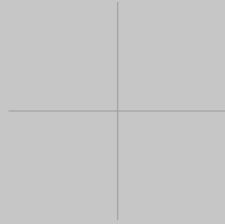




**VOLTA**

ENABLING  
THE DIGITAL THREAD  
WITH **VOLTA SPDM**  
ENTERPRISE PLATFORM

Leveraging SPDM and Design Optimization to unleash  
the full potential of simulation-driven product development



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# Towards the ideal SPDM solution

In the context of ever-increasing product complexity, simulation already plays a key role in improving product performance. However, the capacity for sharing simulation data across the enterprise design is still limited. Connecting simulation to the digital thread is the next big step for engineering teams to unleash the full potential of simulation across the product life cycle.

A different scenario is possible:

- What if you could exchange cross-team simulation data in real time via a server-based environment, rather than retrieving files from local workstations with limited traceability?
- What if you could make automated simulation workflows available to non-experts, standardizing best practices and democratizing access?
- What if you could seamlessly connect simulation results to other product development data?

In this eBook, we demonstrate how the ESTECO VOLTA platform for Simulation and Process Data Management and Design Optimization enables organizations to take full control of the engineering design process, from simulation workflows to high-level business decisions.



# Stumbling blocks of engineering teams working in silos

Simulation-related activities are still managed by a few domain experts. This siloed approach to product development is the cause of costly inefficiencies and delays. Typical problems include:

- **No real-time collaboration across departments**  
Many engineering teams still share simulation data (e.g. CAD geometries, CAE models, simulation workflows, reports) via worksheets, email, or shared drives with no version control. Tracing results back to a particular model can include manual interactions, increasing the throughput time.
- **Undefined engineering design processes**  
Traditional project management tools make it difficult to trace and reproduce engineering design processes. Tracing where a request for simulation came from, who is in charge of preparing a CAD or performing CAE analysis, and where to access the latest version of this data can be redundantly complex.
- **Fragmented access caused by a myriad of vendor-locked tools**  
Subject matter experts each use a myriad of CAD, CAE, and in-house tools within their domain of expertise. This generates multiple simulation workflows which are difficult to track and standardize.
- **Access to simulation data is limited to domain experts**  
Simulation throughput is limited by the capacity of a restricted number of experts to perform analysis using their highly specialized desktop applications.

“Data professionals are wasting, on average, 30% of their time because they cannot find, protect or prepare data.”

The State of Data Discovery and Cataloging • IDC

# Maximizing the ROI of simulation-driven design

Having the right set of tools is not enough to fully implement the digital transformation. ESTECO VOLTA helps organizations embrace the necessary cultural shift.

It is designed to encourage more engineers to leverage simulation from the earliest stages of design. It democratizes access to simulation data, enables collaboration across disciplines and empowers smarter management of the product design process from a business perspective.

VOLTA is unique because its simulation process and data management capabilities come with state-of-the-art design optimization technology.

“With VOLTA, ESTECO offers an interactive and user-friendly web platform that is able to cumulate smart algorithms, automation process, post processing and interactive data visualization.

The democratization of these complex methods through a friendly and ergonomic interface, offered by VOLTA, is usually an underestimated aspect of the successful deployment of solutions of this caliber.

”

**FABIEN FIGUERES**  
Data Project Manager • Stellantis

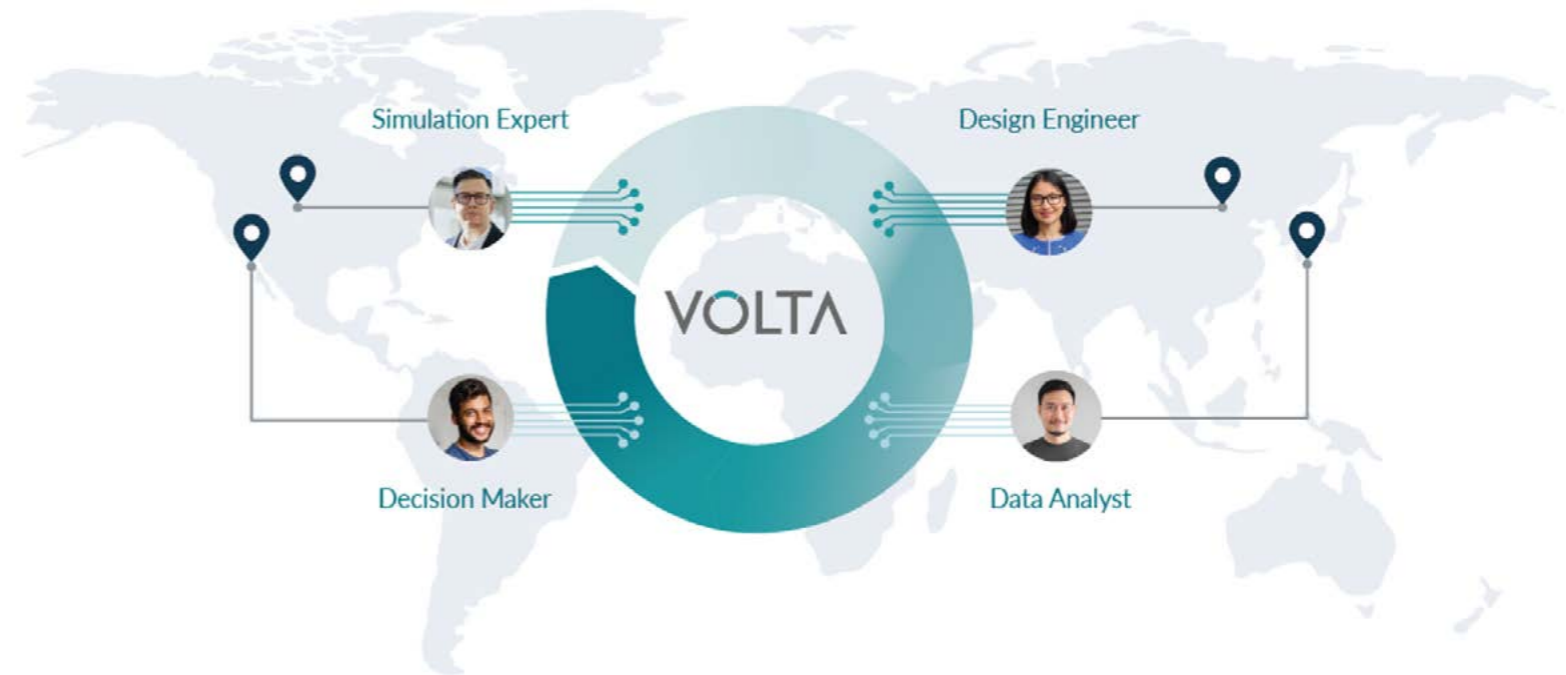
**VOLTA is an authoritative source of truth for all your simulation data. Its server-based environment empowers collaboration across the enterprise.**

# 1. Manage and collaborate

VOLTA empowers collaboration across engineering teams, allowing you to safely capture, version and share data in a server-based environment.

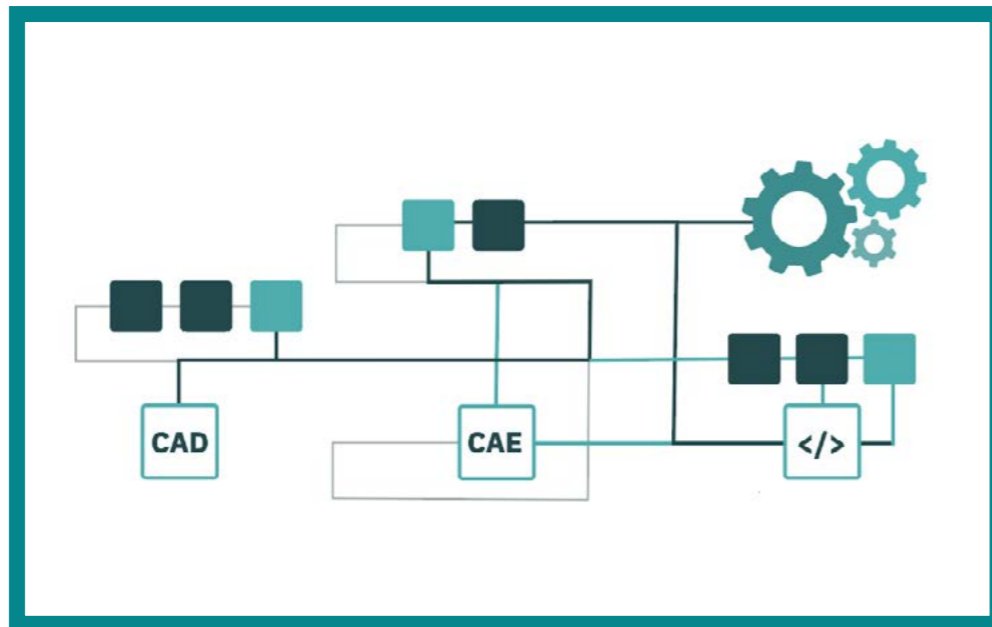
With VOLTA APIs, insights from simulation are accessible to stakeholders across the enterprise (e.g. CAD designers, suppliers).

Integrated Business Process Management capabilities move teams from a task-oriented to a process-driven approach. Interdependencies between tasks become clearer and information reaches the right people at the right time, minimizing productivity bottlenecks.



## 2. Integrate and automate

VOLTA's vendor-neutral framework allows seamless integration with all your CAD and CAE tools, so that you can manage the entire simulation process from a single automated workflow. Subject matter experts' simulation models (e.g. aerodynamics, fluid dynamics, structures) are available for method developers to build reusable multidisciplinary workflows, all without leaving the VOLTA platform, making the entire design process more efficient.



**VOLTA leverages modeFRONTIER's process integration and automation technology, enabling you to integrate all your CAD and CAE tools into a single automated workflow.**



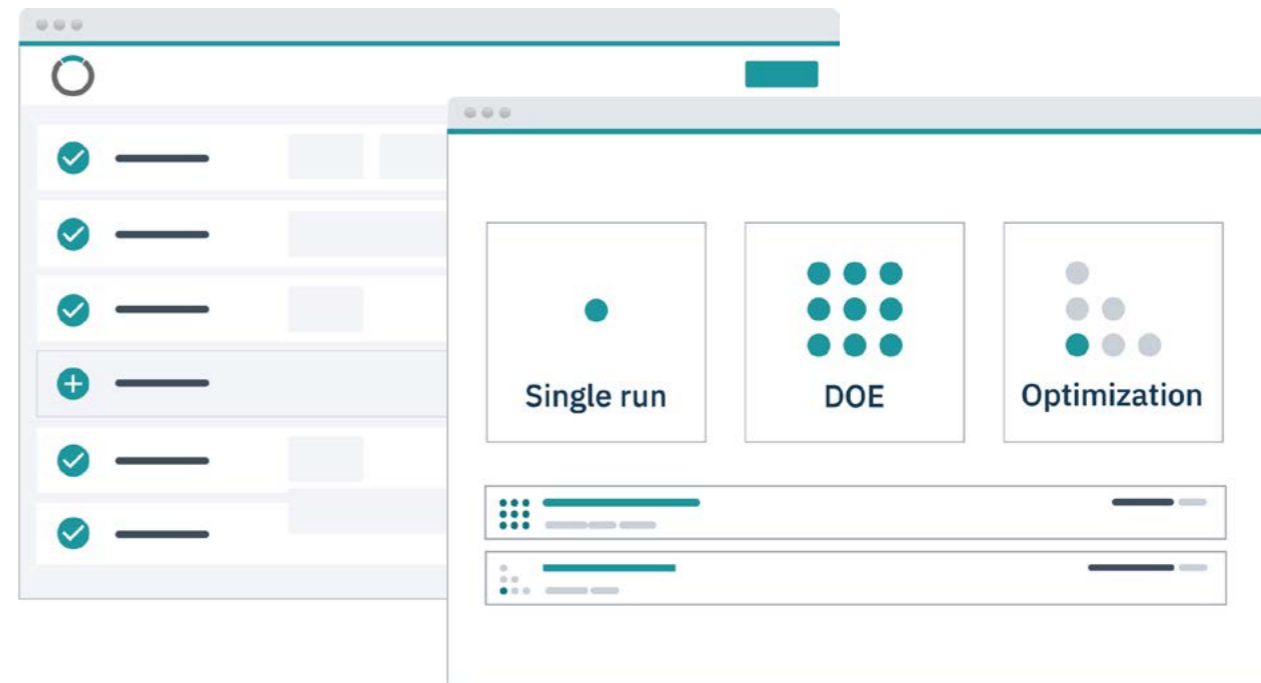
**VOLTA is the only SPDM solution on the market that comes with fully integrated, state-of-the-art Design Optimization capabilities.**

### 3. Explore and Optimize

Engineers, who are not necessarily experts in simulation automation, can execute pre-configured workflows from a dedicated intuitive interface.

They can run design space exploration strategies and leverage ESTECO optimization algorithms to find the optimal design.

Finally, VOLTA job scheduling maximizes the use of IT resources by distributing computational workloads across HPC and cloud environments.

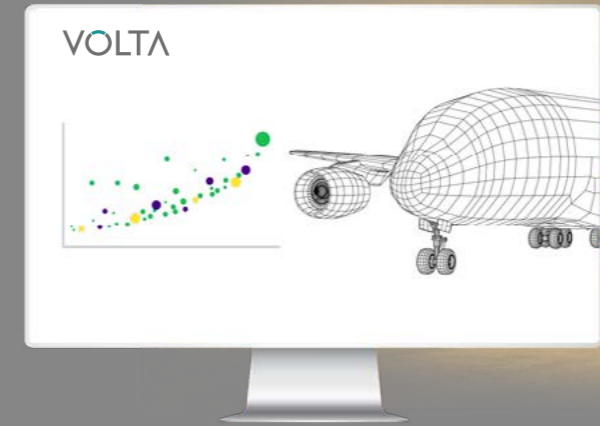
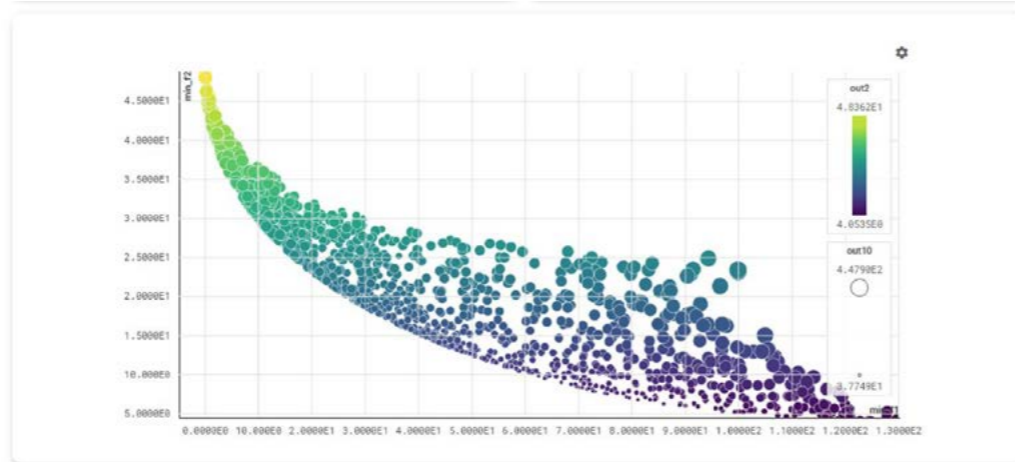
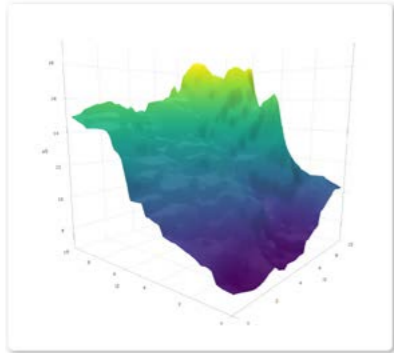
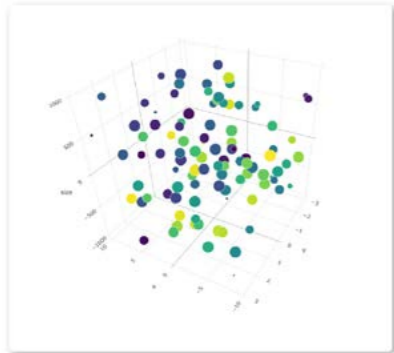




# 4. Analyze and Visualize

VOLTA helps turn simulation data into actionable insights, democratizing access and enabling collaborative decision making across the enterprise. Its web-based advanced analysis and visualization tools empower stakeholders to predict product behavior and share insights.

They can assess simulation results and request changes in real time, rather than waiting for 2D static reports in their email inbox.



Try VOLTA hands-on  
→ [esteco.com/volta](https://esteco.com/volta)

“We’re making another big step in Raytheon Missiles & Defense’s digital transformation journey by selecting ESTECO’s digital engineering framework, called VOLTA, for our data sharing across the product life cycle. This is good news for our customers, as it will help us reduce costs, increase capabilities, and shorten delivery timelines.”

WES KREMER  
President  
Raytheon Missiles & Defense

# How VOLTA is different: SPDM platform with state-of-the-art design optimization

Available SPDM solutions tend to have limitations in terms of CAE workflow automation and parametric design optimization. Their deployment is time-consuming, especially when embedded into a PLM ecosystem due to its database-centric nature. VOLTA is different because it provides:

- **Rapid deployment**  
Your VOLTA installation is ready to run in hours, not weeks. Hands-on onsite training by ESTECO engineers guarantees swift adoption.
- **Vendor-neutral SPDM ecosystem with integrated design optimization**  
Integrate all your CAD/CAE tools into a single automated workflow and make it accessible across the enterprise. Run optimization algorithms without leaving VOLTA.
- **Server-based environment for seamless global collaboration**  
Full traceability of simulation data, processes and user tasks across teams. Intuitive user experience that enables democratized access to simulation insights.
- **World-class engineering support**  
Easy to maintain with top quality custom support to tackle your specific needs.

# Future scenario: what you can expect after deploying VOLTA

With VOLTA, Multidisciplinary Design Optimization (MDO) becomes a cross-team effort instead of an “expert-only” exercise.

A wider audience of engineers can benefit from real time access to engineering data and make informed decisions.

From a decision-maker’s point of view, you can expect to see the following improvements:

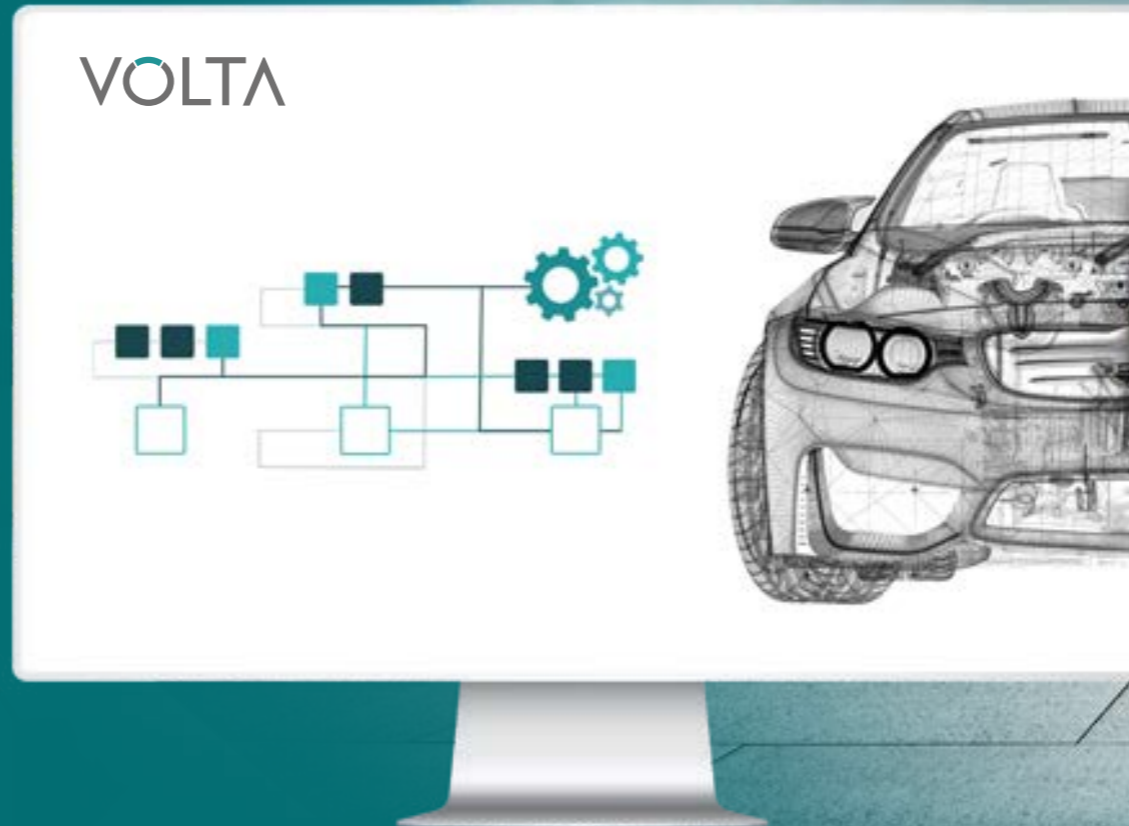
- Simulation experts spend less time on non value-added tasks
- Business, design and simulation experts jointly verify product requirements
- Data-driven decision making enabled across domains
- Maximized impact of simulation and more efficient product design cycle

“With VOLTA, our designers and engineers can now access the simulation results in one click and collaboratively take decisions without only relying on siloed reports of data.”

**TORU INABA**  
Computational Design Group  
Takenaka Corporation

# See VOLTA in action: BOOK a DEMO

→ [esteco.com/volta](https://esteco.com/volta)





## About us

ESTECO is an independent software company, specialized in numerical optimization and simulation process and data management. With a 20-year experience, ESTECO supports over 300 international organizations including: Ford Motor Company, Honda, Lockheed Martin, Toyota and Whirlpool.

→ [esteco.com](http://esteco.com)

