



5G AGENDA

The City Council of Madrid



MADRID



- The **5G Agenda** is the part of the **Digital Transformation Strategy** developed by the [City Council of Madrid](#) aimed at taking advantage of the new generation of communications.
- It includes a roadmap to facilitate the deployment of state-of-the-art infrastructures and solutions to advance hyperautomation and reinforce Madrid's strengths to consolidate itself as a major digital hub in Europe.
- Its design is based on European and national strategies: the [5G Plan for Europe](#), the [European Digital Compass](#), [Digital Spain 2025](#) and the [Strategy to Promote 5G Technology](#).

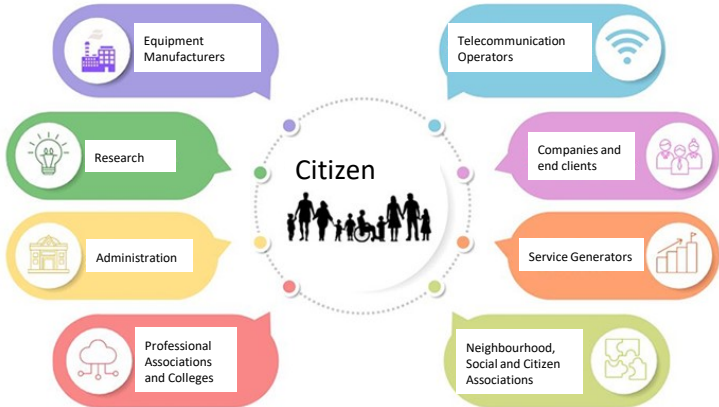
The **5G Agenda** is articulated in 3 PHASES:

1. [International, multidimensional comparative analysis: economy, technology, and social and organisational environment.](#)
2. [Definition of objectives and priority lines of action.](#)
3. [Selection and focus on some first initiatives.](#)

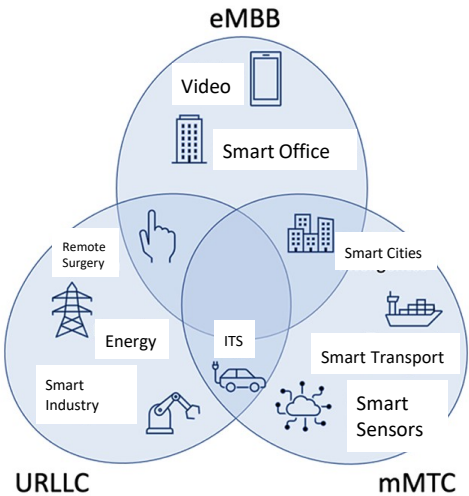
1.1 - 5G ECONOMY

- **5.3 billion users subscribed to a mobile network**, adding voice users to voice + data users, with a penetration rate of the world population of 67% in 2021.
- Expected growth **of 1.8%** in the period between 2020 and 2025 (CAG3 1.8%).
- The **number of mobile internet users** (CAGR 4.5%):
 - 4.2 billion users in 2021.
 - 5 billion users estimated in 2025.
- Total investment 620,000 million dollars in the period 2021-25, 85% in 5G.
- Investment and profits of the operators: 2021, 1.08 trillion (European) dollars. Expected in 2025, 1.16 trillion.
- 12 million direct jobs and 13 million indirect jobs.
- Source [GSA Mobile Economy](#).

1.2 - 5G ECOSYSTEM



1.3 - 5G TECHNOLOGY



The advantages of 5G technology are seen in the advanced services that can be developed and that are grouped into three general scenarios.

eMBB: Enhanced Mobile Broadband: Centred on people, for access to multimedia content, services and data.

URLLC: Ultra-reliable, low-latency communications for industrial wireless control, remote surgery, or transportation.

mMTC: Massive machine-to-machine communications, making it possible to have the Internet of Things (IoT) and intelligent environments (Smart) to facilitate the hyperconnectivity of things.

Network slicing for the implementation of an end-to-end virtual network on the public 5G network, which makes it possible to prioritise traffic for specific needs.

2.1 - GENERAL OBJECTIVE



Position the city of **Madrid** as an **international benchmark** in the deployment and implementation of 5G technology and in the adoption of the services and applications of this technology.

Make the most of the opportunities and synergies derived from the deployment of networks, infrastructures and services on 5G technology in the city of Madrid, and promote innovation in the use of its differential characteristics.

2.2 - SPECIFIC OBJECTIVES

- **Define a framework for cooperation and communication** between the City Council of Madrid and the members of the 5G Ecosystem.
- **Promote an environment** that favours investment and the development of 5G.
- **Identify how 5G technology can help meet the needs**
 - Of citizens.
 - Business environment.
- **Promote the technological culture of citizenship** -> avoid misinformation and “fake news”.
- **Achieve excellence in 5G research, development and transfer**
 - Talent attraction focus.
 - Generation of STEM vocations.
- **Transform the infrastructure of the city.**
 - Modernising and optimising existing technological deployments.
 - Properly planning those that are carried out in the near future.
- **Preserve and protect the environment and the heritage of the city,**
 - Minimise the visual impact of displays.
 - Minimise the carbon footprint of network operation.
 - Protect the historical and ecological heritage of the city.

2.3 - PRIORITY ACTION LINES

Promotion	Initial Impulse	Connectivity	Insight
<ol style="list-style-type: none"> 1. Analyse the regulations and information flows of procedures. 2. Facilitate a Single Deployment Point, together with the competent municipal units and a session of operators. 3. Madrid Nuevo Norte is an opportunity to define how the Telecommunications infrastructures of the future should be. 	<ol style="list-style-type: none"> 1. Creation of the 5g.madrid.es website that will house the 5G FORUM. 2. Creation of the IoT Laboratory of the city of Madrid. 	<ol style="list-style-type: none"> 1. Focus on 5G SA: Network slicing <ul style="list-style-type: none"> • uRLLC • mMTC • eMBB 2. Fiber optic availability to meet low latency requirements. 3. Fog and Edge computing. 	<p>Training Plan, in collaboration with the Employment Agency, EFAM, Mercamadrid and the city's IoT Lab.</p> <ol style="list-style-type: none"> 1. Information campaign and social awareness. 2. Promotion of relations with scientific institutions. 3. Institutional Communication Plan

3.1 - 5G FORUM

The 5G Forum will gradually materialise over time and will be a meeting space in which the **project development** and the sharing of good practices will be facilitated.

The aim is to reinforce public-private and social collaboration between all the agents involved in the development of services on 5G technologies, specifically SA.

3.2 - 5G UNIQUE POINT

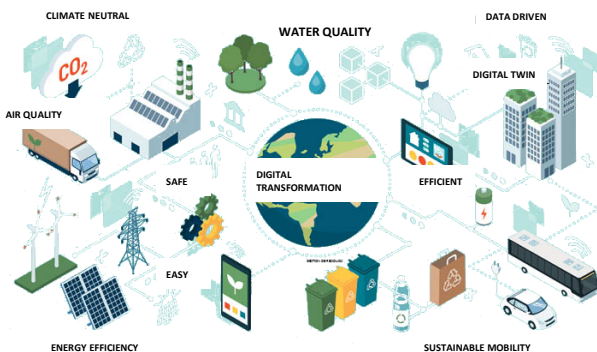
The **Digital Office** promotes the participation of technical staff in working with groups of the Spanish Network of Smart Cities ([RECI](#), FEMP) and [UNE](#) to study and standardise the framework of conditions for each of the infrastructures so that they can be considered technically suitable for the installation of **SAWAPs** that facilitate the deployment of 5G networks specifically SA.

These conditions will be worked on jointly with each of the technical areas of the different competent municipal services so that they are agreed upon with all the agents so that they are published at the single information point and are the basis for expediting the deployment of the necessary infrastructures.

3.3 - IoT LAB OF THE CITY OF MADRID

The city's IoT lab contemplates the following objectives:

1. Set up an **IoT expert center** to establish criteria for the city available to municipal technical managers, bidding companies and suppliers.
2. Seek convergence towards a **common IoT infrastructure for the city**, based on open, neutral and interoperable standards.
3. Have a **test environment** for areas and companies providing services.
4. Evaluate the **impact in real environments**.
5. Facilitate **digital training** and create a community of innovators.



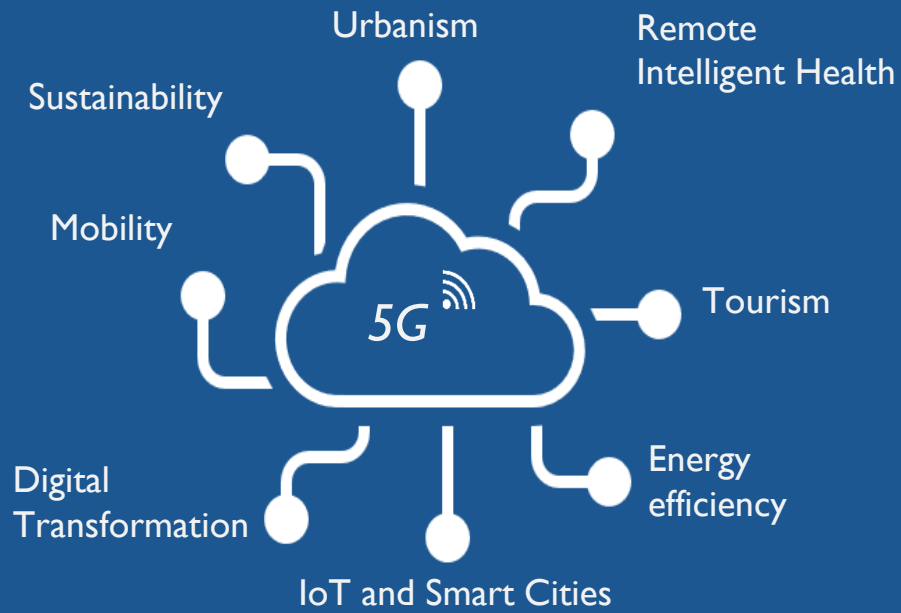
Better Technology

5G Agenda

City Council of Madrid

Better Services

- More speed
- More reliability
- More devices connected
- Less latency
- More traffic capabilities
- Less consumption of energy



Objective - Madrid 5G Benchmark

Deployment

Technology

Services

Economy



Technological and Scientific Culture



Research and promotion of STEM vocations



The citizen in the centre



Heritage Conservation and Sustainability



Public-Private Cooperation



Investment and Economic Development

Work lines

Regulation

Consensus analysis of regulations and processing
 Creation of a Single Point of Deployment
 Dialogue with FORO 5G Operators Desk
 Integration with the Intelligent Madrid platform

Insight

Technological training plan.
 Information campaign and social awareness.
 Relationship with scientific institutions.
 Institutional Communication Plan

Impulse

The city council as a catalyst for 5G development.
 Definition and execution of driving projects.
 Promoting the adoption of 5G by the business network

Connectivity

Global fiber optic availability
 Infrastructure to meet latency requirements
 Edge and Fog computing

Driving Projects (PT)

PT6 - 5G Congress



Insight

Attraction

Business

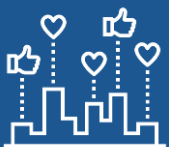


Relations

PT3 - Smart City

Platform

IoT



Optimisation

Energy

Tourism

Mobility

PT1 - 5G FORUM

City Council of Madrid

Operators and ICT sector

Financial Sector

Associations

Investigation

PT5 - Emergencies

Supervision Velocity Acting



Precision



PT4 - 5G Safe Madrid

Innovation

Transfer



Cyber-security

PT2 - Madrid Nuevo Norte 5G

Urbanism

Sustainability

Intelligent

Planning



Impact