

Telefónica opens a dedicated Centre of Excellence for quantum technologies



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Telefónica announced today during the Mobile World Congress (MWC) the creation of a Centre of Excellence dedicated to quantum technologies, around which the company's internal governance model within this field of knowledge will revolve. The announcement was made during the session 'Present and future of Telefónica networks', presented in the Agora of the company's stand by Enrique Blanco, global CTIO of Telefónica, and Andrea Folgueiras, CTIO of Telefónica Hispam and global GCTIO of the company from April.

The Centre of Excellence is set to coordinate all innovation lines from the different areas of the company, to promote new solutions, to activate technological agreements with third parties and to participate in forums to share the group's quantum proposal with the industry. To this end, the Centre will leverage the three fundamental axes of quantum technologies: communications and cybersecurity; computing and simulation; and sensors and metrology.

Essentially, Telefónica aims to take advantage of the opportunities arising from quantum computing, to strengthen the protection of the company's networks and systems, as well as those of its customers, identifying the most appropriate tools and processes to reinforce their security and neutralize risks through its services. To this end, the company has begun to adopt a cryptographic agility approach in its strategy, or crypto-agility, based on enabling its systems with the necessary mechanisms to react quickly to cryptographic threats, protect keys, certificates and data, and face a future of quantum security. Telefónica is also opening this innovative approach of cryptographic agility and making it available for its customers to benefit from.

Automation and flexibility

The increasing flexibility of networks and systems is the key to achieving the quick adaptation to the new technological circumstances required by quantum computing. Telefónica's infrastructures have made great progress towards hyper-automation through the ANJ (Autonomous Network Journey) programme.

In 2024, the evolution of the network reached a significant milestone with the implementation of systems that adapt and optimize its performance in real time using Artificial Intelligence-driven analytics. By the end of this year, Telefónica intends to achieve an advanced level of autonomy in certain processes across multiple network domains, known as level 4 according to the TM Forum terminology for the industry. This level will enable the development of sophisticated management capabilities that will allow the network to make complex decisions independently, an important advance in terms of operational intelligence and network efficiency.

Management of technology cycles

With more than 180 million premises passed with fibre and 5G SA deployed in Spain, Brazil, Germany and the United Kingdom, the story of Telefónica is the story of the successful management of different technological cycles. In recent decades, the company has experienced the digitization of its network and the eruption of fixed broadband – first over copper with ADSL, then with fibre – in a context in which the definition of architectures and deployment models have been essential. It has also experienced the evolution of mobile technologies, up to the current 5G, as well as the softwarization and cloudification of the network. This has always been accompanied by the most advanced cybersecurity technologies and services.

The most recent technological projects promoted by Telefónica have been aimed at increasing the efficiency, security, and sustainability of the networks, but also at achieving the higher level of automation that allows for better quality levels, greater agility, and the possibility of a greater range of services on the network. More specifically, from the sustainability point of view, the company has reduced its energy consumption by 7.9% since 2015, while traffic has increased 9.3 times in the same period.

Enrique Blanco, global CTIO of Telefónica, said: 'At Telefónica we have always been aware that telecommunications networks are key to

the functioning of the societies we serve, so it is our purpose to evolve our infrastructures to meet new demands. Along this path, we have always designed the networks of the future based on the choice of the right architectures and technologies. In recent years this has translated into the massive rollout of FTTH and 4G and 5G mobile technologies, and into concepts such as the softwarization of the network, the opening of interfaces, disaggregation, and hyper-automation. We cannot conceive of a future in which we are not the oxygen of this digital society that is going to need more and more connectivity.'

Blanco, who will leave Telefónica on 31 March after 40 years of responsibilities in various areas of the company, all related to technology, was joined at the session by Andrea Folgueiras, who will succeed him in this position from April.

During his presentation, Folgueiras pointed out:

In this future that begins today, we will continue maturing open architectures in all segments of the network, shutting down the legacy, integrating the cloud, actively using artificial intelligence and data, and hyper-automating our infrastructures and processes until we reach the autonomous network. All this, additionally, based on the proper management of technological cycles, both for fiber, which will allow us to evolve to symmetric 10 Gbps, and for mobile technologies, improving the connectivity experience with guaranteed quality through Slicing, or the latency through the Edge. And, of course, anticipating what is to come and setting up a Centre of Excellence in quantum technologies to take advantage of the opportunities arising from quantum computing while strengthening the protection of our networks and systems, as well as the communications of our customers.

For more information: Telefónica at MWC 2025

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