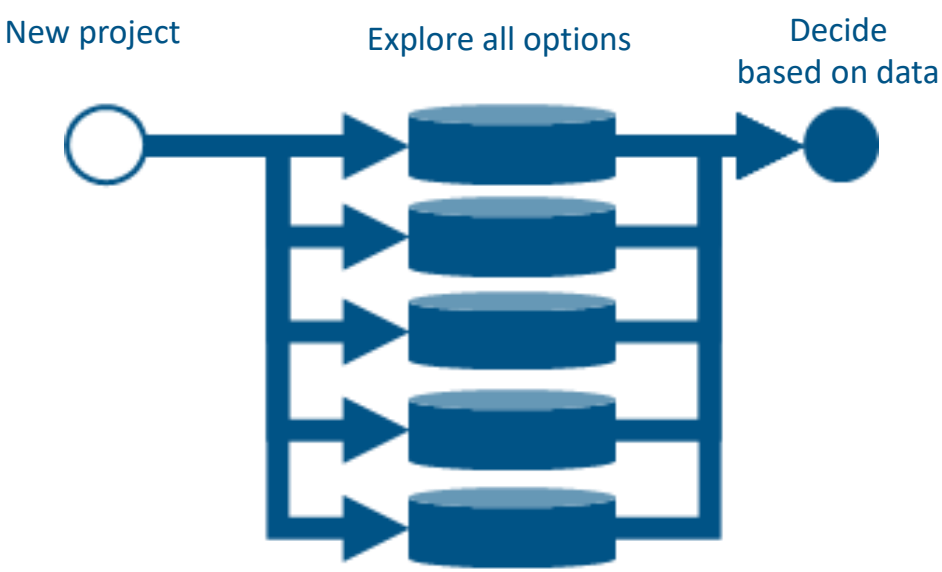
SEQUENTIAL → CONCURRENT ENGINEERING



SEQUENTIAL DESIGN(S) INVESTIGATION



CONCURRENT DESIGN EXPLORATION OF ALL THINKABLE OPTIONS

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2025 | MODSIM Summit

*"We found value in the ability to run CAD and CAE model creation and CAE verification in the **same place**. This means using MODSIM, we can verify multiple functions in parallel on the **same platform**, allowing a single designer to do what multiple engineers had previously done.*

*In other words, we can achieve a **significant improvement** in development efficiency."*

Shigeto **YASUHARA**
Senior Chief Engineer
Honda Motor Co., Ltd.

*"On the **same platform**, I can switch between tools without realizing that I changed between apps. I have the simulation app, and the modelling app, the ergonomics app, and what is great is that when a new application is released, I can use it immediately on the same platform. So it is very **seamless**. You don't even realise that you're changing tools."*

Fabien **CHANCEL**
Industrial Designer and Engineer
Self-employed

*"**The sooner we invest, the lower we invest**. Late modification is always very very expensive. ...**concept structure engineering is strategic**... in the very early phase of the development of a car."*

Pascal **PANCRACE**
Head of Innovation Projects in Simulation
RENAULT

Keynotes from 2025 MODSIM Summit

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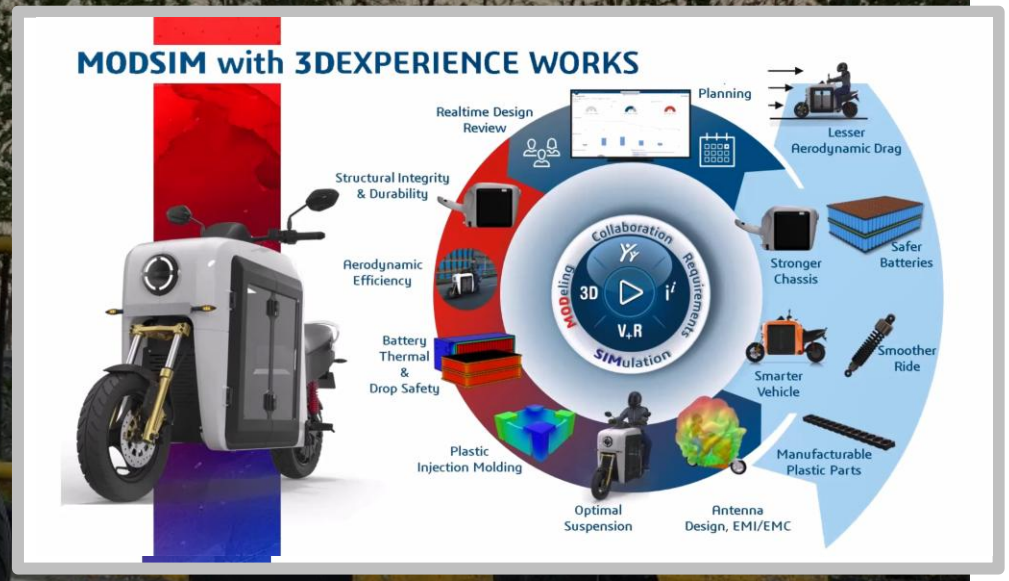
QARGOS Streamlines Development and Aims for Zero Physical Prototypes with MODSIM on the 3DEXPERIENCE Platform

Innovative transportation solutions provider reduces vehicle weight by 30 percent, optimizes aerodynamics, and minimizes the need for physical prototypes with SOLIDWORKS and 3DEXPERIENCE Works Simulation portfolio.

↓ Download Case Study ▶ Watch video



Challenge

Invent, develop, and commercialize the world's first purpose-driven, electric, smart, two-wheeled, compact logistics vehicle to revolutionize sustainable logistics operations by providing a safer, more efficient means to deliver goods in crowded urban settings with greater load capacity than existing motorcycles and scooters.

Solution

Leverage the unified, integrated modeling and simulation (MODSIM) approach offered by the cloud-enabled **3D**EXPERIENCE® Works portfolio to accelerate innovation, while securely managing data on the collaborative **3D**EXPERIENCE platform. Implement a digital-twin approach to virtual prototyping with the help of **3D**EXPERIENCE SOLIDWORKS® Premium, Collaborative Industry Innovator, SIMULIA Durability & Mechanics Engineer, SIMULIA Fluid Dynamics Engineer, SIMULIA Electromagnetics Engineer, SIMULIA Plastic Injection Engineer, 3D Motion Creator, and 3DSwymer roles on the cloud-based 3DEXPERIENCE platform.

Results

- Reduced vehicle weight by 30 percent, saving material cost and increasing vehicle efficiency
- Optimized vehicle aerodynamics, reducing rider fatigue due to drag forces
- Enhanced battery thermal management to improve efficiency, safety, and range
- Maximized size of cargo compartment, increasing cargo payload capacity

Discover the full story at solidworks.com

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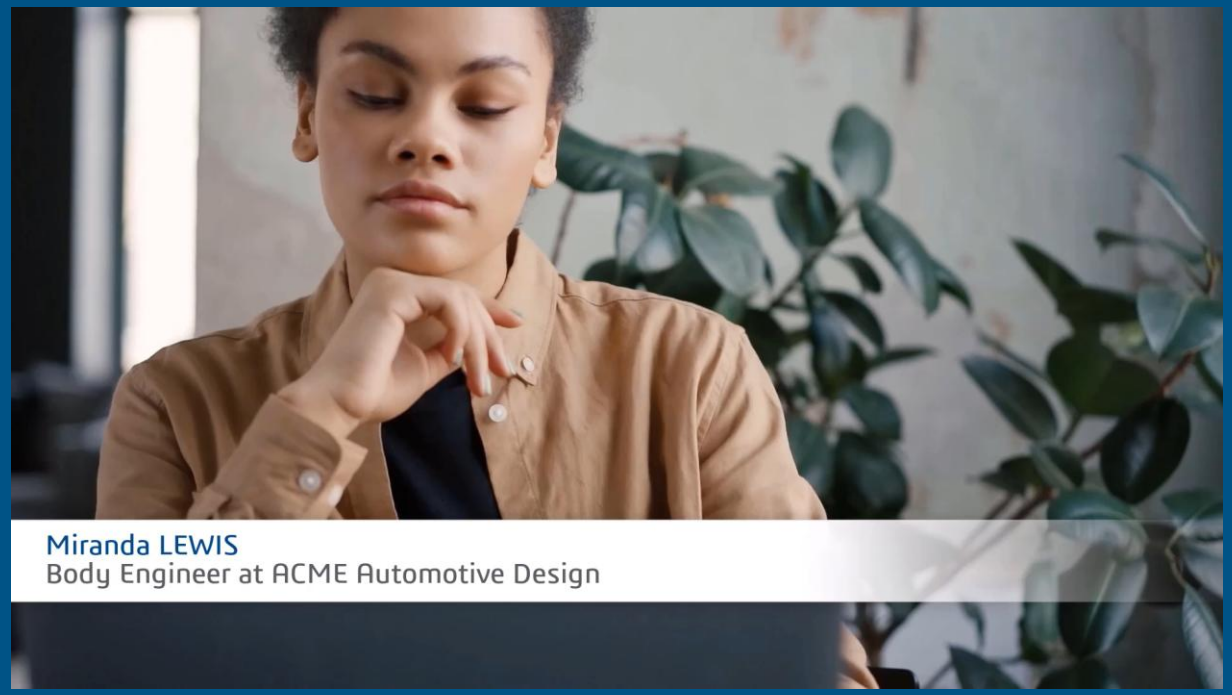
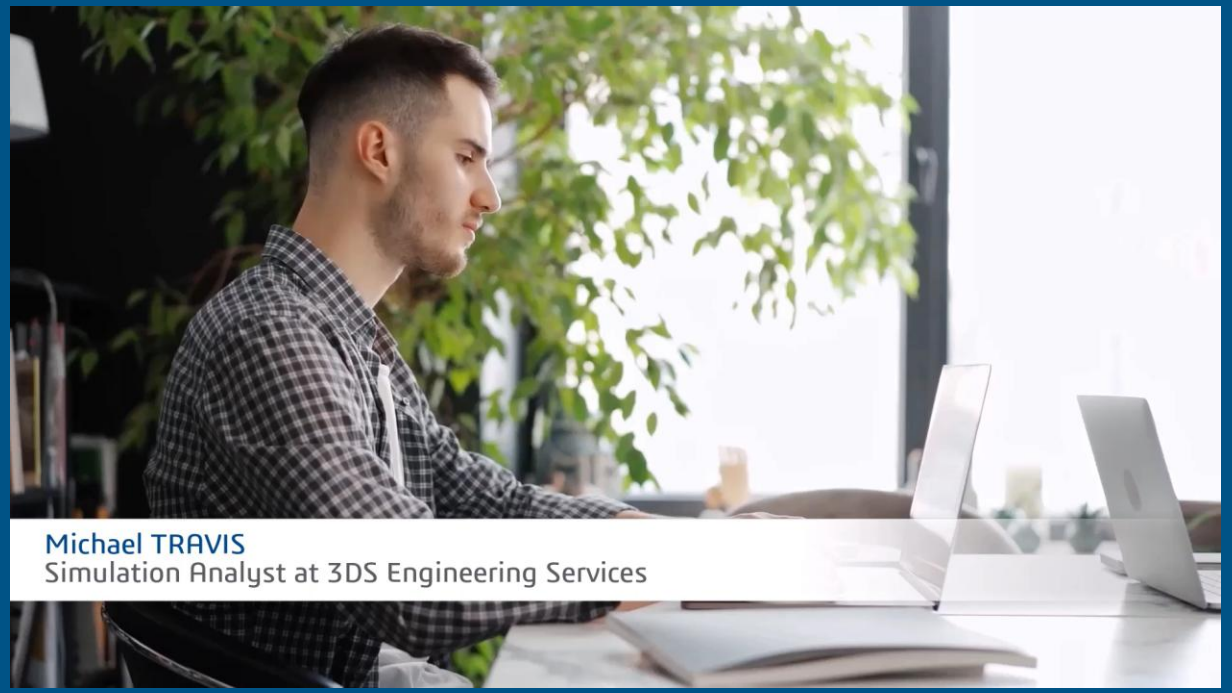
MODSIM DEMOCRATIZATION VIA VIRTUAL TWIN PHYSICS BEHAVIORS BASED ON MACHINE LEARNING MODELS





Designer / Product Engineer

- Creates product designs
- Leverages Virtual Twin Physics Behaviors to simulate alternatives
- Compares alternatives based on physics KPIs

Simulation Analyst

- Decides which KPIs are needed to validate designs
- Creates and validates simulation scenarios
- Creates and deploys Virtual Twin Physics Behaviors, based on machine learning models

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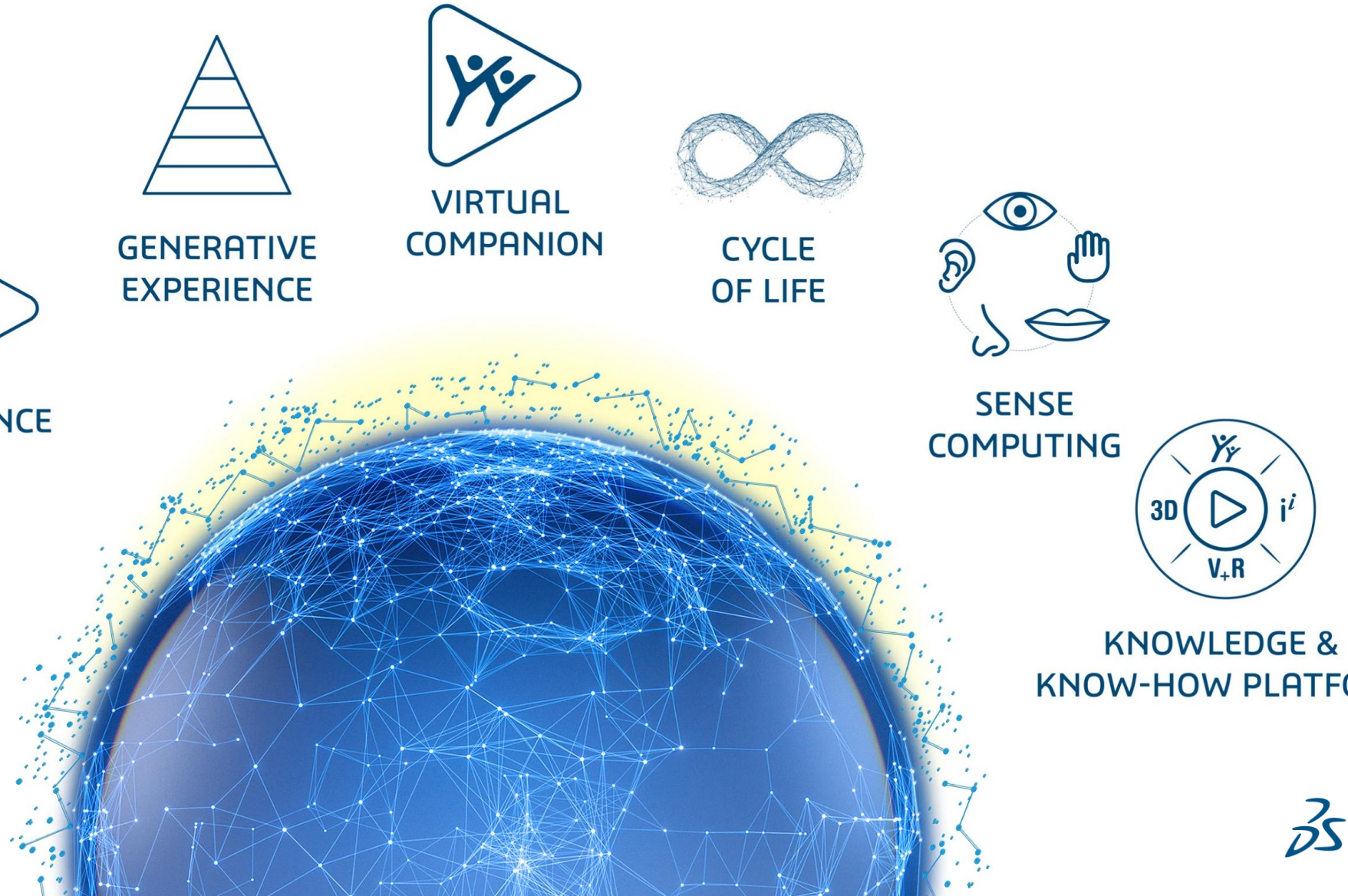
3D UNIV+RSES



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Virtual Worlds for Real Life

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