



# CATIA RELEASE HIGHLIGHTS-R2022X

NEW ROLES PLUS OTHER ENHANCEMENTS TO IMPROVE YOUR DESIGN,  
ENGINEERING, SYSTEMS AND CONSTRUCTION PROCESSES

Additional  
Enhancements

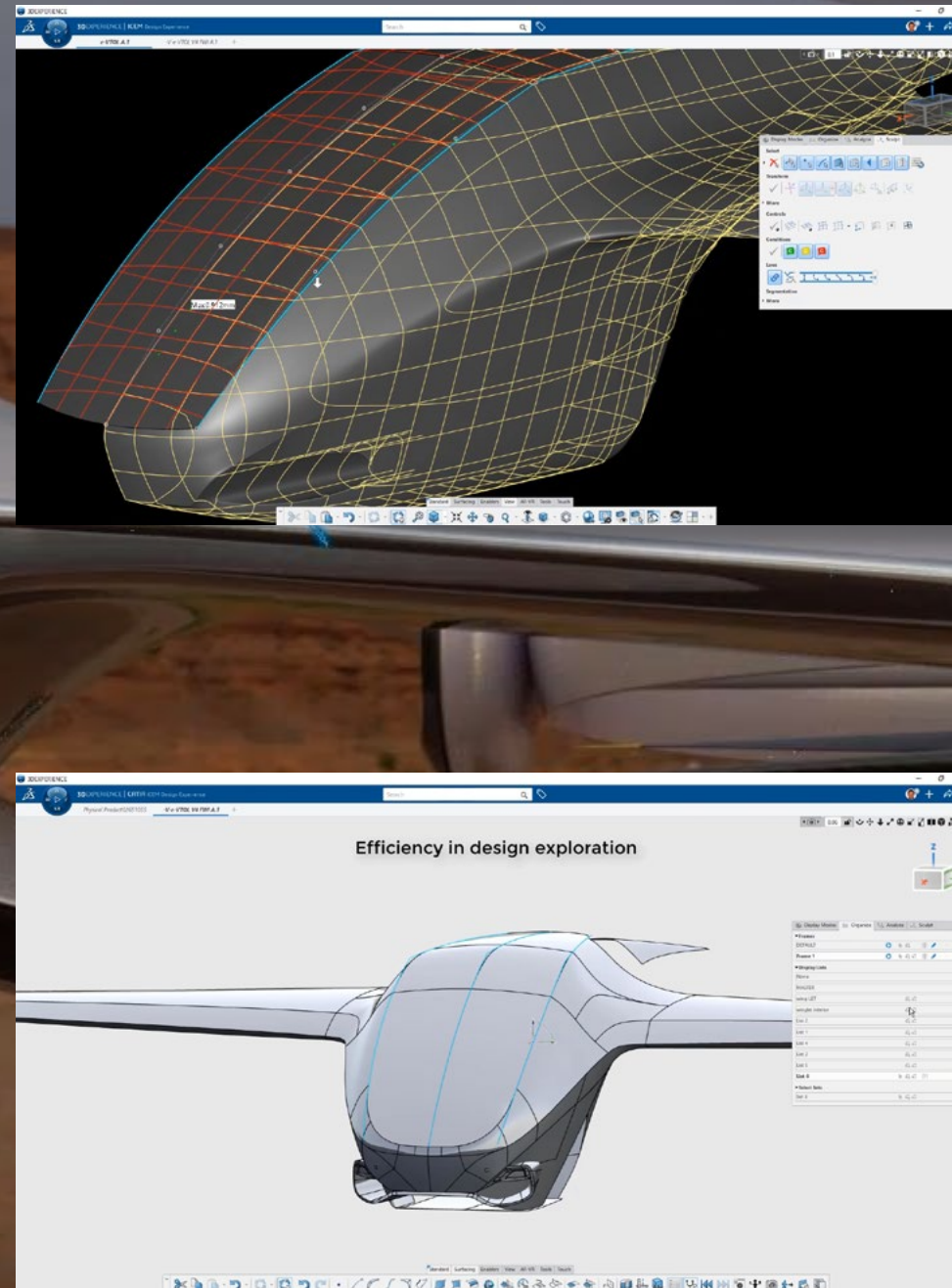


## ICEM Design Experience

ICEM Design Experience represents the next innovative application in Computer Aided Styling (CAS) and Class-A surface modeling. With ICEM Design Experience, surface modelers can seamlessly connect with the enterprise on the **3DEXPERIENCE** platform, taking advantage of full digital continuity across the product development process.

Users can now benefit from a new 'Soft Parametric' technology that combines the flexibility of shape sculpting modeling (with control-points manipulation), and the power of the parametric associativity. It saves a lot of time on design changes, and it allows to explore more design ideas.

As a reminder, the 'OMNI' smart technology, recognizes and predicts the designer's intent, based upon his geometry selection. It also introduces innovative commands and features, including sculpting laws, Greville points (control points) and global deformation. These combine with a new reverse engineering workflow that accelerates the overall hybrid-design process. With R2022x, the OMNI smart technology is optimized further by proposing a single command. The OMNISurf feature, based on the number and 3D position of curves, will generate the right type of surface, for example flange, blend or sweep.



Additional  
Enhancements



# Human Experience Designer

R2022X brings many improvements to the Human Experience Designer role, which expands the use of virtual humans to better create, engineer, simulate and validate their products, environments and experiences.

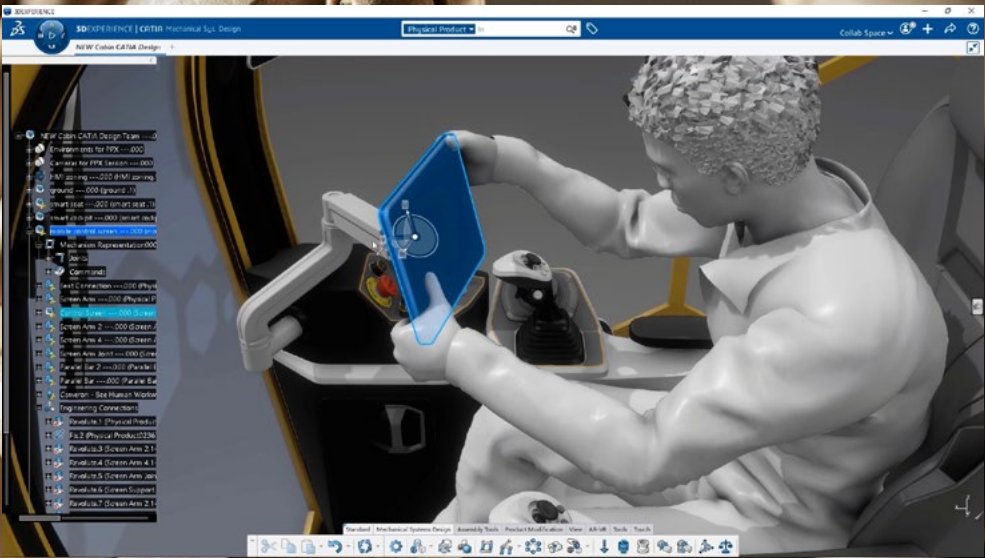
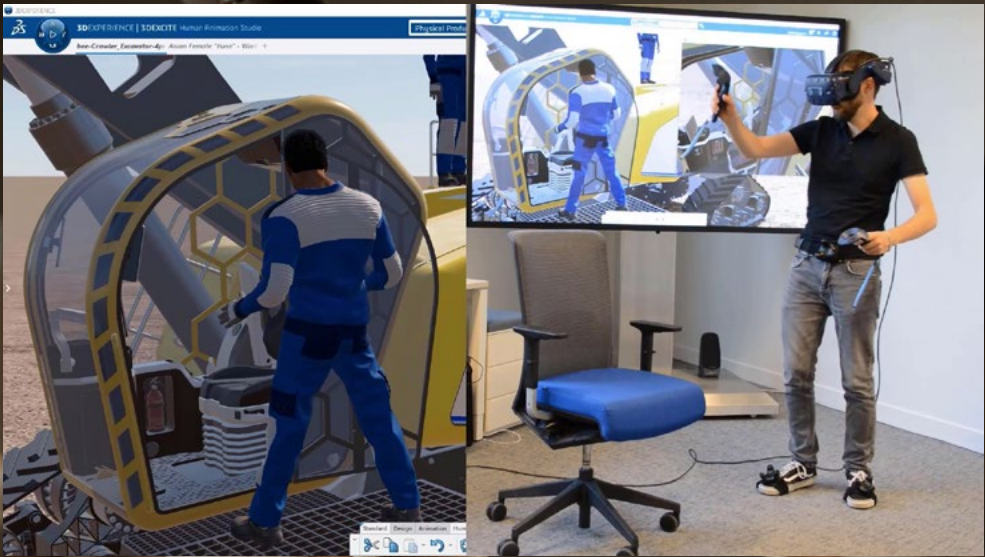
With the release, users can move further from Product design to Experience thinking: This user role now includes the ability to animate the interaction of the virtual human with the product (previously only available in specialists' kinematics application).

By improving the evaluation of human factors of the design:

The release introduces CATIA Generative Human, a new user-experience to create human avatars for all body shapes and sizes from babies to the elderly, and according to each use case (e.g. in consumer goods, corpulence can be adjusted continuously; in automotive, different avatars' heights to verify visibility of the driver, etc.).

Also, the release allows to study Certified Ergonomics, with RAMSIS (a 3DS partner solution), at all stages of design, including at the conceptual phase.

Finally, within virtual reality, the full body motion of users can be shown/reflected to understand and validate faster and better. parts that are produced using additive manufacturing.

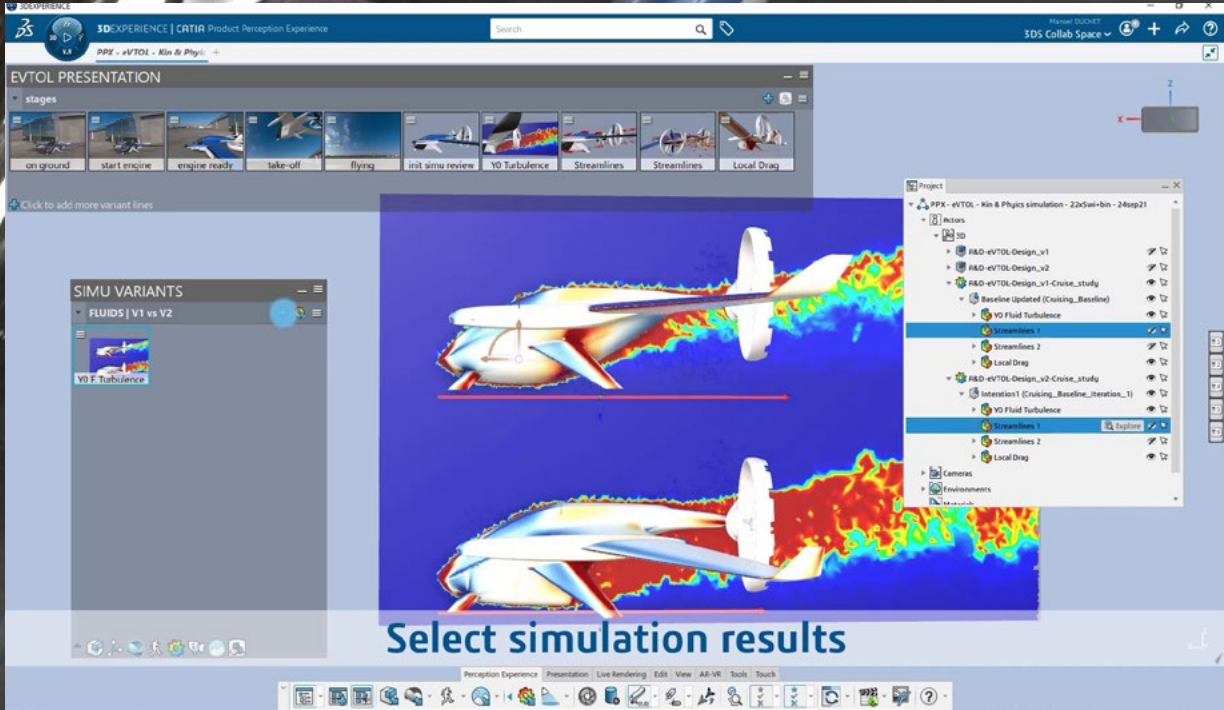


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# CATIA Product Perception Experience

R2022x enhances the CATIA Product Perception Experience app, which allows to create pre-defined scenes of the 3D model with its configurations, in order to produce intuitive and interactive presentations – allowing interactions with/in 3D - for brainstorming, review, and experience. Now, the app integrates simulation results to boost collaborative innovation. Hence, you can see simulation variations during design reviews, and make accurate decisions. Users can now also experience those reviews fully immersed in VR with the product, its environment with all the pre-defined scenes.

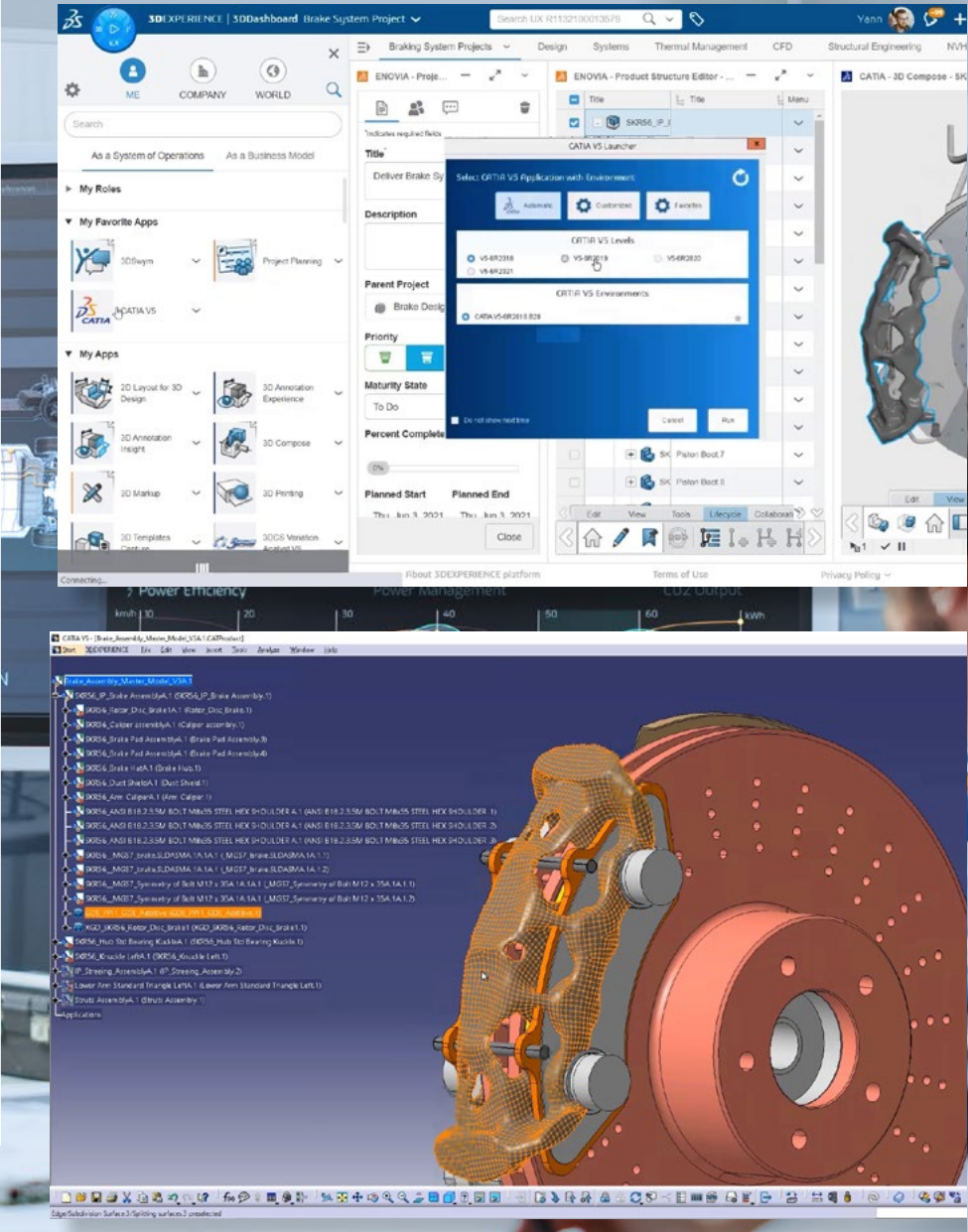


Additional Enhancements



# Collaborative Designer for CATIA V5

Dassault Systemes brings the power of the **3DEXPERIENCE**® platform further into the CATIA V5 Desktop environments. This improves design and cross-discipline collaboration, including in mixed CAD environments. The 'Collaborative Designer for CATIA V5' role includes the ability to insert and visualize **3DEXPERIENCE** electrical, pipe and tubing, mold, and structure data in CATIA. With a single, shared product definition, teams can more efficiently govern the product development process across the product lifecycle. Using Collaborative Designer for CATIA V5, V5 designers can save data to the platform, access lifecycle management capabilities, search for components, maintain revision history, manage tasks and changes, access related documents, organize content and communicate with colleagues, all from within the CATIA V5 interface. User productivity in **3DEXPERIENCE** is increased by the ability to edit CATIA V5 design knowledgeware parameters, directly from **3DEXPERIENCE** applications. This allows **3DEXPERIENCE** companies to better leverage data from suppliers who are using V5. The release R2022X offers easier MultiCAD product definition as it provides CATIA V5 users with straightforward insertion and visualization of **3DEXPERIENCE** shapes, including data from CATIA web apps also known as X-applications. You can also save **3DEXPERIENCE** data into multiple chosen CATIA V5 In addition, standard components can be inserted from the **3DEXPERIENCE** PartSupply app directly into a CATIA V5 session. Those PartSupply components can then be reused by other CAD systems.

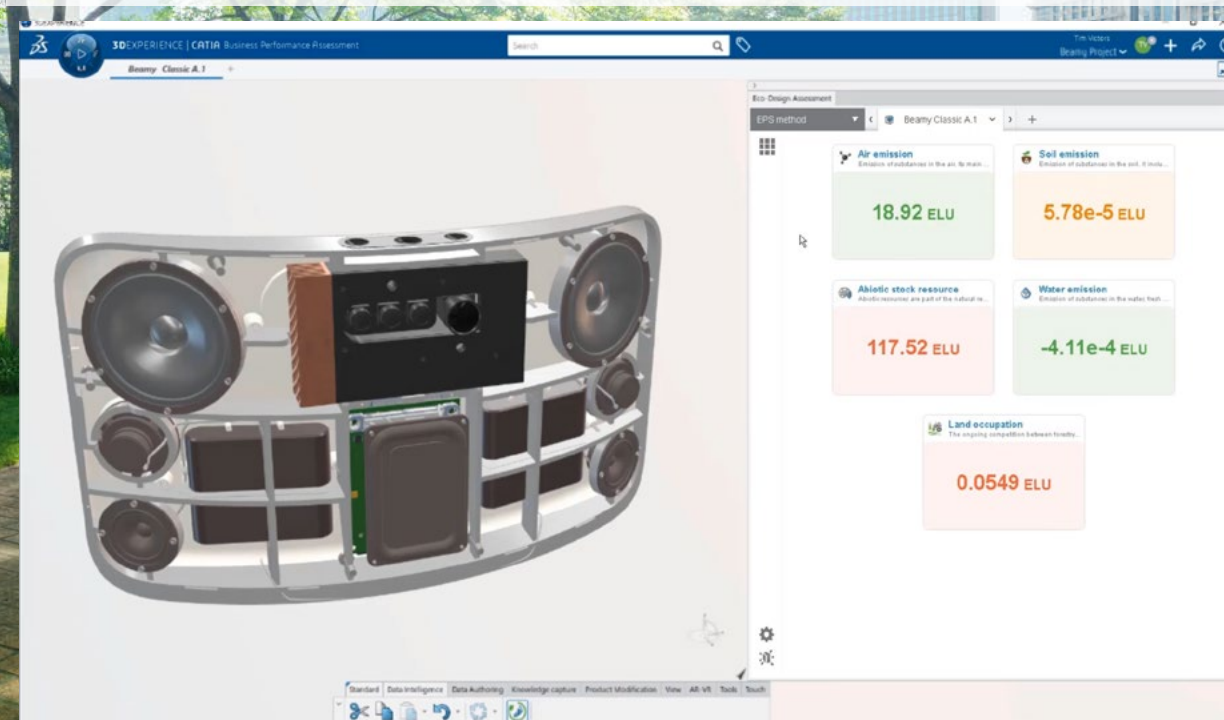


Additional Enhancements



## Eco-Design Engineer

For eco-design driven engineering, the Eco-Design Engineer role allows to enrich the **3DEXPERIENCE** Virtual Twins with knowledge about environmental impacts of materials, and human activities (e.g. processes such as extraction, packaging and transport, manufacturing, etc.). This allows to perform a complete Lifecycle Assessment (LCA), from material extraction up to reuse and recycling, and select the best alternatives. Once organizations have targeted environmental performance goals, this role assists the designer in accomplishing those goals, i.e. from early design stages. The eco-design engineer can perform trade-off comparisons between design alternatives and compute, and therefore reveal and analyze, the environmental bill of each alternative. This analysis relies and integrates environmental standards such as ISO 14000, EF 3.0, ReCiPe, IPCC, TRACI and EPS. In particular it rests on the ecoinvent database 3.7, a widely recognized Life Cycle Inventory database that quantifies the environmental impact/imprint of human activities, and materials, using 10s of KPIs such as CO2 emissions, land use, water use.

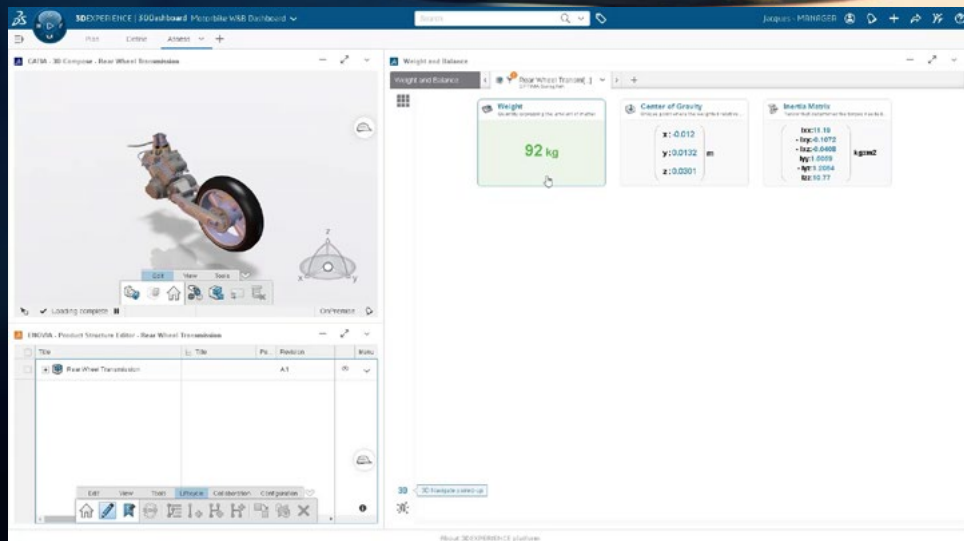
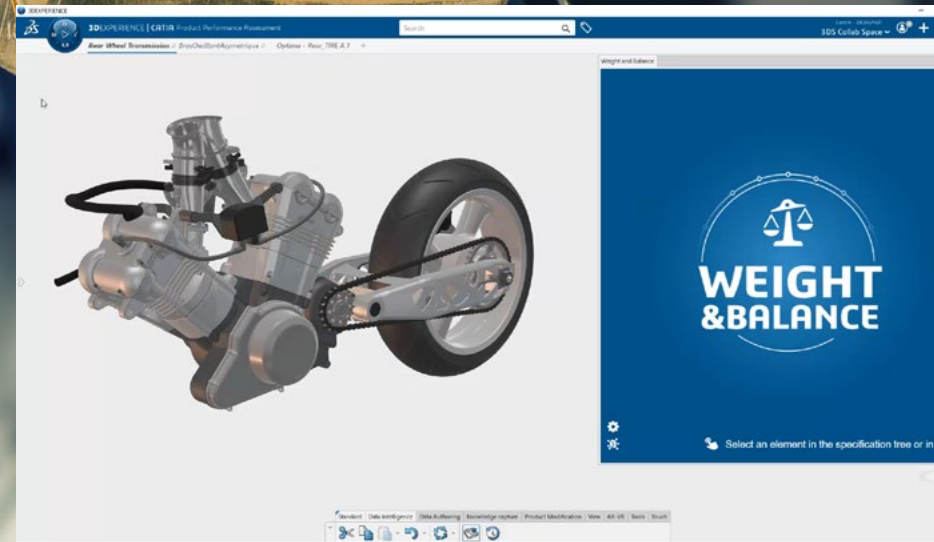


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## Weight & Balance Manager & Weight & Balance Designer

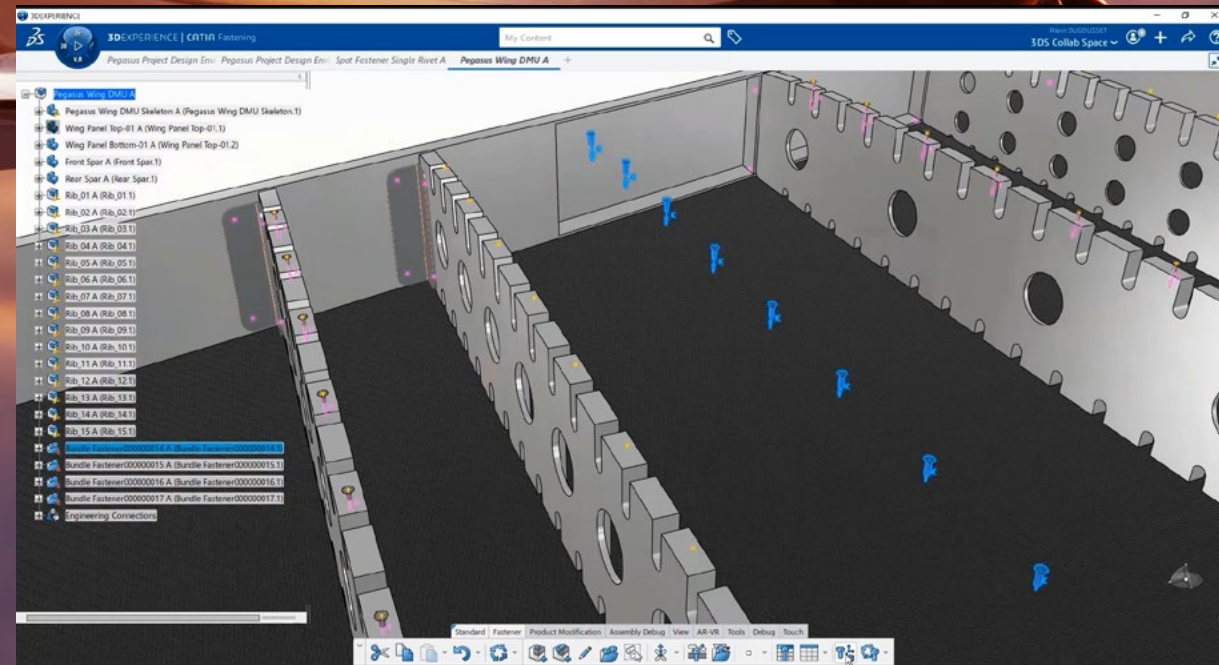
Weight & Balance intelligence helps managers and engineers to drive their design for lightweight engineering which requires the right balance in weight, center of gravity, and inertia matrix (i.e. the 3 'performance indicators'). With Weight & Balance Manager, one can define weight and balance objectives to improve the design performance, from the early stages of the program. With Weight & Balance Designer, one instantly navigates any configured product structure (including earlier versions), modifies them, and see the impact of changes. Throughout the project, both roles allow to automatically evaluate and refine the weight of each element with estimated values so as to converge towards the stated objectives; they allow to compare the performances of alternatives to make the right decision.



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## Airframe Fastener Engineer

The Airframe Fastener Engineer role aims to accelerate the design, simulation and manufacturing of complex airframe fastened assemblies, thanks to automated instantiation based on company standards and rules. It is critical in the A&D industry where physical products can have hundreds of thousands of fasteners. In R2022x, performance is greatly enhanced with the ability to define and manage bundles of fasteners. With this new technology, it is now possible to represent and manage the millions of fasteners of a complete aircraft while, reducing errors and enforcing company standards and rules.



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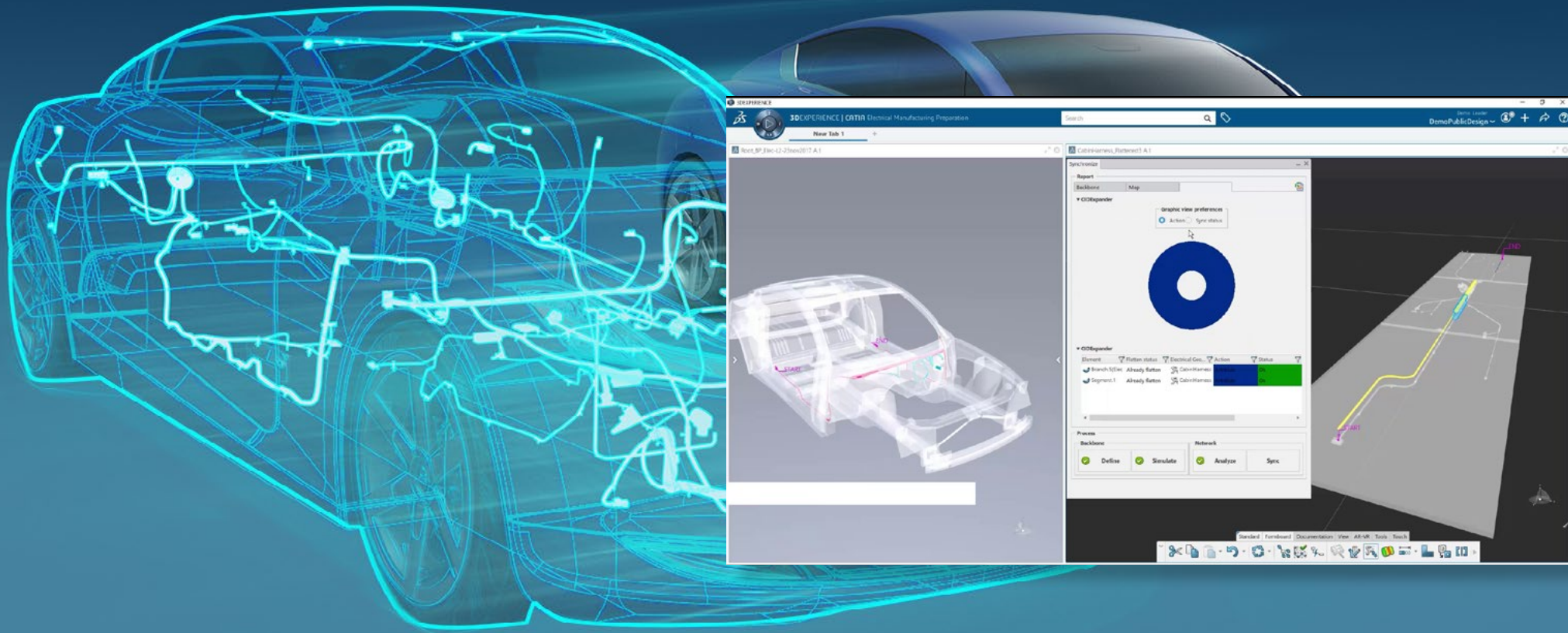


## Electrical 3D System & Manufacturing Engineer

The release R2022x brings several enhancements in the Electrical 3D System & Manufacturing Engineer role.

In the electrical harness form-board process (which consists in laying cables flat on a board), with this release, users can better optimize the manufacturing feasibility using torsion rules when creating the form-board. This allows to limit the torsion as much as possible earlier in the process, so that users can decrease assembly and installation errors, increasing quality and productivity. This also reduces costs by avoiding prototypes and decreasing the number of design iterations.

In addition, after a 3D-harness design change, the improved synchronization capability between the 3D definition and the 2D flattening allows faster update of manufacturing documentation. This new semi-automatic process maintains the 'back-bone shape', preventing unwished impacts on the rest of the harness. The manufacturing documentation can then be updated by one click from the latest flattened harness. on any device with no software to install.



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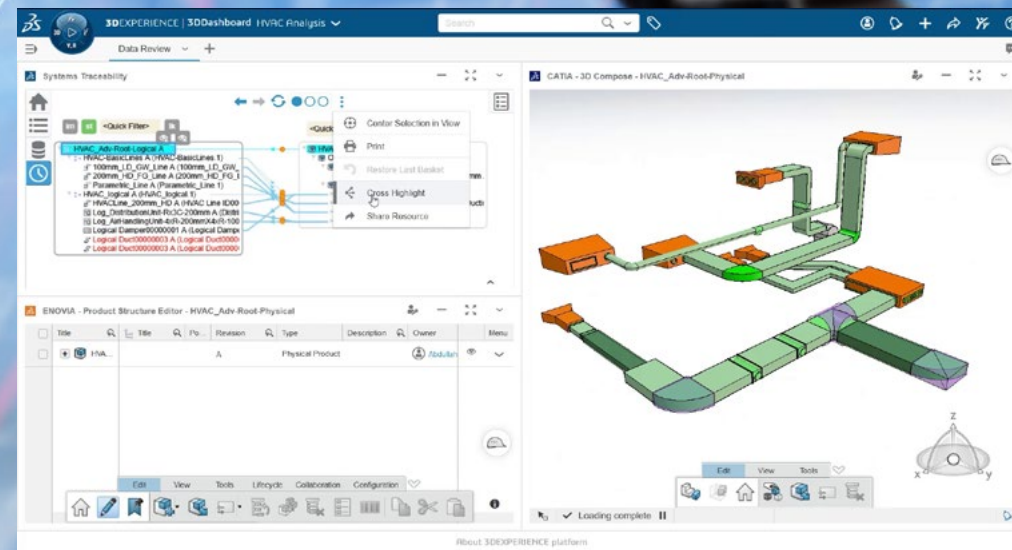


## Systems Traceability Analyst Systems Traceability Engineer

Systems Traceability Analyst and Systems Traceability Engineer help system engineers, system architects and requirement engineers to better collaborate, allowing for instance to maintain traceability despite each function using its own libraries/datasets. System Traceability Engineer allow system reviewers and project managers (i.e. non-MBSE experts) to better organize collaboration.

In R2022x, we simplified the user interface dramatically, for greater efficiency and adoption.

Also, the new 'Cross highlight with 3D widgets' function aids in navigation and productivity to follow traceability and logical architecture directly in the 3D context. This simplified user interface allows non-MBSE experts to go beyond collaboration organization, and now, navigate, review and perform traceability and impact analysis.



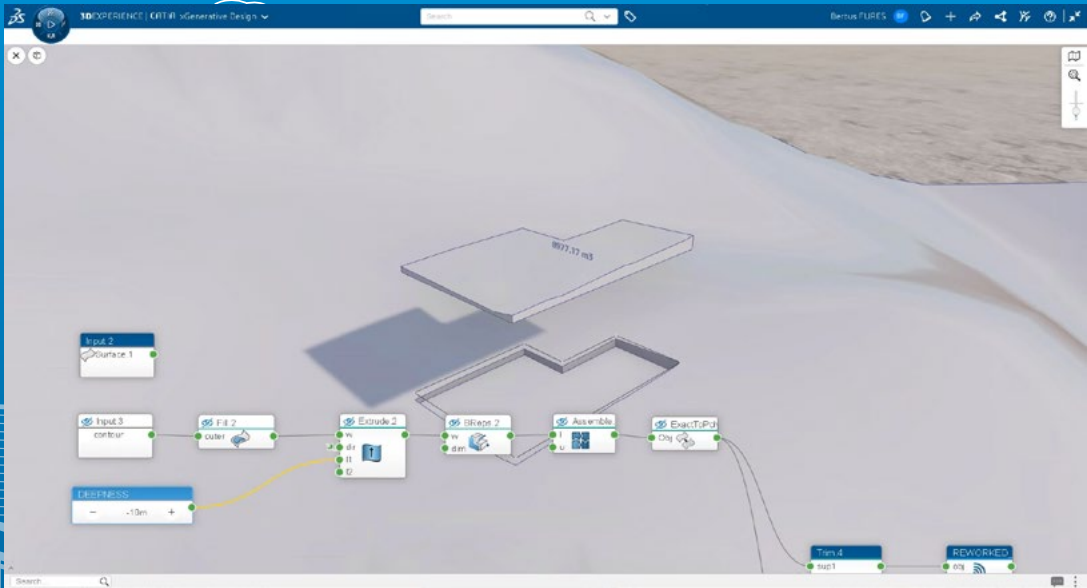
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# Civil Designer and Civil Engineer

Design and engineering solutions have been enhanced. For the Civil Designer and Civil Engineer roles, Dassault Systèmes' continue to increase capabilities to design linear infrastructure such as road and railway projects within the context of a terrain. For instance, specific functions allow for advanced alignment of roads/railways with bridges. Also hybrid modeling (a.k.a. polyhedral modeling) between terrains mesh and exact surface geometry facilitates the generation of 'earthworks' for road and railway projects, that is terrain modifications for fills and excavations.

In addition, Within the Computational Designer for Construction role, a new user experience integrates the algorithmic scripting window and interactive 3D manipulators directly into the 3D model.



Additional Enhancements



Our **3DEXPERIENCE®** platform powers our brand applications, serving **11 industries**, and provides a rich portfolio of industry solution experiences.

Dassault Systèmes, the **3DEXPERIENCE** Company, is a catalyst for human progress. We provide business and people with collaborative virtual environments to imagine sustainable innovations. By creating ‘virtual experience twins’ of the real world with our **3DEXPERIENCE** platform and applications, our customers push the boundaries of innovation, learning and production.

Dassault Systèmes’ 20,000 employees are bringing value to more than 270,000 customers of all sizes, in all industries, in more than 140 countries. For more information, visit [www.3ds.com](http://www.3ds.com).

