

INDRA WILL TRANSFORM METRO DE MADRID PASSENGERS' EXPERIENCE WITH ITS INNOVATIVE TECHNOLOGY FOR THE "ESTACIÓN 4.0" PROJECT

- **Indra is developing with Metro de Madrid a new automatic ticket vending machine, with smartphone-like aesthetics and usability, which allows passengers to display and interact information and multimedia content through a 43-inch touch screen**
- **State-of-the-art access control systems will also improve accessibility and passenger experience, by reducing the impression of a barrier, making it easier to pass through and by being set up for direct validation with bank card and cellphone, thanks to novel readers**
- **In addition to supplying Metro de Madrid with the most advanced ticketing solutions in recent decades, Indra is carrying out a pioneering pilot to generate a suburban thermal map using fiber optics**

Madrid, April 7 2021.- Indra, one of the leading global technology and consulting companies, has developed, after being awarded a public tender, the first innovative and attractive ticketing system prototypes, designed in collaboration with Metro de Madrid for Estación 4.0, the Stations Technological Center that Metro is creating as a testing ground for the new, digitized and innovative transportation environment.

The new automatic ticket vending machines and access control systems, based on Indra's Mova Collect line of solutions, will bring a new travel experience to users, who will be able to obtain information and interact with the machines thanks to their smartphone-like usability, validate their trip both with transport cards and through cellphone or credit card in the future and access the suburban metro in a simpler, more comfortable and dynamic way.

The new Smart-TVM ticket information and sales machine is the ticketing technology developed by Indra for Estación 4.0. It heralds a new generation of ticketing systems that revolutionizes the traditional concept of automatic vending equipment with one that is more ambitious and evolved.

The Smart-TVM has a more attractive and digital aesthetic, with a 43" touch screen that allows the large-format broadcasting of all kinds of information for passengers: itineraries, station maps or timetables. It can also be used as a videowall, giving Metro de Madrid the possibility of improving its interaction with users, by answering questions or sending announcements, while expanding its business horizon, promoting the emission of back-to-back advertising, interactive advertisements and other multimedia content.

It accepts both chip and contactless bank cards as forms of payment, as well as smartphones (through Google Wallet and Apple Pay) and cash. Additionally, the Smart-TVM enables online assistance through an intercom kit and IP camera connected to a User Service Center, from where calls are handled and passenger data are managed in order to provide personalized help and attention to every passenger. To facilitate interaction, the automatic machines will be equipped with natural language technology.

The prototypes of the Smart-TVM machines have been reviewed and tested by customers and Indra is producing the first equipment contracted for the Gran Vía station.

Overcoming barriers

The access control systems that Indra is developing for Estación 4.0 are also a great technological innovation, given that they will have full connectivity and a contactless card reader that will enable the use of cellphones, through NFC technology, or even contactless bank cards, as a physical travel medium.

In addition, these systems will revolutionize the traditional aesthetics of the equipment in the Metro, with more futuristic and cutting-edge designs, reducing the feeling of a physical barrier and contributing to enhancing the user experience. These systems will be slimmer, improving circulating space for greater convenience, and will

be designed for all types of passengers, improving accessibility. They will also offer information in English to facilitate access for tourists.

In addition to offering the best service to passengers, Metro de Madrid will benefit from efficient and safe management. The equipment has anti-vandalism materials and since there are no paper or magnetic tickets and all mechanical elements that would need to be replaced periodically are eliminated, maintenance of this technology will be less expensive and the operation of the transportation will also be sustainable and environmentally friendly.

Indra is one of the main ticketing companies worldwide, with unique products and projects for transportation systems such as those in Madrid, Barcelona, Amsterdam, Lisbon, Medellín, Santiago de Chile, Cairo, Kuala Lumpur, Calcutta, Mumbai, St Louis, Austin, Buenos Aires and Mexico DF, among many others.

Its Mova Collect ticketing solutions facilitate the economic management of transportation services and have a clear impact on people's quality of life, by making access to transportation more comfortable and simple, significantly reducing the time spent on payment and promoting intermodality, the combined use of different means of transportation.

These benefits for users also translate into greater use of public transportation, thus improving mobility, reducing traffic jams and polluting emissions in cities. In Madrid, using public transport can reduce CO2 emissions by more than a million tons annually and Indra contributes to its use with solutions.

Thermal map of the entire network

In addition to developing these advanced ticketing solutions for Estación 4.0. Indra is carrying out a pilot project to create a thermal map of the entire Madrid Metro network, in order to study the possible use of this energy, as well as to facilitate the detection of fires or overheating in high-risk areas, among other uses.

The project consists of reusing the existing optical fiber in the infrastructure with minimal intervention at the ends to install a distributed thermal sensor (DTS), which enables the temperature and its variations to be measured with an accuracy of less than 10 meters and 1 degree and a range of up to 60 kilometers to generate that thermal map. This technology has been used for a decade in other sectors, but Indra is a pioneer in its application to the rail sector, as well as on highways and roads.

Leading technology

Since 1990s, Indra has developed, implemented and maintained almost all of the automatic vending machines, validators, access control systems and smart locker systems, among other equipment for the Madrid suburban rail network.

Currently, Indra's contactless ticketing technology is installed in Metro de Madrid, RENFE Cercanías (Spain's suburban commuter network), over 2,000 buses of the Madrid EMT (metropolitan transport authority), intercity buses, trams and light rail.

The company continues to lead efforts to create the integrated payment of all means of transport through mobile and other advanced systems, participating in other similarly ambitious innovation initiatives as Shif2Rail, the main European R&D&I initiative for the railway sector.

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

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 world-wide. It is a world-leader in providing proprietary solutions in specific segments in Transport and Defense markets, and a leading firm in Digital

Transformation Consultancy 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 focus and with a high innovation component. In the 2020 financial year, Indra achieved revenue of €3.043 billion, near 48,000 employees, a local presence in 46 countries and business operations in over 140 countries.