

## **A more inclusive and safer industry for women and everyone thanks to simulation**

**ESI Group (ISIN Code: FR0004110310, Symbol: ESI) is a global partner in simulation and virtual prototyping software for various industries. The company is committed to promoting gender equality through various actions, including the recruitment of women and their professional development within the industry. In addition, the Group is advocating for a swift change in legislation to allow the use of virtual prototyping in certification tests in the automotive industry, with the ultimate goal of ensuring the safety of all users, irrespective of their gender or body shape.**

According to the World Economic Forum, women are [47% more likely than men to be seriously injured in a car accident](#). The study of the Insurance Institute of Highway Safety (IIHS) published in 2021 underlines that women have a mortality rate 20 to 28% higher than men during a road accident, a situation explained in part because of the poor consideration of female morphology in crash tests.

Florence Barré, Women@ESI General Delegate and Chief of Staff to Cristel de Rouvray, CEO of ESI Group: *"The role of digitization in ensuring highway safety cannot be overstated. By incorporating diverse morphologies in simulations, virtual prototyping can better protect the entire population. Although the automotive industry has widely adopted virtual prototyping, the use of virtual human models that account for a wide range of morphologies remains optional. Therefore, legislators must take an active role in encouraging the systematic adoption of these practices to ensure optimal safety for all users, regardless of their gender or body shape."*

### **Crash tests that no longer correspond to the reality of society**

The current system that we have inherited today has remained relatively unchanged for the past 50 years. Mandatory physical tests in the automotive industry no longer reflect the reality of modern society. Shockingly, only one out of the five dummy models used in crash tests until recently was designed to represent female physiology. This particular model, created in the late 1980s, was based on just 5% of the female population and was mostly used in the front and rear passenger positions, with very little consideration for the driver's seat in regulatory test scenarios.

### **Towards a major breakthrough?**

In a significant milestone for both technological advancement and industry awareness, a team of Swedish engineers announced the creation of the world's first female crash test dummy late last year. This achievement highlights the increasing importance of gender inclusion and equality, which are rapidly gaining traction worldwide. However, the question remains: how can we ensure that this breakthrough is accessible and available to all?

### **The use of digital human models**

ESI Group firmly believes that regulatory evolution is necessary to encourage the adoption of agile and inclusive methods, rather than relying solely on physical tests and prototypes as reference tools for passive safety certifications. Moving towards a more virtual and diverse

approach enables the representation of current driving practices, including various morphotypes and passenger positions.

Virtual prototyping allows for flexible parameter modifications and facilitates testing on all morphotypes, enabling even more comprehensive results. Additionally, simulation can incorporate morphological diversity in a faster and less expensive manner. Many of ESI Group's industrial partners are already utilizing virtual prototyping to address this challenge. In fact, ESI Group was the first to perform a virtual crash test on the Volkswagen Polo back in 1985, allowing major automotive OEMs to conduct virtual testing of their prototypes instead of costly and time-consuming physical tests.

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### About ESI Group

Founded in 1973, ESI Group envisions a world where Industry commits to bold outcomes, addressing high stakes concerns - environmental impact, safety & comfort for consumers and workers, adaptable and sustainable business models. ESI provides reliable and customized solutions anchored on predictive physics modeling and virtual prototyping expertise to allow industries to make the right decisions at the right time, while managing their complexity. Acting principally in automotive & land transportation, aerospace, defense & naval and heavy industry, ESI is present in more than 20 countries, employs 1000 people around the world and reported 2022 sales of €130 million. ESI is headquartered in France and is listed on compartment B of Euronext Paris.

For further information, go to [www.esi-group.com](http://www.esi-group.com).

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