

TO.TEM S.R.L.

QUICKLY DEVELOPING THE INNOVATIVE LYNX ELECTRIC SCOOTER WITH SOLIDWORKS AND 3DEXPERIENCE WORKS SOLUTIONS

Case Study



TO.TEM relied on the combination of SOLIDWORKS product development software and 3DEXPERIENCE Works modeling, design, data management, simulation, collaboration, and communication solutions to shorten design cycles and streamline development processes for its innovative Lynx three-wheeled, electric kick scooter.

Challenge:

Quickly develop electric micro mobility products—such as the Lynx three-wheeled, electric-kick scooter—to establish its brand as a spinoff of Dumarey Automotive Italia, while also working as a partner with other manufacturers and with its principal design engineer, who is located in a different country.

Solution:

Implement SOLIDWORKS Premium 3D product development software in conjunction with modeling, design, data management, simulation, collaboration, and communication solutions from the 3DEXPERIENCE Works portfolio, which operate on the cloud-based 3DEXPERIENCE platform—including 3DEXPERIENCE SOLIDWORKS Premium, 3DEXPERIENCE SOLIDWORKS Simulation Designer, Collaborative Designer for SOLIDWORKS, Collaborative Industry Innovator, and 3DSwymer roles—as part of the 3DEXPERIENCE Works for Startups Program.

Results:

- Shortened electric kick scooter design cycle
- Streamlined product development processes
- Collaborated remotely with principal design engineer
- Ensured scooter safety and efficiency with simulation

TO.TEM S.r.l. is a startup based in Turin, Italy, that was established in 2020 as a spin-off of PUNCH Turin to design, engineer, and manufacture electric micro mobility products that are more sustainable and affordable. The company is part of the Dumarey Automotive Italia, a Belgian multinational corporation considered among the most important worldwide leaders in the research and development of diesel engines and engine control units since it acquired the General Motors Global Propulsion Systems engineering and development center in 2020, which created Dumarey Automotive Italia.

TO.TEM was born from the idea of its engineers who, making the most out of the skills, backgrounds, and experience that they acquired in the automotive industry, decided to embrace the electric energy transition by developing vehicles for micro



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— Raffaele Calabrese, Engineering Supervisor

mobility that are distinguished by their “Made in Italy” quality. In developing the company’s first product—the Lynx® three-wheeled, electric kick scooter—and establishing itself a vital partner to other manufacturers looking to develop products in the electric micro mobility space, TO.TEM needed product development solutions that would allow it to collaborate with other manufacturers as well as the company’s principal design engineer, who is located in another country.

Although the Dumarey Automotive Italia parent company uses the Siemens NX™ system to develop products, TO.TEM looked to its partner, SolidWorld GROUP, for a recommendation on the best solutions for quickly developing products while collaborating remotely with partners and its principal design engineer. “To carry out our projects, linked to an idea of sustainable, economical, and accessible mobility to all, we needed software with certain requirements,” explains Engineering Supervisor Raffaele Calabrese.

“We therefore relied on the expert consultancy from SolidWorld GROUP, who directed us towards purchasing 3DEXPERIENCE® Works and SOLIDWORKS® Premium solutions,” Calabrese continues. “I knew SOLIDWORKS as one of the most used and widespread software [packages] in the university environment and as a leader in the CAD environment, which was already a good starting point for me. Its widespread adoption by professionals, in fact, makes it easier for us to hire new talent already trained on the program, ensuring continuity in projects and rapid integration into the team.”

TO.TEM chose to implement SOLIDWORKS Premium 3D product development software in conjunction with modeling, design, data management, simulation, collaboration, and communication solutions from the **3DEXPERIENCE** Works portfolio, which operate on the cloud-based **3DEXPERIENCE** platform—including **3DEXPERIENCE** SOLIDWORKS Premium, **3DEXPERIENCE** SOLIDWORKS Simulation Designer, Collaborative Designer for SOLIDWORKS, Collaborative Industry Innovator, and 3DSwymer roles—as part of the **3DEXPERIENCE** Works for Startups Program.

SOLIDWORKS, which has always been a leader in the production of CAD software for solid modeling, is a Dassault Systèmes brand, as is **3DEXPERIENCE** Works, which combines the ease of use of SOLIDWORKS with the most advanced applications connected to the **3DEXPERIENCE** platform, resulting in a single, integrated, cloud-based solution that allows engineers to design without limits and accelerate every aspect of product development.

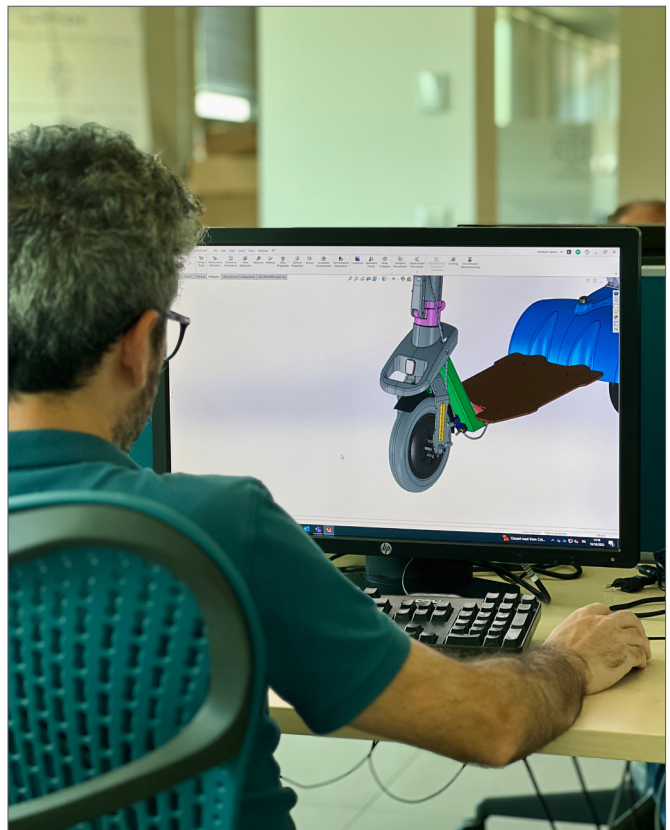
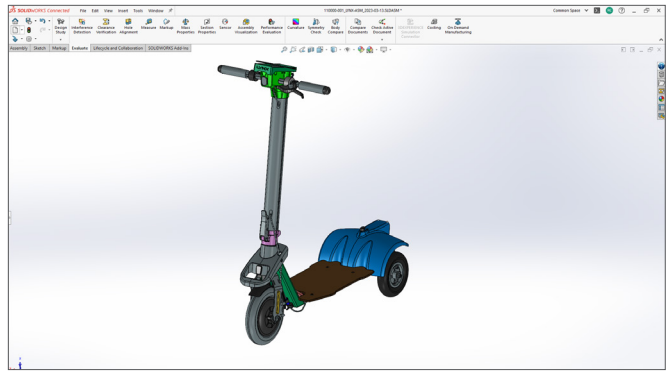
ACCELERATING DESIGN WITH INTUITIVE, CLOUD-BASED DEVELOPMENT

Using SOLIDWORKS design software in concert with the intuitive **3DEXPERIENCE** Works environment, TO.TEM was able to shorten the design cycle for and accelerate availability of the Lynx kick scooter. “In a rapidly evolving sector like that of electric mobility, having intuitive tools available is essential,” Calabrese stresses.

“**3DEXPERIENCE** Works, with its user-friendly interface, has allowed TO.TEM designers and engineers to work more efficiently, reducing training times and accelerating design processes,” Calabrese adds.

STREAMLINING DEVELOPMENT PROCESSES

One of the ways that the combination of SOLIDWORKS and **3DEXPERIENCE** Works solutions helped TO.TEM shorten its design cycle for the Lynx was by enabling the company to streamline its development processes through remote collaboration and transparent data management in the cloud. “With **3DEXPERIENCE** Works solutions, our team was able to face and overcome complex



Using the structural analysis capabilities of the **3DEXPERIENCE** SOLIDWORKS Simulation Designer role, TO.TEM reduced the number of physical prototyping cycles required while ensuring the safety and efficiency of the Lynx scooter.

challenges more quickly because the system helped us to simplify and speed up operations, refine the design, and guarantee a final product that lives up to expectations,” Calabrese says.

“Also, because **3DEXPERIENCE** Works solutions work over the cloud, we were able to continue working easily with an important colleague, our principal design engineer, who lives in another country,” Calabrese notes. “Working remotely, we were able to maintain the quality of the product without any issues or delays in production.”

ENSURING SAFETY AND EFFICIENCY WITH SIMULATION

TO.TEM tapped the structural analysis capabilities of the **3DEXPERIENCE SOLIDWORKS** Simulation Designer role to not only reduce the number of physical prototyping cycles but also ensure the safety and efficiency of the Lynx scooter. "Safety and efficiency are fundamental in the design of electric vehicles," Calabrese points out.

"The powerful structural analysis simulation tools of **3DEXPERIENCE** Works allow us to virtually test our products, to guarantee that they meet the highest safety and performance standards," Calabrese says.

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