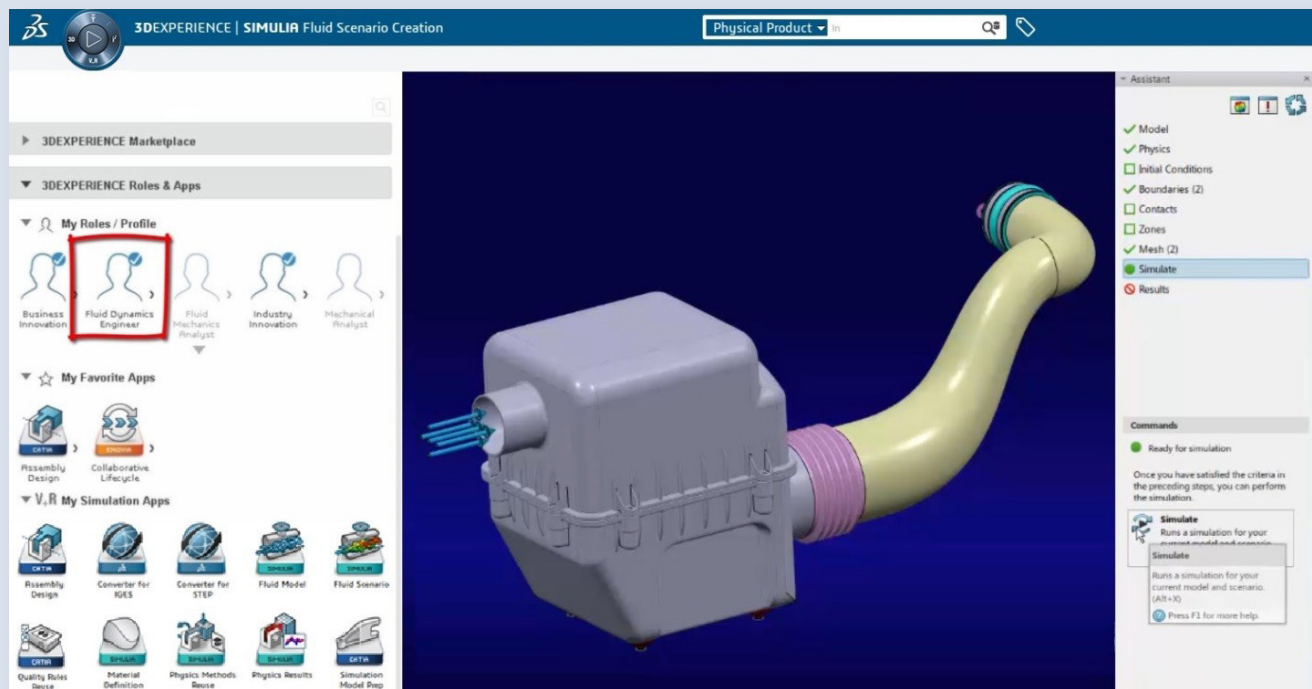# 3DS SIMULIA

3DEXPERIENCE®

FLUID DYNAMICS ENGINEER
CFD SIMULATION ROLE ON **3D**EXPERIENCE

A SIMULATION ROLE FOR ENGINEERS WHO PERFORM ROUTINE FLUID FLOW AND CONJUGATE HEAT TRANSFER CALCULATIONS TO GUIDE DESIGN IMPROVEMENTS, WHILE EXPLORING INNOVATIVE DESIGN CONCEPTS

With a CAD & PLM-embedded CFD approach, Fluid Dynamics Engineer enables users to quickly explore 100s of designs while concurrently improving product performance based on criteria such as optimal flow distribution, efficient thermal management, minimal pressure losses, flow uniformity, reduced recirculation etc. Fluid Dynamics Engineer leverages industry standard RANS based finite volume Computational Fluid Dynamics (CFD) technology with an integrated and fully guided user experience tailored for Designers to perform end-to-end product design efficiently on a single collaborative environment of **3D**EXPERIENCE® platform.

KEY VALUES DELIVERED
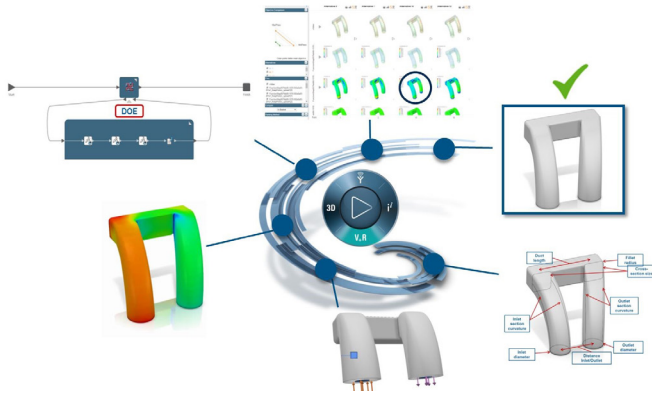
Innovate game changing products with digital continuity inspiring single source of truth

- CAD&PLM-embedded CFD inspiring designers to validate and enhance product performance at early stages

- Unified multiscale multi-physical environment brining various simulation domains and scales in an integrated collaborative platform

Beat the competition with faster time to market

- Faster turn-around time for each design iteration with intuitive GUI and minimal user interactions

- Fully automatic and robust body-fitted meshing allows users to accurately capture complex product performance with limited manual effort and domain expertise

- Guided workflow allowing non-expert users to setup simulation scenarios in minutes

Broader physics coverage to address mainstream workflows

- Quick and accurate steady-state as well as long transient simulations with thoroughly validated RANS solver

- Analyze internal and external fluid flows with automatically selected turbulence model leveraging mesh tolerant near-wall treatment

- Native conjugate heat transfer solver including radiation, with automatic interface detection

- Capture multidisciplinary requirements including FSI and 3D CFD -1D model coupling

Democratize simulation processes

- Explore 100s of alternatives within a single environment leveraging design automation

- Create, deploy and re-use custom simulation processes (ex; DOE loops, trade-off studies)

Simulation made accessible on-premise and on-cloud

- Execute simulations, store and manage data on premise, private cloud or DS cloud with support for HPC

USER ROLE HIGHLIGHTS
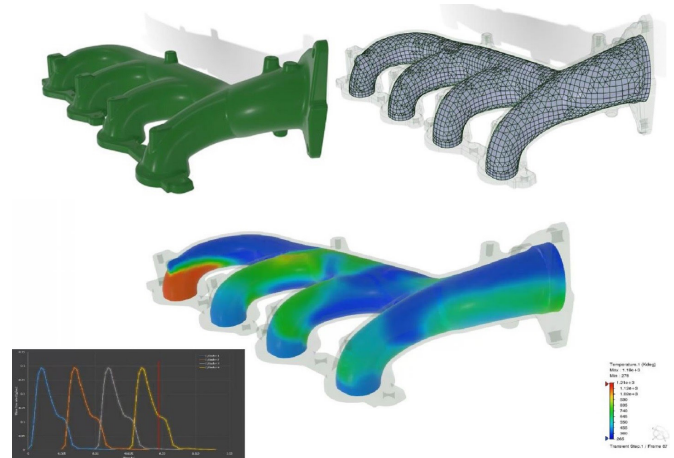
- Accelerate product innovation with CAD & PLM-embedded CFD

- Setup simulation scenarios in minutes with User Assistant reducing interaction time for non-experts

- Get started "out-of-the-box" with embedded compute of 8 cores and option to extend compute capacity on HPC.

- Automate design exploration by creating and deploying custom processes such as trade-off studies, multi-point optimization etc

- Spend more time on Engineering by minimizing user interactions with fully automatic body-fitted meshing

- Reduce turn-around time for accurate fluid flow and heat transfer simulations with high quality hybrid meshing, mesh-tolerant near wall treatment and thoroughly validated industry standard RANS solver

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Our **3D**EXPERIENCE® platform powers our brand applications, serving 12 industries, and provides a rich portfolio of industry solution experiences.

Dassault Systèmes, the **3D**EXPERIENCE® Company, provides business and people with virtual universes to imagine sustainable innovations. Its world-leading solutions transform the way products are designed, produced, and supported. Dassault Systèmes' collaborative solutions foster social innovation, expanding possibilities for the virtual world to improve the real world. The group brings value to over 210,000 customers of all sizes in all industries in more than 140 countries. For more information, visit **www.3ds.com**.

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