Autostrade Tech, IBM and Fincantieri NexTech Deploy a New Artificial Intelligence and IoT-based System for Monitoring Autostrade per l'Italia Civil Infrastructure

- Autostrade per l'Italia has invested 60 million euros into improving its systems for monitoring and securing its civil infrastructure. IBM will provide advanced AI for data processing and Fincantieri NexTech supplies technologies and solutions for high-availability monitoring.

- The solution combines drones, 3D modeling tools and cognitive data analysis to help make controls more efficient, transparent, and traceable. The system, managed by Autostrade Tech, is already integrated with the Italian Ministry of Infrastructures and Transportation's Public Civil Infrastructure Database.

- The collaboration expects to make the new platform for the management of civil infrastructure, based on IBM Maximo, available to the market.

ROME, Nov. 25, 2020 /PRNewswire/ -- A new phase in the field of road network security and infrastructure monitoring is starting. ASPI Tech, IBM (NYSE: IBM) and Fincantieri NexTech announce that the new digital system for civil infrastructure monitoring, based on IBM Maximo, is now in operation. The system has been developed by Autostrade Tech, the technology-focused subsidiary of Autostrade per l'Italia Group, together with IBM and Fincantieri NexTech.

This is a very important stage for the digital strategic development of Autostrade per l'Italia as an integrated mobility manager. It represents a significant investment in the digitization of assets and procedures, sustainable mobility, management and the provisioning of innovative services for civil infrastructure, road networks and beyond.

The new monitoring platform will use IBM Artificial Intelligence, drones, IoT (Internet of Things) and Fincantieri NexTech 3D digital modeling to deliver innovation in the surveillance and monitoring activities of the more than 4,500 structures managed by ASPI including bridges, viaducts, flyovers and tunnels, obtaining improved efficiency and transparency in these processes.

The collaboration signed between Autostrade Tech, IBM and Fincantieri NexTech is expected to be made available to the market both as a service and through on premises models.

The new system is intended to improve the process of conducting civil infrastructure inspections in a number of core ways. Civil engineers will be able to carry out inspections on the condition of each structure and access key information in the field via a mobile device that is updated in near real time, including calculations and drawings of the original project and subsequent interventions; scheduled checks and maintenance; investigations and tests on materials; and the results and details of previous inspections. This information is maintained in a digital repository, which collects information classified by type and can be consulted through an app for adequate usability in the field. Through the same mobile device, the inspector can include details and photos from an inspection, making them immediately available to the rest of organization.

The new software also traces and manages the various steps necessary for the care of each structure, from

conducting inspections, to the planning and implementation of maintenance or activities according to the priority criteria developed with the Ministry of Infrastructure and Transportation (MIT). The system also introduces Fincantieri NexTech advanced technologies never used before on Italian road networks, i.e. the ability to analyze a structure through three-dimensional "digital twins." These digital twins reproduce a structure's features through the use of drones equipped with topographic laser-scanners and high-resolution cameras, which can then be analyzed by AI to assist in the detection of imperfections. This visual defect detection model was specifically developed to support technicians in the recognition and classification of defects and in the planning of maintenance activities.

The use of Digital Twins will help enable the implementation of an innovative instrumental monitoring model, which utilizes Fincantieri NexTech Industrial IoT sensors and latest generation technological solutions and will allow analysis of the trends of the static and dynamic structural engineering parameters, as well as the development of algorithms to evaluate a structure in use and during maintenance activities. By 2021, a new dynamic weighing system is expected to be introduced to monitor the authorized weight limits for the road system as well as the near real time behavior of infrastructure being used by heavy vehicles.

The platform is in use today on 430 structures located on the two trunk roads of Cassino and Bari in Italy and is expected to be further extended by the end of the year to all 1,943 bridges and 2,000 overpasses across the Autostrade per l'Italia network. Over the course of 2021, these capabilities are expected to be extended to all bridges, overpasses, and to all 587 tunnels in the network throughout the country.

The technologies put in place by Autostrade Tech, IBM and Fincantieri NexTech will also allow experimentation at a scientific level, which will further the development of new models, algorithms and parameters for infrastructure security. To support this ongoing effort, Autostrade Tech has set up a Technical-Scientific Committee, with the participation of the Polytechnic Universities of Trento, Turin, Rome, Naples and Milan, with the task of coordinating these experimental activities, and defining new operational procedures that will be later agreed upon with the Ministry of Italian Transportation. The first research project will be dedicated to the use of modern sensors in monitoring of infrastructure's behavior under certain conditions.

The total investment for the new system is more than 60 million euros, provided by Autostrade per l'Italia.

"We are working hard and passionately to implement a radical transformation at Autostrade per l'Italia that includes technological innovation, infrastructure digitalization, the enhancement of environmental sustainability and mobility services. By connecting our networks territory-wide in compliance with local guidelines we continue to advance our vision of becoming an integrated mobility operator at the European level. The safety of the infrastructure we manage continues to be our first and fundamental objective. I would like to thank the Autostrade Tech team for their work and IBM and Fincantieri for the support they have given us. Together we expect to make the new platform available to European and international markets," said Roberto Tomasi, CEO of Autostrade per l'Italia.

"Technologies such as artificial intelligence, together with renowned civil engineering expertise can help us face most of the challenges we encounter during this transformation, assisting operators in more efficient management of our civil infrastructure. In particular, the project with Autostrade Tech and Fincantieri NexTech aims to support operators and professionals in making better, more effective and efficient decisions. This innovation, based on IBM Maximo Application Suite, will bring real benefits which the country needs today. We will continue to work with IBM Research as well as strategic partners who specialize in civil infrastructure

engineering and assessment on advancements to our tools. These civil engineering tools will continue to become more and more powerful in the detection of faults and helping to assess risk. We expect to deliver additional advanced AI enhancements in the middle of 2021 and will continue to enhance them over time," said Enrico Cereda, President and CEO of IBM Italy.

Fincantieri's CEO Giuseppe Bono commented: "This agreement confirms Fincantieri's strategy of expanding our competencies, a path that over time has allowed us to strengthen the Group, and to always work together with leading partners, like Autostrade and IBM. We have an extraordinary wealth of know-how in many areas, gained through the management of very complex processes and projects and we are therefore proud, through the high technological level we express, to contribute to the goal of increasingly secure networks." Bono concluded, "In this action we acknowledge the great attention of the Government, specifically the Ministry of Infrastructure and Transport, which follows very closely our action and at the service of which we can achieve very important objectives for the growth of the country."

About IBM Maximo
Powered by IBM's investments in artificial intelligence, fueled by IoT data, and built for hybrid cloud, The IBM Maximo Application Suite is extending its leadership as one of the most trusted enterprise asset management systems on the planet. And with new investments in remote monitoring, computer vision and AI-powered anomaly detection, it is poised to remain a leading solution for tomorrow's asset management challenges, empowering Operational Technology (OT) and Information Technology (IT) leaders with a comprehensive view into asset performance. For more information please visit:
www.ibm.com/products/maximo.

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