

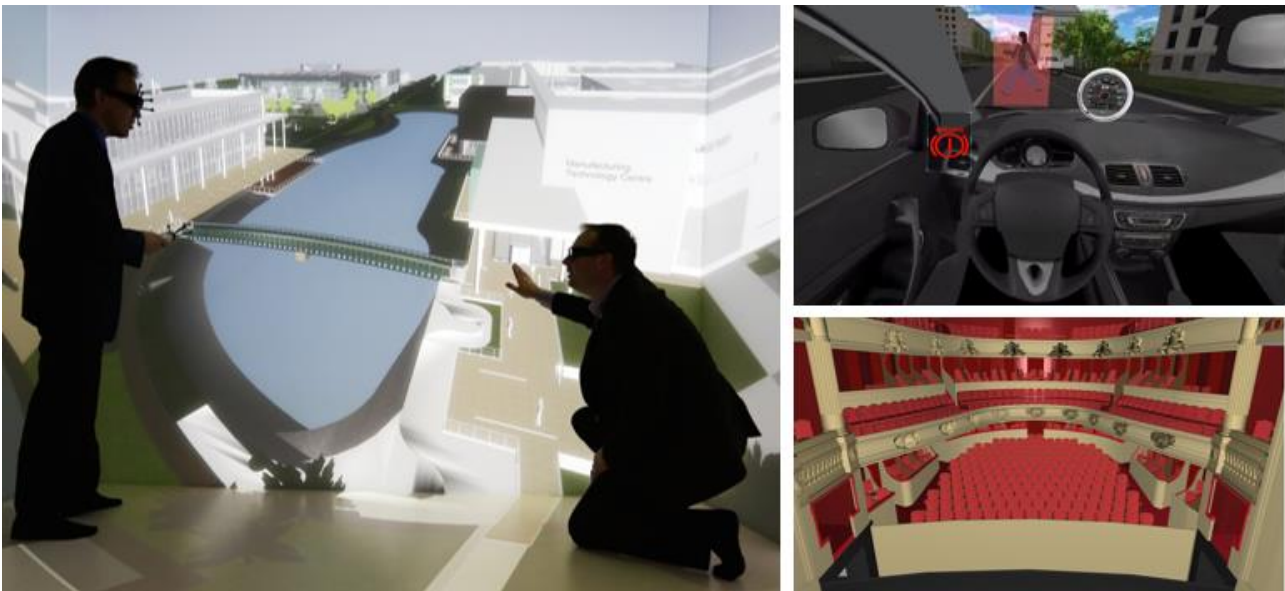
## ESI Showcases Smart Virtual Prototyping at CES 2018

### Engineering Solutions for a Smart and Connected World

Paris, France – December 21, 2017 – [ESI Group](#), leading innovator in [Virtual Prototyping](#) software and services for manufacturing industries, is exhibiting at [CES 2018](#) in Las Vegas, USA, next January 9<sup>th</sup> through 12<sup>th</sup>. At the heart of the Smart Cities marketplace, ESI's booth will feature three live and immersive demonstrations showcasing how virtual reality (VR) and real-time physics-based computing can now be used to fully experience a product, process, or venue remotely. ESI's collaboration with customer AP&T will be featured on the booth, demonstrating an immersive and interactive Smart Factory. Furthermore, the French Opera house from the city of Rennes will join ESI to demonstrate how today's smart technology makes culture accessible to all.

At CES Smart Cities, ESI will illustrate the technological leaps accomplished in recent years via three main demos, giving visitors of our booth 1813 at the Westgate Pavilion, a glimpse of tomorrow's smart and connected world.

Image: Visitors at ESI's CES 2018 booth will experience Engineering Solutions for a Smart and Connected World



#### 1. Virtual Reality Debuts at the Opera

The team on ESI's booth will offer a fully immersive virtual visit of the opera house in Rennes, France. Participants wearing head-mounted displays (HMD) will be immersed in a 3D mock-up of the Opera, will discover the secrets behind the scenes, and will interact in real time with their environment. These immersive 3D sessions are based on the latest version of [ESI IC.IDO](#), using cutting-edge technology for Virtual Reality (VR). Interacting with their environment in real time and real scale, visitors will visit the Opera's hidden recesses, discover the backstage, the arcade, sit in any seat, or look at the audience from a performer's point of view on stage. The power of [VR gives](#)



[us a unique opportunity to see the Opera like never before](#). This technology, initially developed for engineers working on industrial projects, has unlimited applications, including in the field of culture. The demo shows how culture in general, and the opera in particular, can be experienced in new ways, thanks to [ESI IC.IDO](#) and all the latest technologies available today. **Rozenn Chambard**, COO of the Rennes Opera, states: *“The immersive experience developed by ESI Group for the Opéra de Rennes may allow us to create an educational game to introduce the opera virtually to a broad audience, especially to school children. It could also become a working tool, enabling technicians to try sets virtually or enabling show producers to appreciate the layout of the stage or theater.”* Curious visitors will have the opportunity to chat with Ms. Chambard this year, as she will join ESI on its booth.

## 2. Driving Autonomous Cars in an Immersive Smart City

The *Twin Virtual Driver* demonstrator allows two guests equipped with Virtual Reality head-mounted displays (HMD) to drive two autonomous cars in a smart city, immersing themselves in the complex world of greener and safer mobility. To develop autonomous driving systems, simulation has become mandatory, from system design to autonomous vehicle pre-certification, providing the virtual road environment, sensors, and virtual road users. Under the direction of **Jean-Charles Bornard**, ESI Research Engineer specialized in Cognition, the demo enables two drivers to interact simultaneously in the same simulated environment by driving separate vehicles either in fully autonomous mode or in conventional manual mode. All vehicle Advanced Driver Assistance Systems (ADAS) are simulated in real time by [ESI Pro-SiVIC](#), simulation platform dedicated to the pre-certification of autonomous vehicles. Cognitive simulation of the human driver is the next keystone for safety and collaboration between human and autonomous driving systems, as presented by Mr. Bornard at the DSC in Stuttgart last Fall: [“The Cognitive Simulation of the Car Driver for Autonomous Driving System Development”](#).

## 3. Channeling the Smart Factory Experience

This demo, which results from a close collaboration between [AP&T](#) and ESI, offers visitors the immersive visit of a metal stamping press in action at AP&T, world leader in sheet metal forming for high-strength steel and aluminum helping their customers to produce lighter, more energy efficient and safer cars. Immersed in the heart of their metal stamping press, the solution allows an interactive and immersive visit of the various machines installed in their infrastructure. This exploration of the AP&T production tool offers the user the opportunity to observe and understand this complex engineering process. Based on ESI's latest technology for immersive virtual engineering (IVE), the demo uses an immersive HTC Vive display headset system. Users will be able to visualize the simulation data in an immersive 3D environment and also interact with the Virtual Twin thanks, in particular, to the model reduction technology, allowing them to visualize the influence of certain parameters on the quality of the stamped part.

CES Smart Cities represents the entire connected ecosystem that brings together the technologies, solutions, players, and audiences in the smart city sector including: IoT, 5G Connectivity, Transportation and Smart Automotive Mobility, Energy and Utilities, Health and Public Safety, Artificial Intelligence and Data Analytics. As a key player in many of these areas, ESI



empowers industrials to experience their own concepts and ideas in the form of virtual prototypes, before they even need to consider investing in a physical mock-up.

ESI Group is a proud sponsor of the French pavilion at CES, [Business France](#), where innovative French automotive companies will be exhibiting unique technologies. ESI is proud to be part of the French Tech which leads the way in the auto tech sector with its connected and autonomous vehicles, intelligent transportation systems, along with new mobility technologies. France is currently ranked at the top for new patents and its automotive industry is made up of 4,000 companies, employing 500,000 people and investing 6.1 billion USD (5.2 billion euros) in R&D and delivering 46 billion USD (39 billion euros) in exports.

The Group is also a Silver level sponsor of the [Connect2Car SAE International](#) conference where many stakeholders will gather to cover the industry's hottest topics, including the future of connected smart cities, connectivity and data, autonomous vehicles, cybersecurity, and the connect2car aftermarket.

For more information about ESI at CES 2018, please visit: [www.esi-group.com/company/events/2018/ces-2018](http://www.esi-group.com/company/events/2018/ces-2018)

For more ESI news, visit: [www.esi-group.com/press](http://www.esi-group.com/press)

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### About ESI Group

ESI Group is a leading innovator in [Virtual Prototyping](#) software and services. Specialist in material physics, ESI has developed a unique proficiency in helping industrial manufacturers replace physical prototypes by virtual prototypes, allowing them to virtually



manufacture, assemble, test and pre-certify their future products. Coupled with the latest technologies, Virtual Prototyping is now anchored in the wider concept of the *Product Performance Lifecycle*™, which addresses the operational performance of a product during its entire lifecycle, from launch to disposal. The creation of a *Hybrid Twin*™, leveraging simulation, physics and data analytics, enables manufacturers to deliver smarter and connected products, to predict product performance and to anticipate maintenance needs.

ESI is a French company listed in compartment B of NYSE Euronext Paris. Present in more than 40 countries, and addressing every major industrial sector, [ESI Group](#) employs about 1200 high-level specialists around the world and reported annual sales of €141 million in 2016. For more information, please visit [www.esi-group.com](http://www.esi-group.com).

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