

6. ESI Group: Company History and Credibility

ESI (Engineering System International) was founded in France in 1973 by Alain de Rouvray, current Chairman and President, and three other Berkeley PhDs (Jacques Dubois, Iraj Farhooman, Eberhard Haug). The company initially operated as a consulting company. ESI gradually developed sophisticated simulation techniques based on Finite Element Analysis (FEA) and acquired a broad understanding of industrial processes and needs.

Following a strong demand from German automotive companies as they started to implement the very first crash and safety regulations, ESI opened a subsidiary in Germany (ESI GmbH) in 1979. In 1985, ESI teamed up with a German consortium led by Volkswagen to become the first company to develop simulation software analyzing the severe deformations inflicted on a car because of a crash. This was the first step towards the development of ESI's flagship product PAMCRASH, now part of ESI Virtual Performance Solution.

To expand the company's software branch for many more industrial applications, the Group carried out a share capital increase in 1991 with the California-based venture capital firm Burr Egan Deleage, which invested 3 million US Dollars. ESI then developed a unique set of software tools to speed up the manufacturing and testing process of industrial products, while improving their design. These tools today fall under ESI's Virtual Manufacturing tool chain. To further reinforce this tool chain and build expertise in metal stamping solution, ESI acquired *Dynamic Software*, editor of Optris virtual press software in 1999.

With its Initial Public Offering (IPO) on July 6th, 2000, ESI Group was successfully listed in Eurolist Compartment C of Euronext Paris stock market and raised around 30 million Euros. In the same year ESI Group successfully obtained its first ISO 9001 certification. With the mission to deliver Virtual Prototyping solutions that improve industrial product development and a vision to be the leader in that, ESI expanded into multi-domain simulation (NVH, Durability, Vibro-Acoustics, Comfort) in 2001 in addition to creating subsidiaries in Czech Republic, Spain, UK, India, China, Italy, Brazil and Tunisia.

In 2011, ESI entered the virtual reality segment by acquiring *IC.IDO GmbH*, a leading European vendor of Virtual Reality solutions. Embracing the open source, ESI then acquired *OpenCFD* the makers of OpenFOAM. ESI then continued its series of acquisitions with *ITI GmbH*, a global leader in the realistic simulation of mechatronic and multi-domain systems and its software *SimulationX* and *Mineset Inc.*, a data analytics and machine learning specialist. At the end of 2016, ESI announced the transfer of its shares from compartment C to compartment B of Euronext Paris. ESI then created a Hybrid Twin™ solution leveraging simulation, physics and data analytics, enabling manufacturers to deliver smarter and connected products, predict product performance, and anticipate maintenance needs.

Today, ESI employs more than 1200 Virtual Prototyping specialists worldwide. Headquartered in Paris (France), the company and its global network of agents provide sales and technical support to customers in more than 40 countries. ESI has built a worldwide network of experts in each industrial domain, allowing the company to be close to its clients and to meet their needs.

SimulationX Success Stories

1) Automotive

a) BMW Group

With SimulationX, BMW is now able to model, simulate and analyze powertrains comprehensively throughout the whole design process – in addition, engineers benefit a great deal from its ease of use.

The Simulation results achieved with SimulationX are in line with the data BMW measures. Consequently, the company applies this simulation method to more and more areas of the development process.

b) ZF Group

By using SimulationX, we achieve reliable simulation models of powertrains. With these models, we are able to optimize the NVH functionality of our products.

c) Honda Research Institute

SimulationX is an excellent solution to integrate both automotive and building simulations for smart energy management on one single platform.

2) Energy

a) Eickhoff

SimulationX allows us to optimize the wind turbine's gearbox and drivetrain components to reduce dynamic loads, which in turn increases reliability and availability of the wind turbine.

b) Veolia

Our partnership with ITI (SimulationX) paid off very well as it enabled us to develop and study simulation scenarios in SimulationX tailored exactly to our needs

3) Industrial Machinery

a) Karl Mayer

Our machines are made up of mechatronic systems which require virtual modeling. SimulationX is the innovative interdisciplinary solver we could use for all such kinds of mechatronic product development

4) Marine

a) Bureau Veritas

We chose SimulationX not only because of its advantage as a modular solution but also because it offers the benefits of an open multi-domain platform that does not just focus on one use such as analyzing torsional vibrations. We also plan to use it to manage energy efficiency in ships.

5) Mining

a) TAKRAF

SimulationX allows us to quickly and safely calculate dynamic effects in challenging belt conveyer projects.

6) Mobile Machinery

a) ABB

SimulationX allows us to systematically analyze loads and optimize capacities of electromechanical machinery