INDRA CREATES A DIGITAL TWIN AND A VIRTUAL CONTROL CENTER ON THE A-2 NORTH-EASTERN HIGHWAY TO IMPROVE ROAD MAINTENANCE AND SAFETY

- **In partnership with Acciona and the Ministry of Transport, Mobility and Urban Agenda, it's leading a pilot of a European RDI project that seeks to ensure good road conditions, reduce accidents, optimize interventions and increase the capacity and availability of roads through the digitalization of infrastructures**

- **Indra will apply augmented and virtual reality at a virtual control center to enable remotely-operated maintenance tasks and a digital twin to allow real-time management of the road equipment**

- **These developments will reinforce Indra's position at the forefront of smarter and more sustainable mobility, one it's achieved thanks to solutions that incorporate artificial intelligence and vision, big data, blockchain, C-ITS services and augmented reality into traffic and transportation management**

Madrid, June 14, 2022.- Indra, a leading global technology and consulting company, is working on the creation of a digital twin and a virtual control center on section 2 of the A-2, in Guadalajara, among other innovative solutions, within the framework of one of the pilots of the European RDI OMICRON project (https://omicronproject.eu/), which aims to improve the maintenance and sustainability of the European road network.

The aim of the project is to develop a smart asset management platform that will help to reduce accidents and maintenance costs, increase the capacity and availability of the road network and improve the efficiency of road interventions.

In the case of the Spanish pilot, led by Indra in partnership with Acciona and the Ministry of Transport, Mobility and Urban Agenda, as the owner of the infrastructure, it is intended to develop a range of technologies to enable the digitalization of roads and improve their inspection and maintenance activities, in order to move towards smarter and more predictive and sustainable maintenance.

For example, through Prointec, its civil engineering subsidiary, in collaboration with other project partners, Indra will create a digital twin of the road, a virtual replica made in the image and likeness of the infrastructure based on BIM methodology to centralize all the information on the highway and road surface, the bridges and tunnels and the lighting and signaling systems. This digital twin will integrate, in real time, all the information collected on the project's smart platform, including any sent from the road itself by the maintenance vehicles connected to the infrastructure, thanks to the C-ITS systems and the V2X communications systems deployed in the project.

This digital twin, together with a decision-making support tool, will facilitate the industrialization and automation of certain tasks required for road management which currently have a high physical and labor-intensive component. This will entail a qualitative leap when it comes to carrying out maintenance work and operating roads in as optimal and sustainable manner as possible.

The A-2 pilot project also includes the development of a decentralized virtual control center, which will enable the operators to access all the information, interact and operate the highway remotely from anywhere in the world, thus facilitating the maintenance work.

This solution will be particularly important in the event that it is necessary to minimize the presence of professionals due to contingencies preventing them from traveling, and also in the event that they have to deal with an emergency, for example a fire, in critical and complex infrastructures such as tunnels. In the latter case, it will become a virtual crisis room enabling all the actors and emergency teams that have to intervene to

remain in constant communication via video calls, ascertain the status of the infrastructure through augmented reality on the digital twin and act in a streamlined and coordinated manner from the very first moment.

"This virtual control center is a pioneering solution resulting from the idea of one of our professionals that won *Innovators*, Indra's intrapreneurship initiative to channel and support the development of the most disruptive ideas of our employees. The idea will take shape in the A-2 pilot and prove its validity and effectiveness in improving traffic and infrastructure management", declared Isa Cano, Indra's Director of Mobility Strategy, Investments and Business Development.

The maintenance technicians will also be able to use a new virtual reality and augmented reality tool on their mobile devices to support their activity and maintenance operations on the road.

The OMICRON project, which the pilot led by Indra forms part of, will last three years with a budget of five million euros, funded by the Horizon 2020 European innovation program.

Indra, a global leader in smart mobility

The new developments to be implemented by Indra for the pilot project on the A-2 highway to Madrid will contribute to reinforcing its global position at the forefront of smart mobility.

"Thanks to our commitment to innovation, we're bringing pioneering solutions to the market to enable the transition towards new models of advanced and sustainable mobility by incorporating artificial intelligence and vision, big data, blockchain, C-ITS services and augmented reality into traffic and transportation management", highlighted Cano.

These include a system for detecting high-occupancy vehicles, which Indra is already implementing in the United States on the so-called Managed Lines to promote more sustainable mobility policies for access to large cities, a toll system equipped with blockchain to improve the security and traceability of transactions, which is currently being tested in Mexico, and In-Mova Space, its platform specializing in smart mobility, the basis for numerous projects around the world, which enables the integration of the entire transportation and infrastructure ecosystem and generates a collaborative scenario in which all the data are shared and the information is enriched by applying smart analytics, learning and predictive models.

With 2,500-plus projects completed in more than 100 cities and over 50 countries, Indra has unique experience in Transportation. Its Transportation Division, Indra Mova Solutions, covers the entire life cycle of its clients' projects and combines the new digital capabilities, integration, specialization and innovation demanded by the market, with reliability, business knowledge, Indra's proprietary technology for transportation and the vast experience of its team of professionals.

Indra is a leading global technological engineering company for the aerospace, defence and mobility sectors. It is its clients' principal technology partner for digitization and key operations worldwide. Its team of experts and its in-depth knowledge of those businesses and the latest technology, and its leadership in major European innovation programs and projects to design the next generation of technological solutions, give it a differential offering and enable Indra to lead unique, highly innovative projects that will transform the future of these sectors on a global scale in the coming years.

About Indra

Indra (www.indracompany.com) is one of the leading global technology and consulting companies and the technological partner for core business operations of its customers worldwide. It is a world-leader in providing proprietary solutions in specific segments in Transport and Defence markets, and a leading firm in Digital Transformation and Information Technologies in Spain and Latin America through its affiliate Minsait. Its business model is based on a comprehensive range of proprietary products, with a high-value, end-to-end focus and with a high innovation component. In the 2021 financial year, Indra achieved revenue of €3.390 billion, had nearly 52,000 employees, a local presence in 46 countries and business operations in over 140 countries.