

um
2025

Key insights:
**Towards a data-centric platform
for MDO, democratization and
scalable simulations**

Marco Turchetto
Product Manager



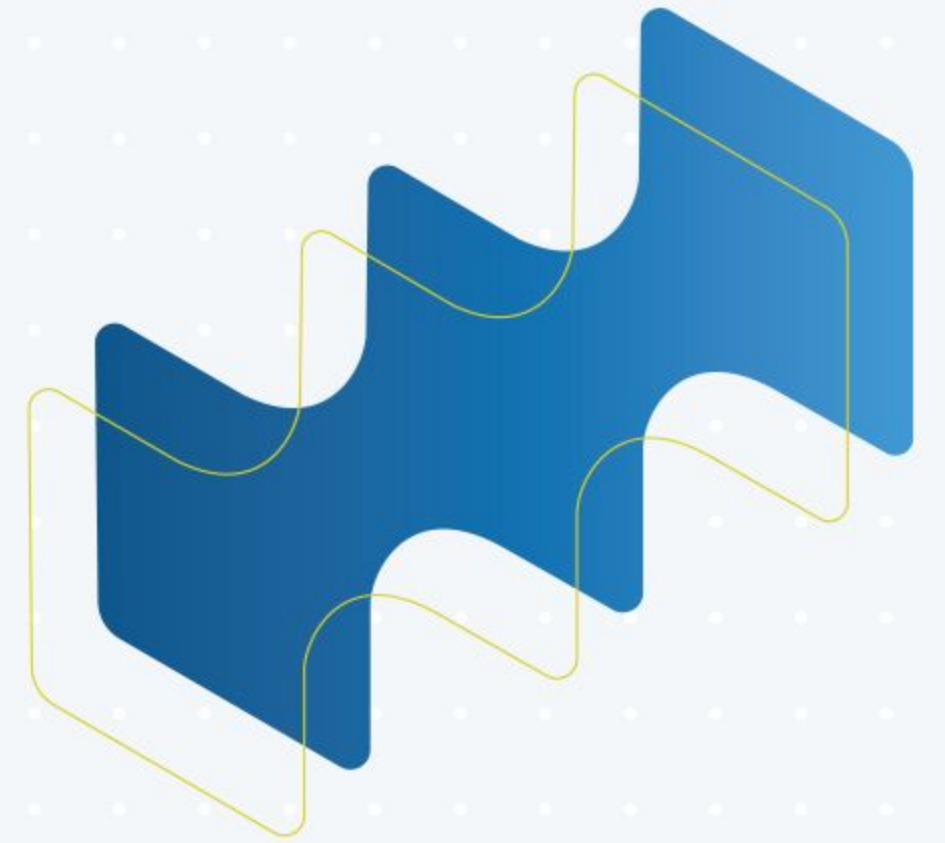
Agenda

The current landscape of engineering simulation

VOLTA evolves to amplify the benefits of digital transformation

The engineering simulation challenges of tomorrow

ESTECO
USERS' MEETING
NORTH AMERICA

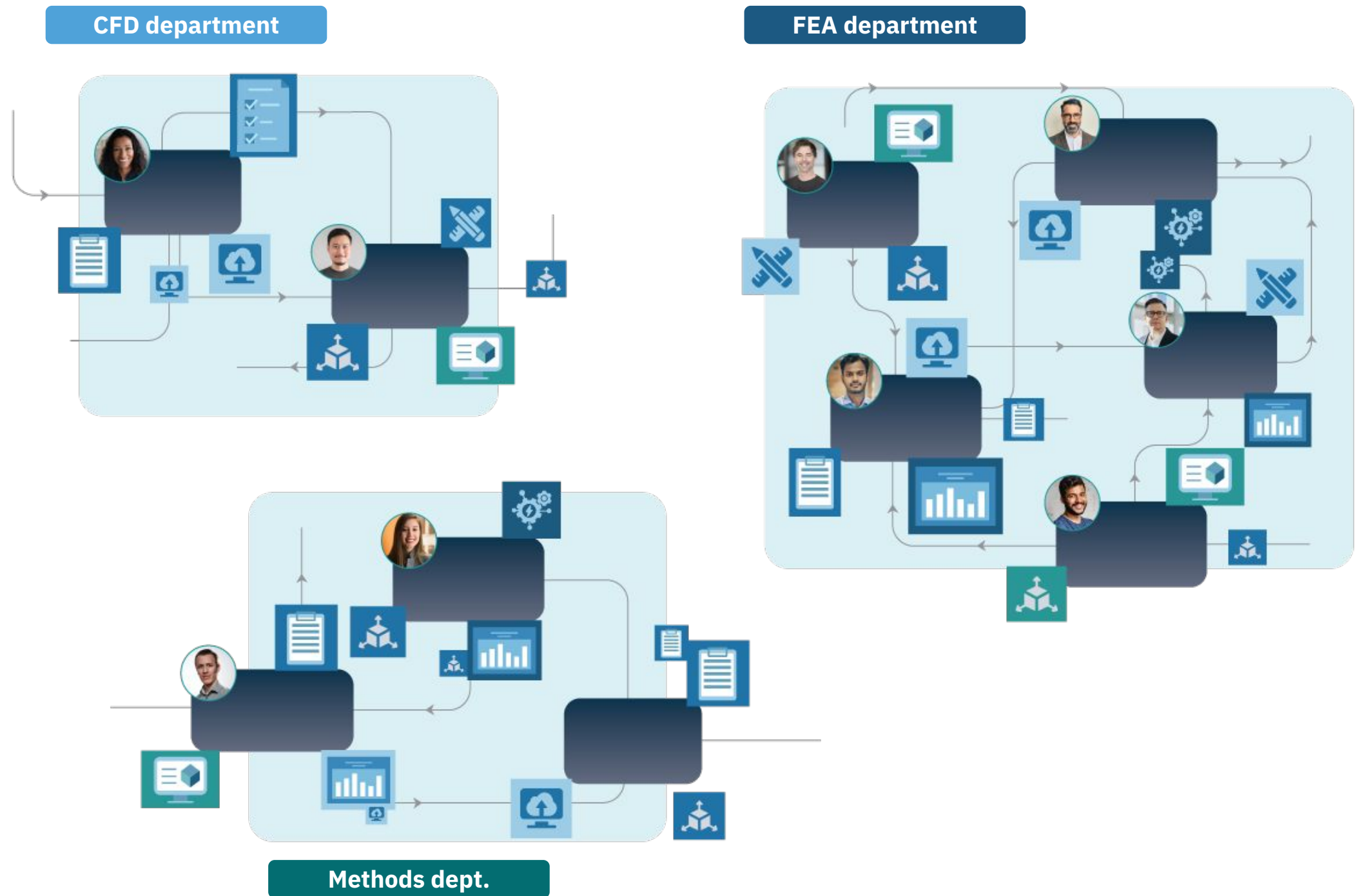


The current landscape of engineering simulation



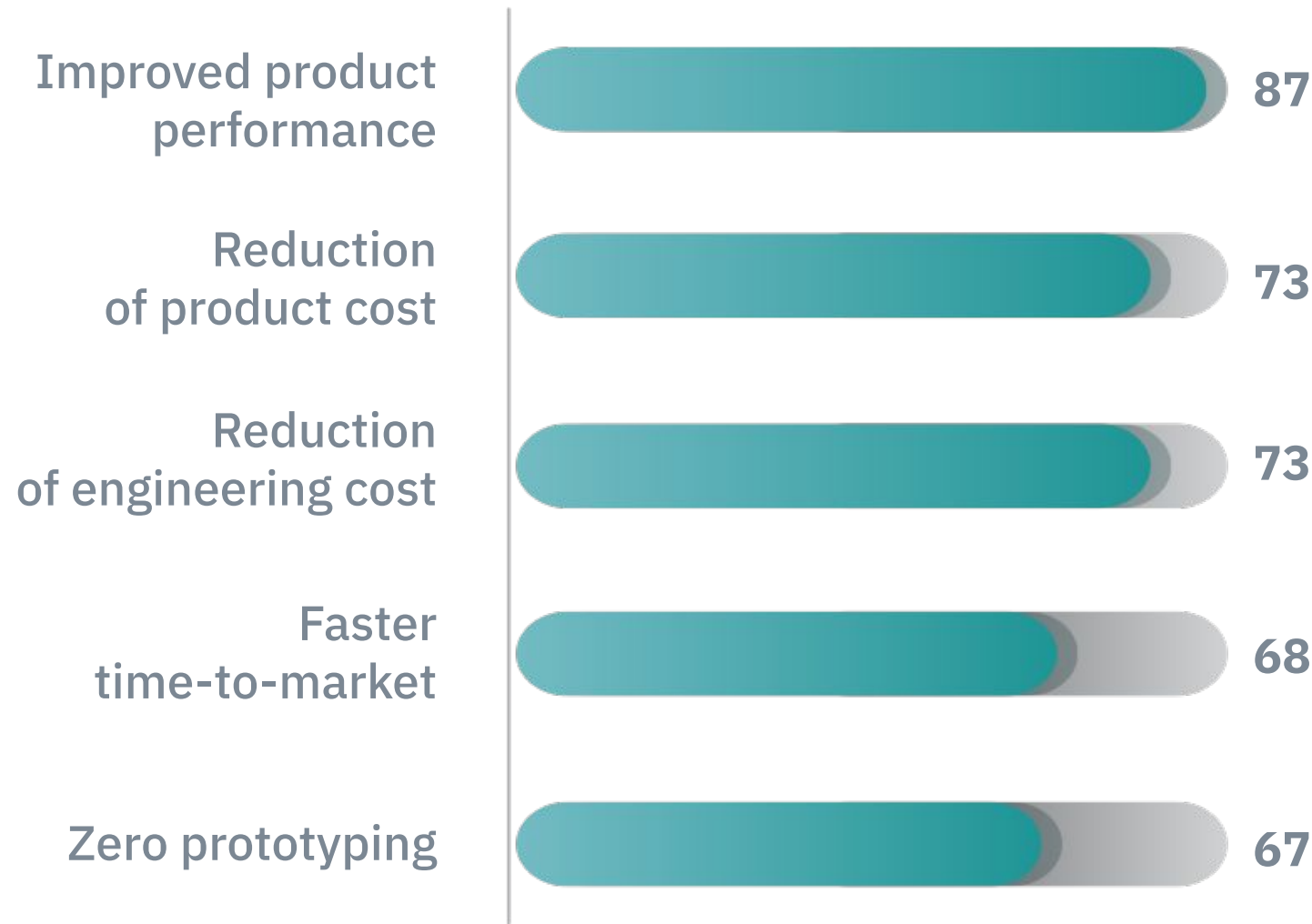
The digital engineering reality

- Increasing Product Complexity (System-of-Systems)
- Multi-Disciplinary Collaboration
- Geographically Dispersed Teams
- Explosion of Simulation Tools & Data

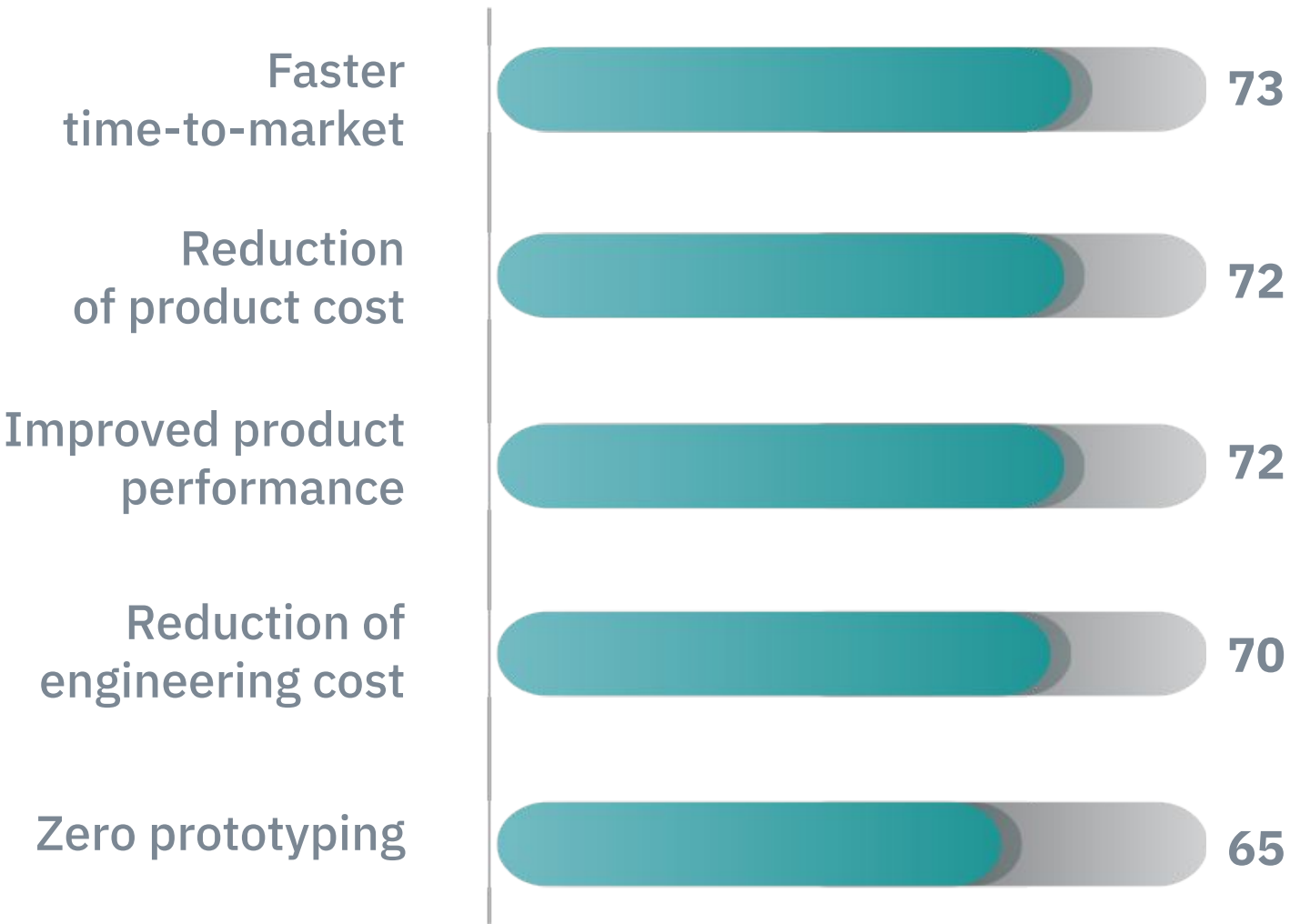


The business case for simulation

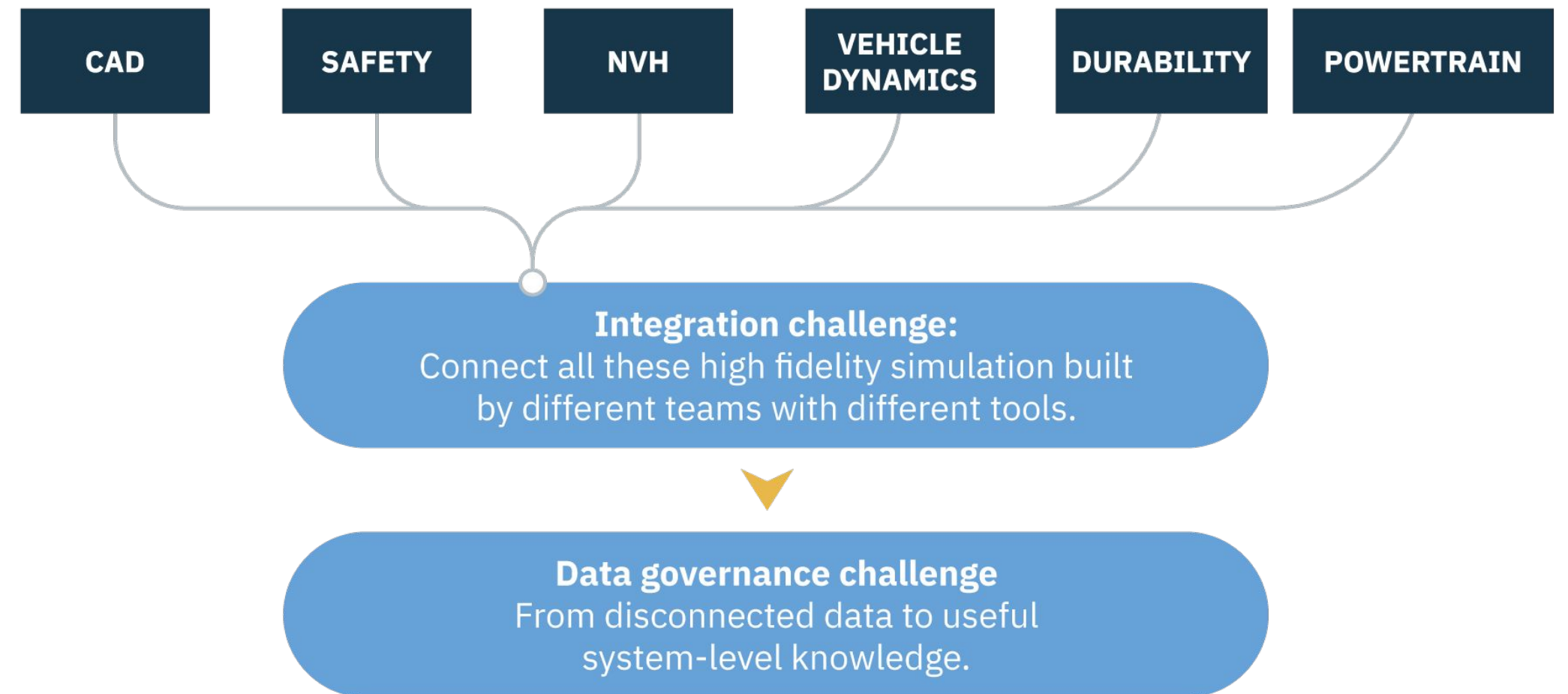
Past value drivers of applying simulation techniques, %



Future value drivers, %



From component to system simulation



From component to system simulation

Challenge 1: Connecting data from dozen of tools



Challenge 2: Orchestrating global teams



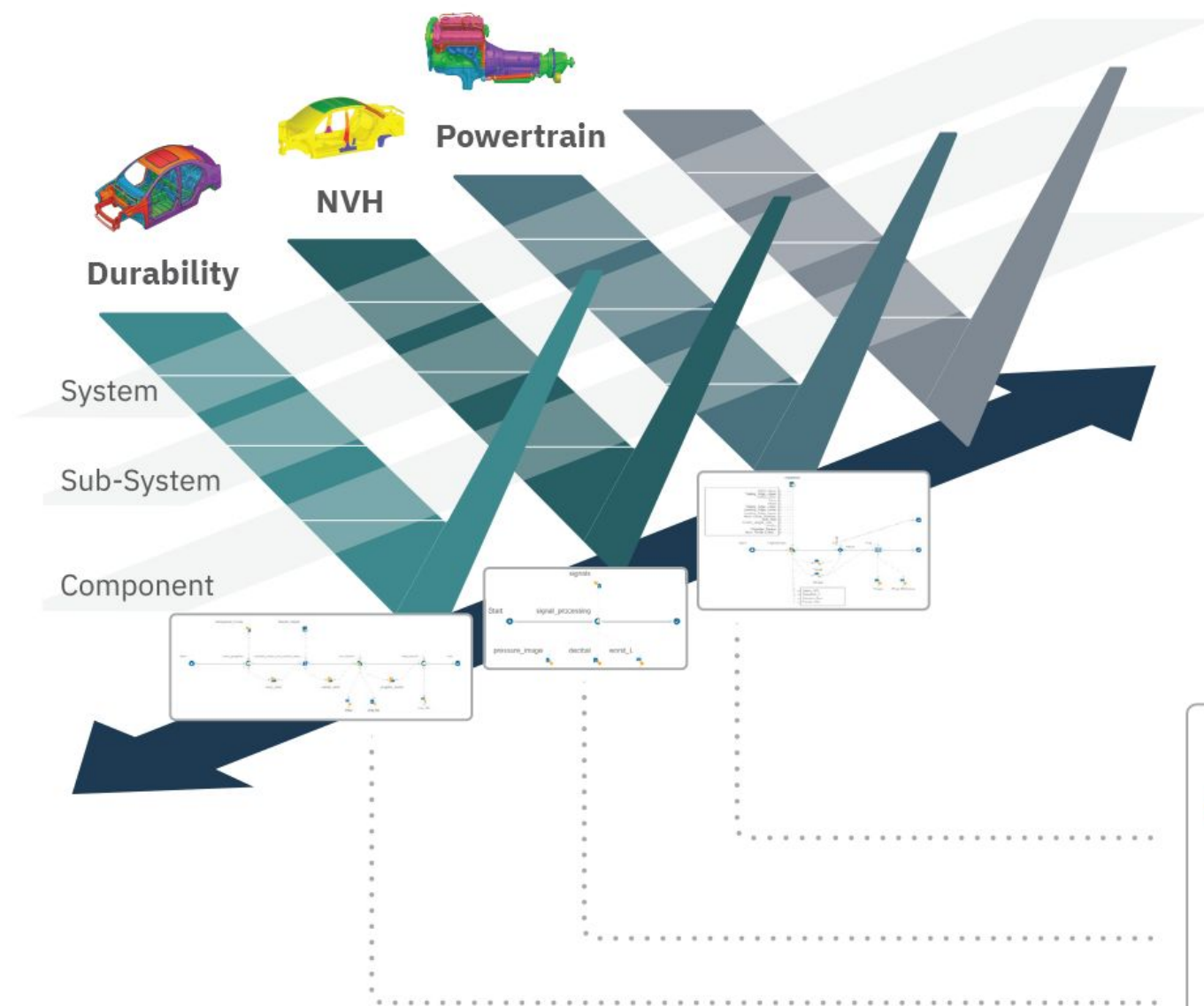
Challenge 3: Understanding trade-offs between disciplines

Performance
vs Weight

Cost vs
Reliability

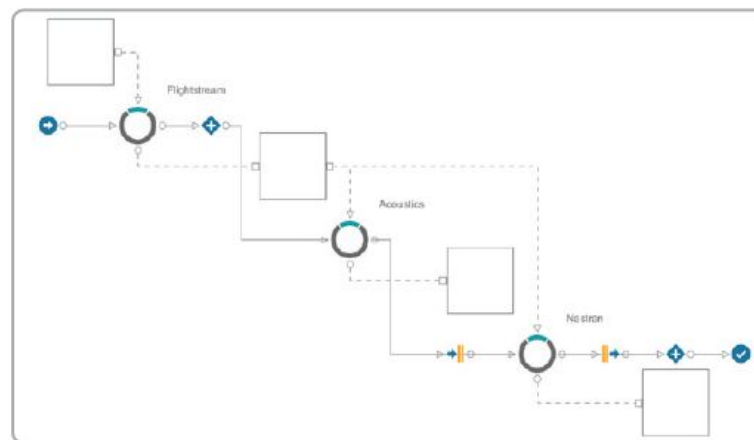
Safety vs
Efficiency

Collaborative MDO: a framework for system simulation



Achieved so far with VOLTA digital engineering platform:

- Connect data, models, and expertise.
- Automate the integration of multi-disciplinary simulations.
- Optimize for the best performance at the system level



VOLTA evolves to amplify the benefits of digital transformation



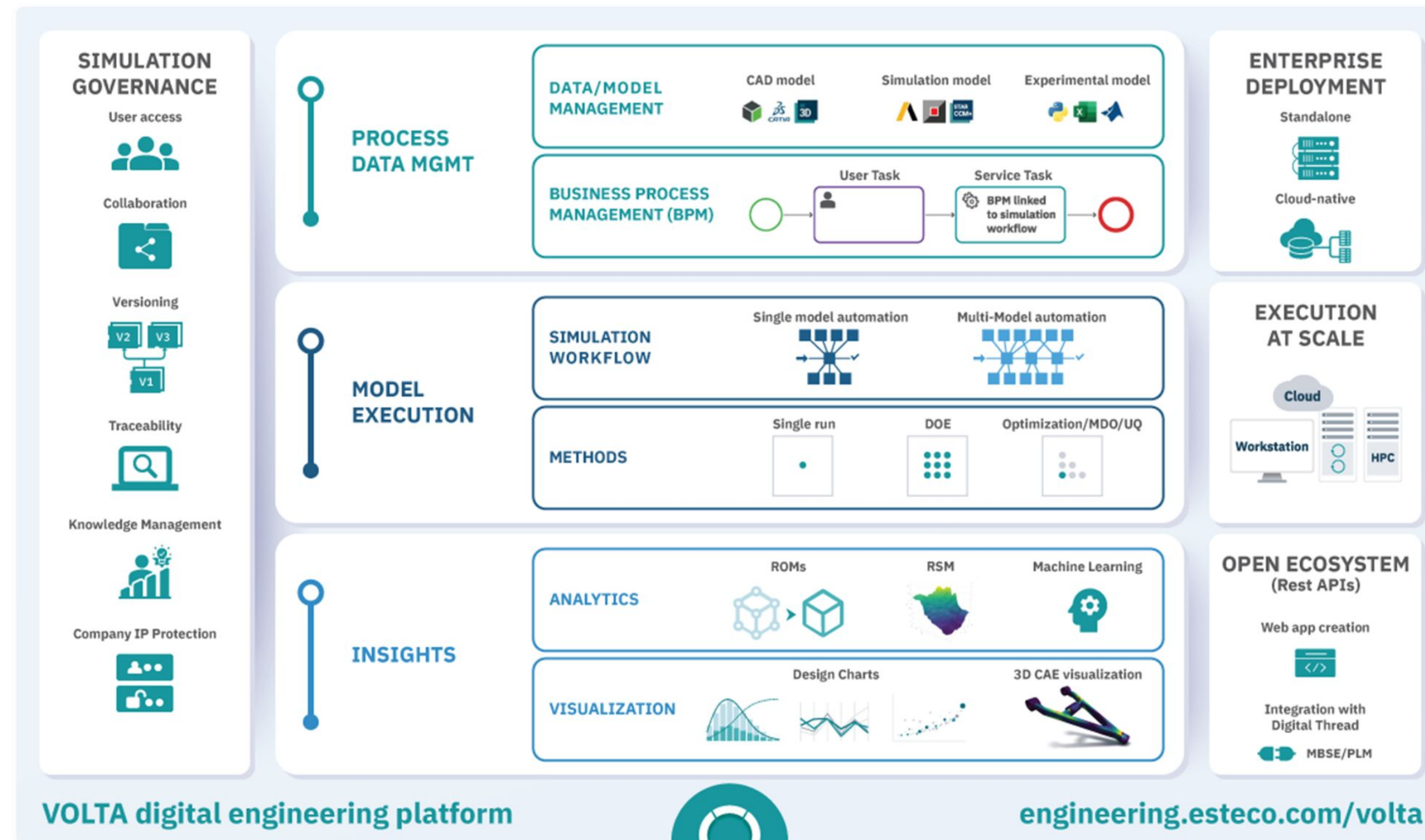
What VOLTA can do for your organization



Web-based collaborative platform designed for simulation-driven product development.

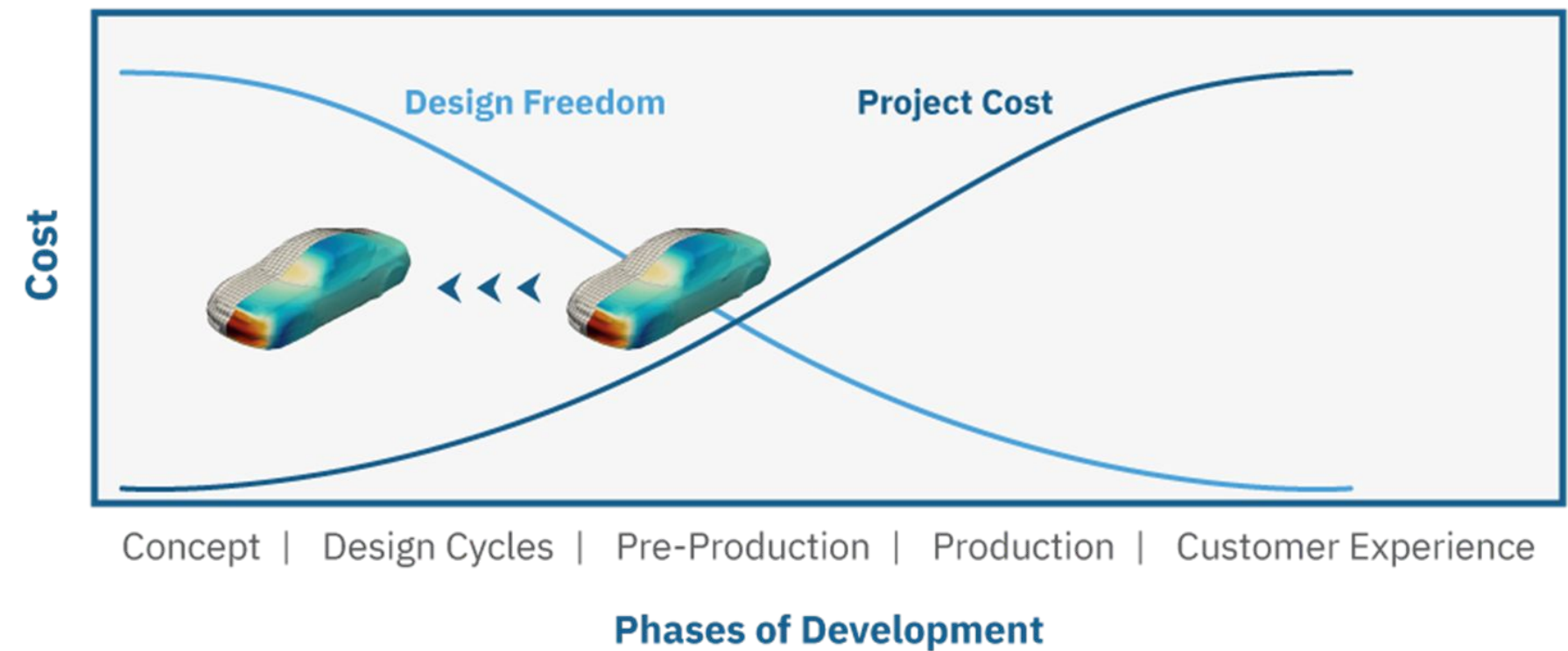
Our strategic drivers for the future

Democratization of MDO, digital thread integration and data-centric architecture.

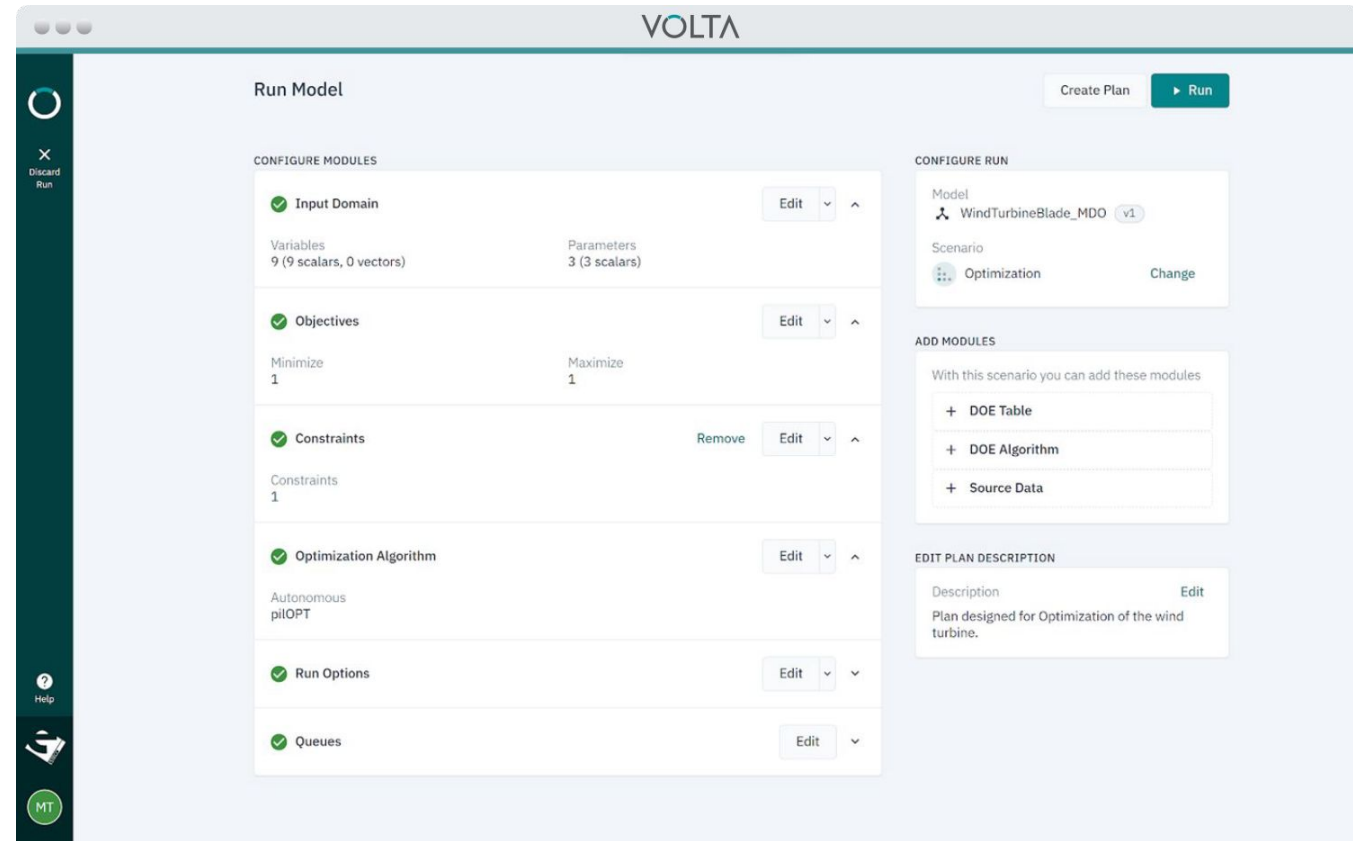


Democratizing MDO

Granting access to simulation expert knowledge to bring simulation earlier into the design cycle.

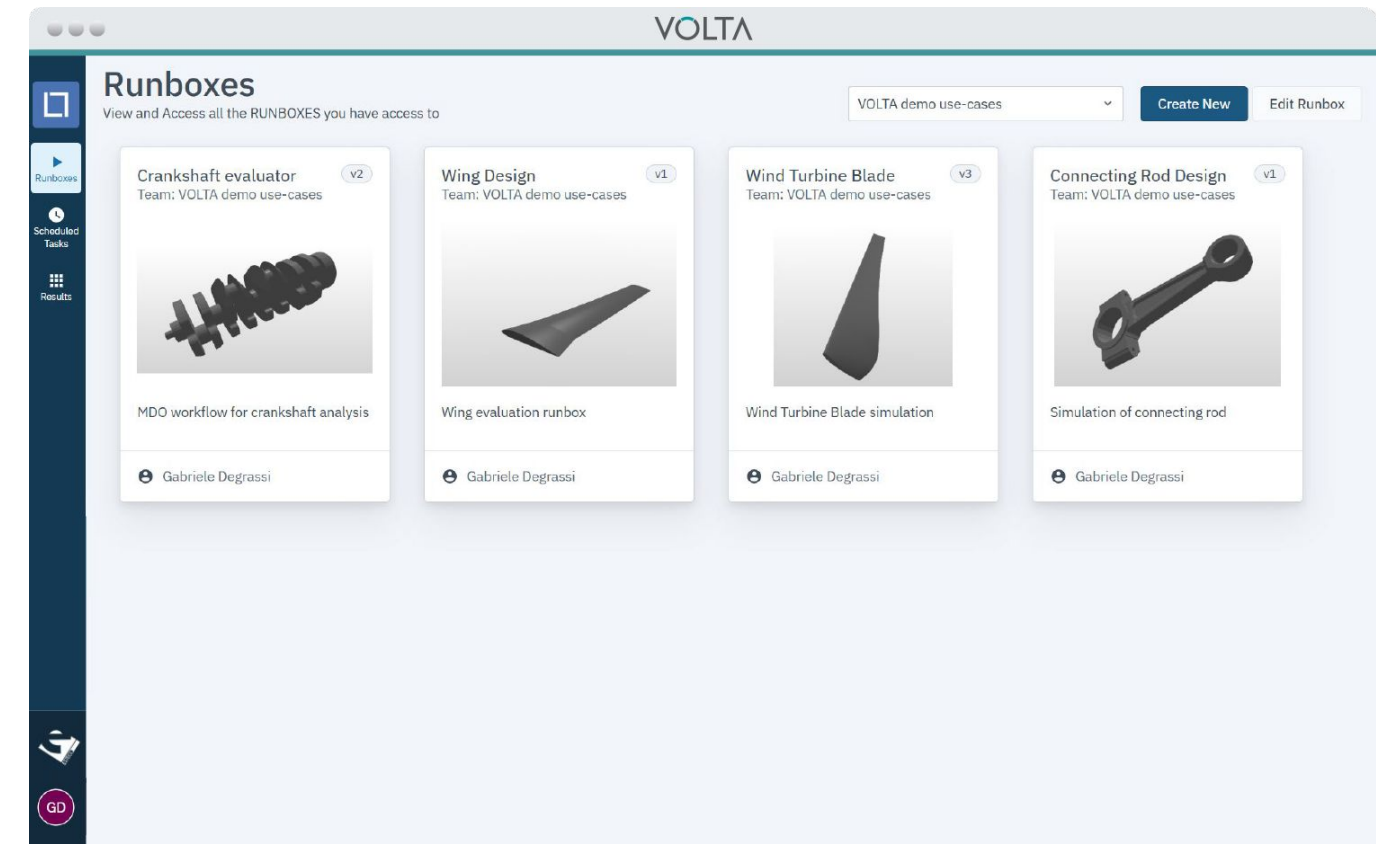


Enabling democratization in simulation



Planner

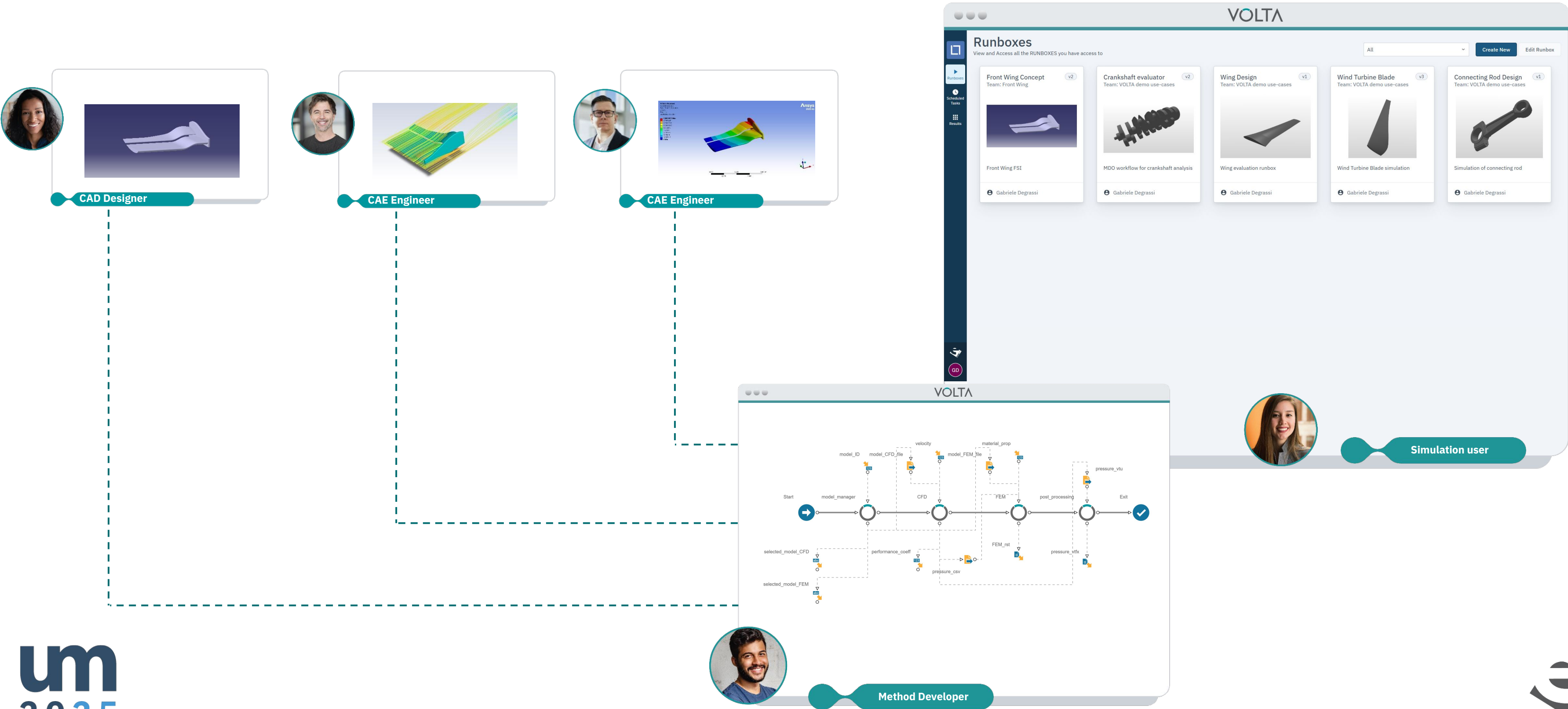
Simulation experts use this environment to configure an execution (single run, DOE, or design optimization).



Runbox

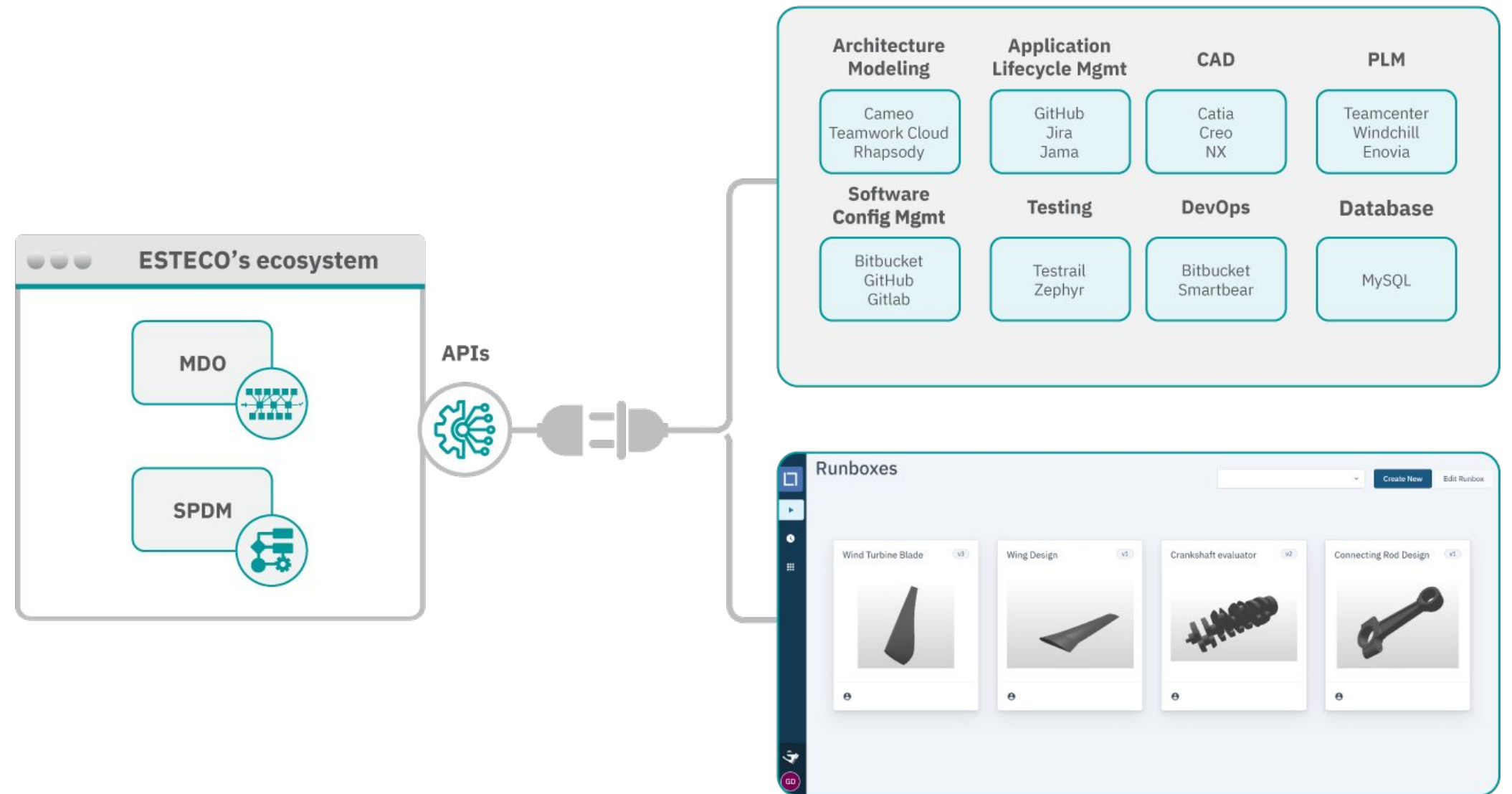
API-based web apps creation for non-simulation experts.

Real world impact: accelerating design cycles



Connecting the digital thread

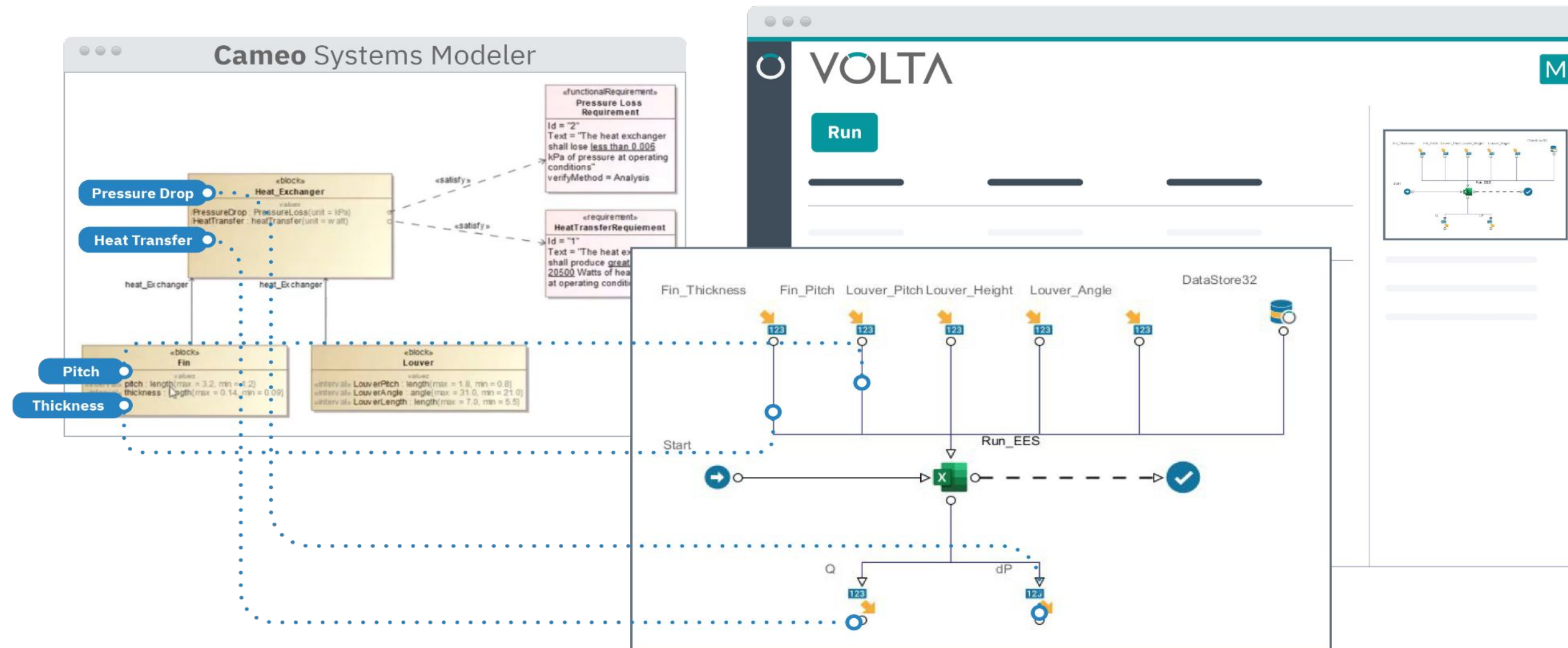
- Break Down Data Silos
- Connect Disparate Engineering Systems
- Create an Authoritative Source of Truth for Simulation



Enabling digital continuity with a PLM/SPDM/MDO federated approach



The MBSE plugin for VOLTA



Link system requirements
to simulation models

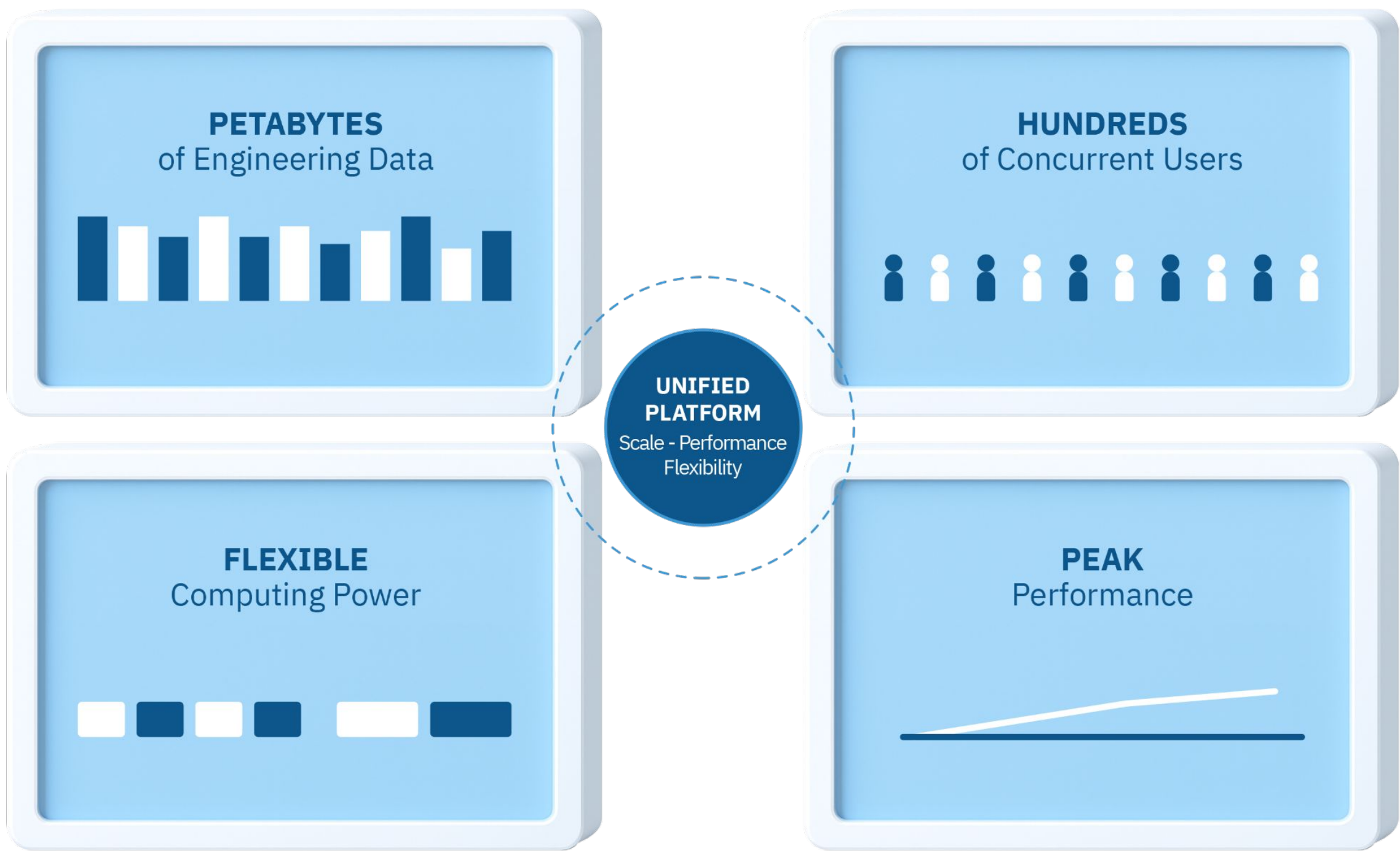
Validate system architecture
with performance data

Ensure full traceability from
requirements to results

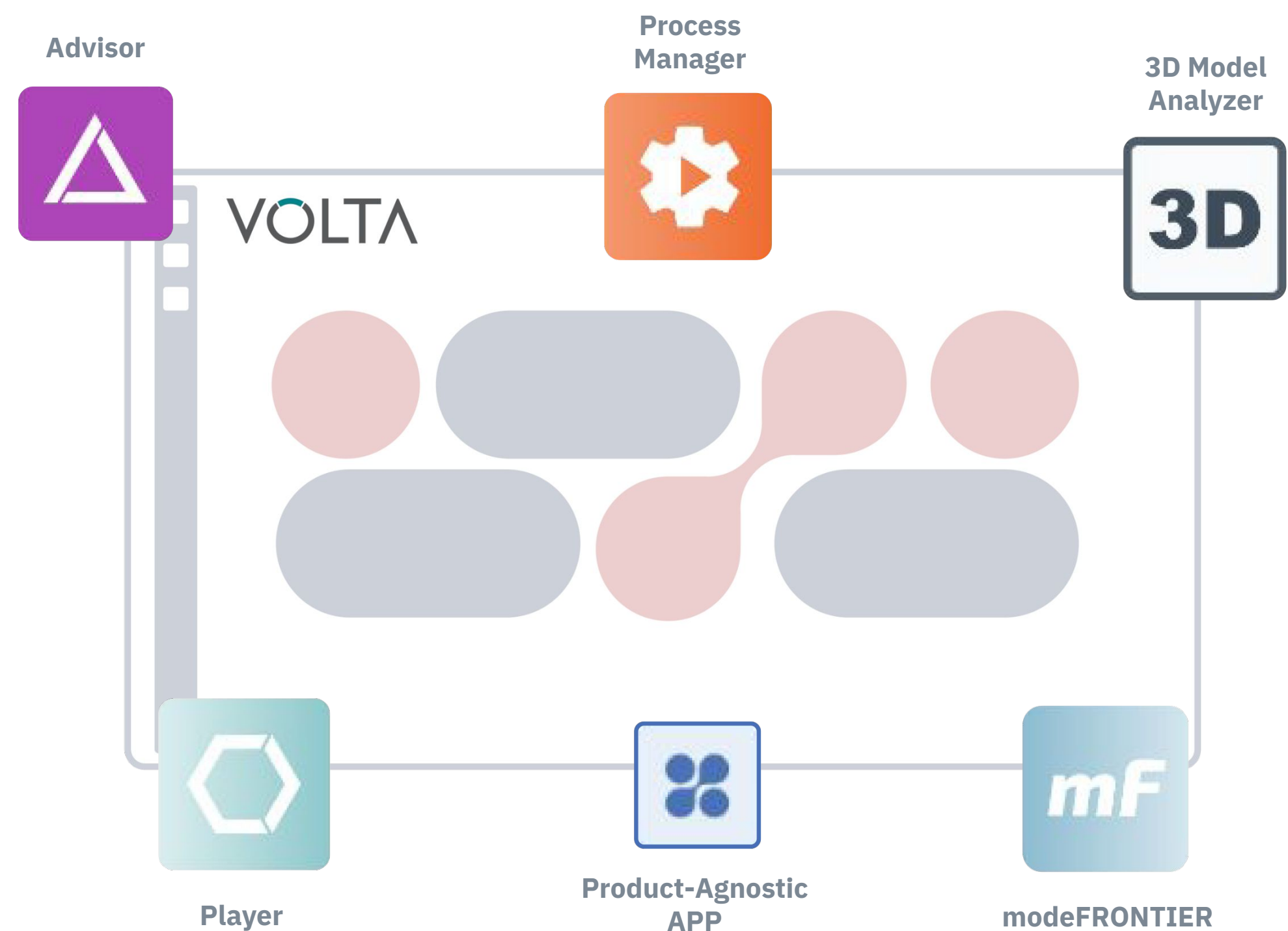
The engineering simulation challenges of tomorrow



The challenges of tomorrow are here today

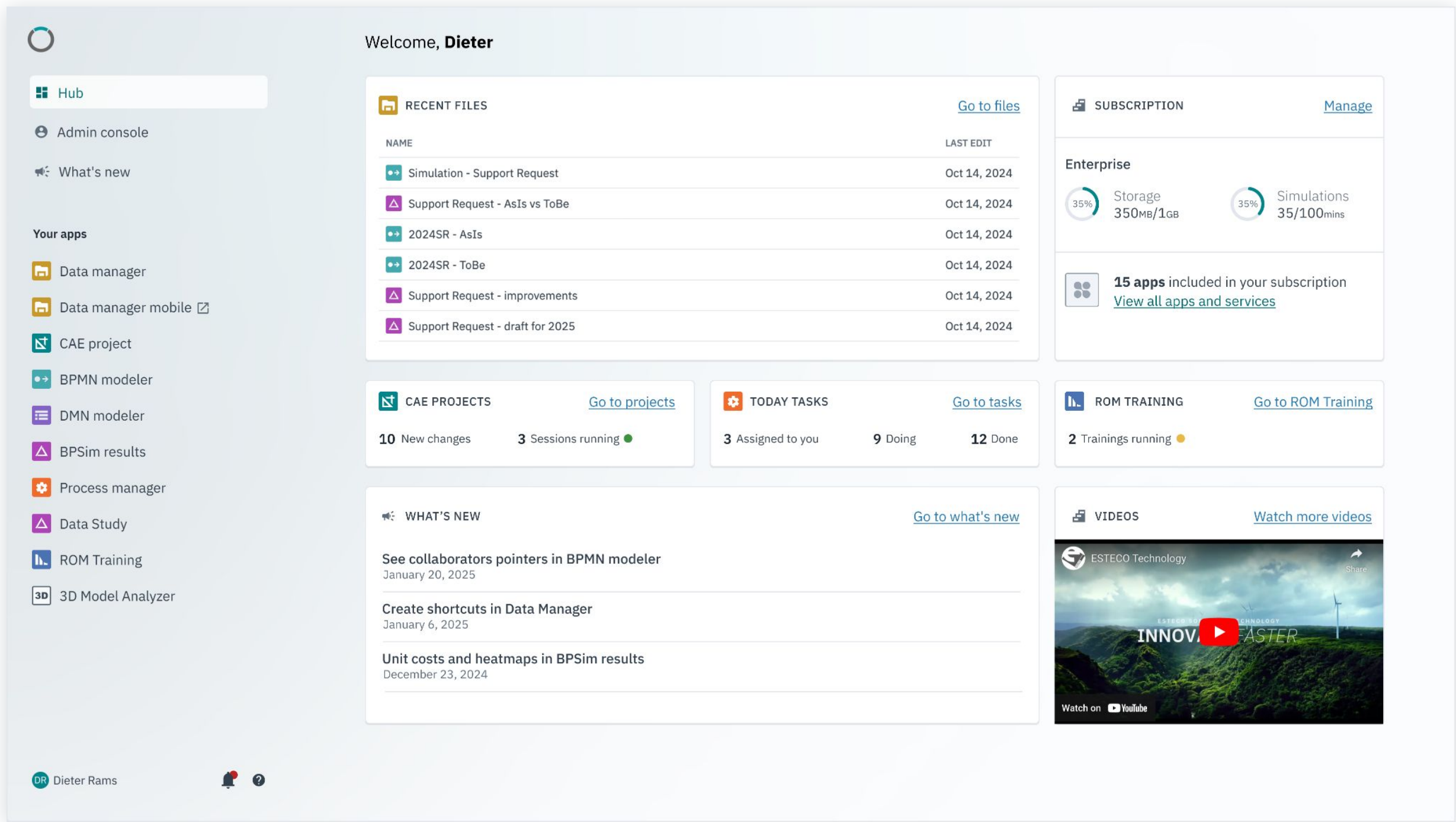


The future of VOLTA: a data-centric architecture



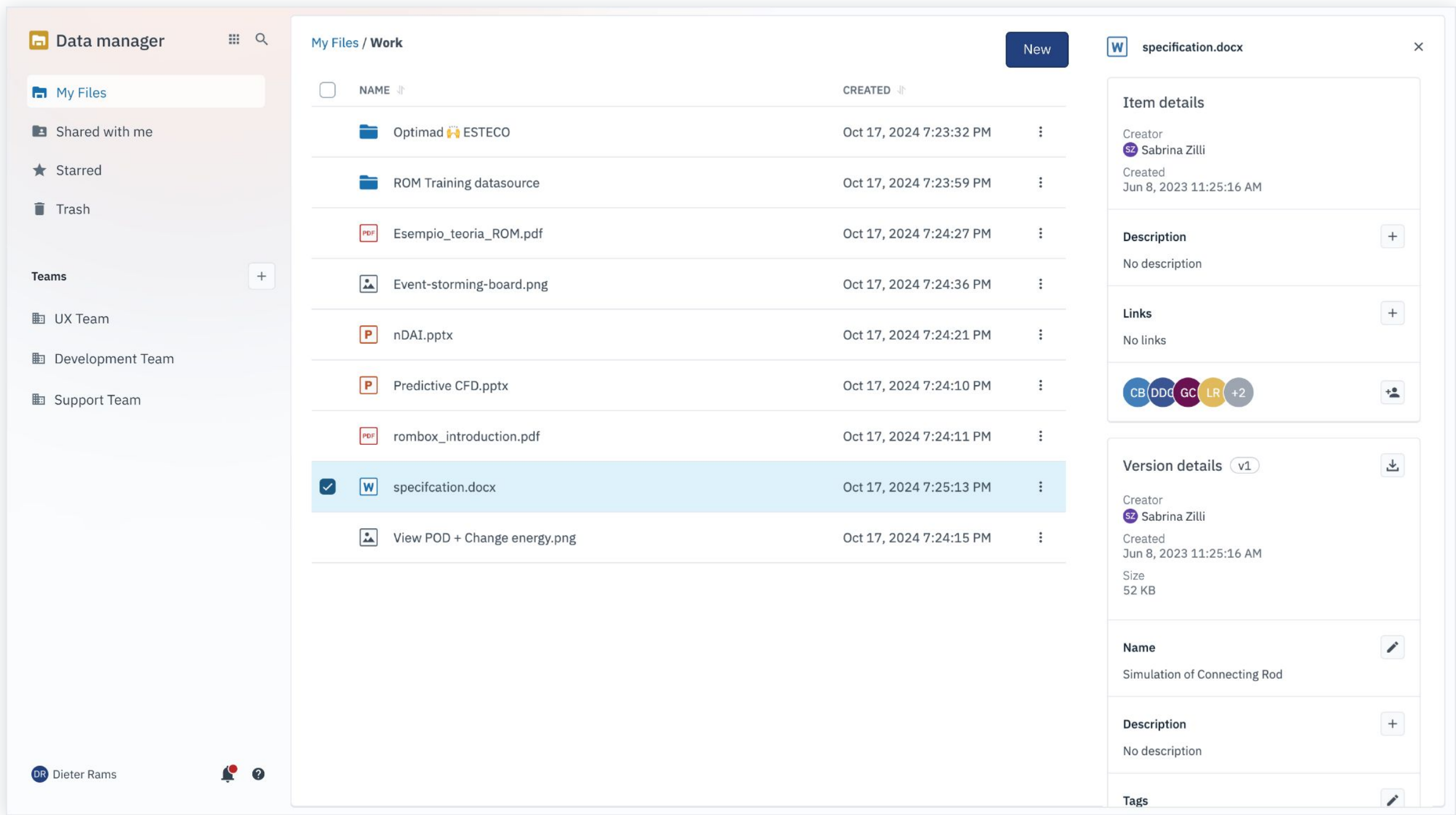
Answering the challenges

Massive Data: A brand new scalable Data Manager



Answering the challenges

Massive Data: A brand new scalable Data Manager



Answering the challenges

High Concurrency: Microservices-based VOLTA Apps



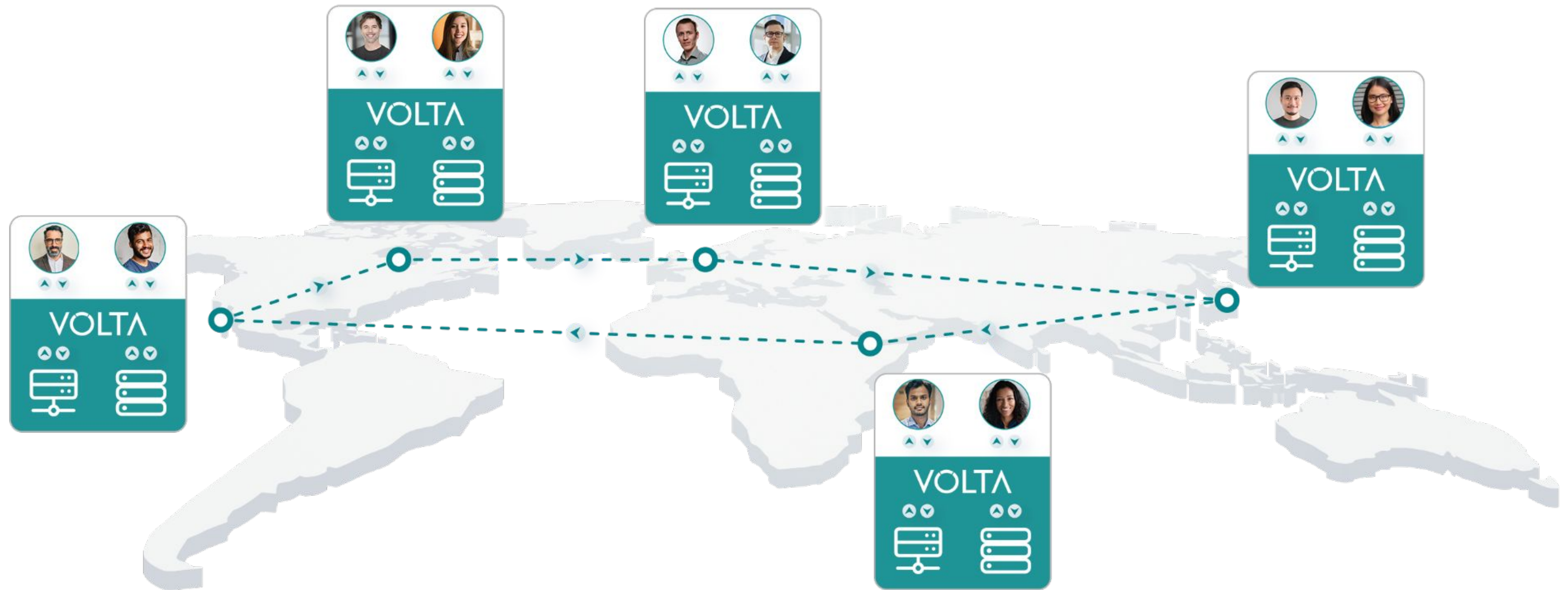
Answering the challenges

Flexible Compute: Cloud-Native Design



Answering the challenges

Global performance with VOLTA multi-site installation



Tooling will follow a federated approach, selecting best-in-class vertical tools that are highly interoperable and meet specialized needs - moving away from monolithic software suites.

What's the endgame for engineering simulation. McKinsey and Company, NAFEMS World Congress 2025



The roadmap: proof of progress

TO DO

VOLTA Introspection

Run models on the web

VOLTA Service app

Create simulation services

DOING

VOLTA External data Sources

Link VOLTA to other enterprise systems

Business process simulation

Simulation

New VOLTA data manager

Best performance and user experience

3D Model Analyzer

CAE post-processing in VOLTA Advisor

VOLTA New Packaging

Unified deployment option

VOLTA Specialized Apps

Specific apps for specific tasks

Data Manager Teams

New Teams for open collaboration

DONE

MBSE Plugin for VOLTA

Connect SysML models to simulation

VOLTA Advisor

Dashboard templates

Thank You!

esteco.com

