"CTE COBO- House of Emerging Technologies" Project (CUP F39I22001840004)

ANNEX 1 - SCOPE

Scope and enabling technologies

The solutions developed should respond to the challenges identified by business stakeholders in the area on Industry 4.0.

They must, moreover, necessarily fall within the definition of "innovative solutions."

"Innovative solution" is defined as a public interest solution enabled by 5G and based on at least one of the emerging technologies identified by the Ministry of Economic Development's Public Notice "Home of Emerging Technologies," namely AI, IoT, Blockchain, Edge Cloud and Continuum, Quantum Technologies at the pre-commercial stage.

The enabling potential of the 5G network and Edge Computing could be used, for example, to:

- Enable real-time distribution and enjoyment of streaming content;

- Ensure localized management of application data;

- Enable low-latency applications (e.g., AR/VR);

- Implement distributed and mass IoT deployment;

- Ensure mission-critical actions (use of self-driving/remote real-time vehicles and devices);

- Ensuring the performance of access to blockchain-based services;

- Implement Traffic Management tools and infrastructure;

- Enable remote monitoring of infrastructures.

A number of enabling 4.0 technologies-as well as 5G and emerging technologies from the call-are also identified in focus for this call (illustrative list, not exhaustive):

Collaborative Robots: robots capable of working side by side with humans while performing different tasks.

Virtual Reality: technology based on Head-Mounted Display (HMD) viewers that allows the user to immerse himself or herself in a fully digital world and interact with it and other users using not only computer control interfaces (controllers) but also body movements and voice.

Augmented Reality: technology that can be enjoyed on holographic eye devices or mobile devices such as smartphones or tablets, which filters the user's perspective of view by integrating digital content anchored in reality through certain "markers" (QRcodes, anchor points derived from image recognition, etc.).

Metaverse: understood as an immersive, persistent, interactive and interoperable ecosystem composed of interconnected virtual worlds in which people can overcome any disabilities, socialize, work, transact, play, create, learn, and participate in cultural events by accessing through extended reality tools. In technological terms, therefore, it is a set of 3D, online, publicly accessible digital worlds via an Internet browser, of which each user can make a part, and in which each user can interact with other users either in desktop mode (using a PC and keyboard) or in 360-degree immersive mode (using an HMD viewer).

Simulations: these are software tools that allow big data analysis and represent virtual laboratories for testing and design that would have much higher costs in real laboratories. This category includes "Digital Twins," which are digital copies of real systems that can enable simulation and prediction scenarios when integrated with Artificial Intelligence systems and algorithms.

Web3: understood as an evolution of the Web based on some key principles characteristic of blockchain ecosystems such as decentralization, compostability of applications, accessibility of services, data privacy, and the ability for users to own and exchange digital assets and manage their online identity without intermediaries.

Blockchain: Blockchain technology can be used to create secure and transparent transaction management systems, ensuring traceability and trust in urban operations, such as digital identity management, energy sharing or smart contract management.

Drones: The use of drones can contribute to surveillance, inspection, and maintenance of infrastructure, environmental monitoring and logistics, reducing costs and improving efficiency of operations.

Smart sensors: The use of advanced sensors can provide real-time data on air quality, workload management, acoustic monitoring, smart lighting, energy use, working conditions and other aspects of production environments, enabling informed decision making.

Integration of renewable energy: The integration of renewable energy sources such as solar, wind, or waterpower can be facilitated by advanced technologies such as smart energy grid management, production optimization, and energy sharing among consumers.