Digital Transformation Strategy for the City of Madrid

Because Digital is Capital

Madrid, Digital Capital

Digital Capital

Index

0. Presentation

Mayor

"Madrid, Digital Capital" is the Digital Transformation Strategy for the City of Madrid, designed by the City Council through its Digital Office and in collaboration with all Government Areas and Districts that form part of the Council.

For Madrid, digital is capital. With this approach in mind, we created, at the beginning of the current 2019-2023 tenure, the Digital Office which is directly dependent on the Mayor's Office because we consider digitalisation to be strategic for Madrid, and because we know that it must be transversal to the entire city and the City Council as a whole.

This tenure has been heavily influenced by the health, social and economic crisis provoked by the pandemic and, therefore, the city's efforts have been focused firstly on minimising the impact of this on the families and companies in Madrid and, at the same time, working on the social and economic recovery and reactivation of the city.

In the City Council's response to this crisis, digitalisation has played a leading role. Particularly with regards to proposing technical solutions to overcome obstacles that social distancing created when it came to accessing or using the multiple municipal services that are available to citizens.

Now that we have overcome the health crisis and have been able to immediately respond, with the help of digitalisation, it is time to undertake a strategic reflection of the role played by digitalisation in Madrid in both the short and medium term.

"Madrid, Digital Capital" is the strategy that the City Council has defined in order to continue to be a benchmark city in the digital scope, designed for all of the people and companies that are part of Madrid, for its neighbourhoods and districts, and for the City Council itself, as a key catalyst for the digital transformation of the capital city.

This strategy establishes three essential goals: 1) **more and improved digital services** designed with all of our citizens in mind; 2) boost digitalisation in order to achieve **greater intelligence in the planning and management** of the city; and 3) a **city that attracts talent, investment and digital innovation.**

This strategy is ambitious but realistic. It seeks to keep Madrid at the head of digital innovation, while being conscious of what we need to improve and the fact that we must move to action through a set of Plans of Action and a structured map of the projects to be implemented or developed in the coming years.

Madrid is not starting from scratch. The strategy includes and uses the work that the City Council has been doing regarding digitalisation because we understand that digital transformation is a continuous and transversal process that must be constantly reviewed and updated.

We want Madrid to continue to be the digital capital of Spain and that, thanks to this, we can meet our goal of having the digital transformation of the city make life easier for citizens and companies in Madrid.

José Luis Martínez-Almeida

Mayor of Madrid

1. Madrid, Digital Capital

Madrid, Digital Capital

Madrid is a very advanced City in terms of digitalisation, a national and international benchmark.

Digitalisation is very present in the day to day of the people and companies that form part of Madrid, who are very familiar with the use of the digital devices, services or products.

This digitalisation is also reflected in the high number of digital public services, or municipal equipment that includes technology, for the purpose of **increasing well-being and opportunities** in its districts and neighbourhoods and to be able to efficiently and effectively manage them.

Madrid is also a:

CENTRE THAT ATTRACTS TALENT

INVESTMENT POLE

TECHNOLOGICAL INNOVATION HUB

Its volume of residents and companies, but also its universities, research and innovation centres, business network, etc., make it a **particularly attractive City** for talent and technological companies.

Madrid, Digital Capital

Digitalisation is a continuous process over time, where we must make the most of the opportunities that arise over and over again, increasingly close to each other, opening an infinite range of possibilities for Madrid.

Madrid uses digitalisation to respond to future challenges

This process is prolonged over time not only because **the technologies and digital media evolve quickly**, but also because there is still a way to go in various areas:

- Improved public digital services, to make things easier for citizens and companies;

- More intensive use of data for municipal planning and management;

- Deployment of technologies in large services and equipment for neighbourhoods and districts, for digital cohesion and inclusion;

- Incorporation of platforms and solutions for internal management of the City Council;

- Development of spaces and actions to reinforce the digital ecosystem and its economic potential.

Therefore, the *Madrid, Digital Capital* Strategy aims **to strengthen the digital leadership of Madrid**, using the City's existing solid bases, and responding to areas for improvement and the strategic priorities of the different municipal Areas of Government.

Madrid, Digital Capital

Madrid, in this challenge, makes the most of its current digital capacities in order to strengthen them.

This Strategy includes various plans, actions and initiatives that have been in development in the City for some time, which must continue to evolve and, at the same time, incorporate new priorities and measures that allow Madrid to continue being a Digital City benchmark.

The Strategy considers digitalisation as an essential method to reach higher principles, linked to the model for the City of Madrid:

A City that is open and inclusive, that offers opportunities;

A City that is sustainable in the social, economic and environmental scope, where people have guaranteed well-being and safety;

A City where it is easy to communicate with the City Council;

A City with all of the best conditions to invest, launch a business or innovate.

Therefore, the priorities, programs and projects of the Strategy position digitalisation as a tool that is efficient to improve, transform or consolidate these priorities for Madrid and for its City model. It positions the main recipients as the citizens, the companies, the territory and the Madrid City Council itself.

The Strategy also includes the vision and strategies from Europe, both on a European Union level as well as the Urban Agenda when it comes to the digitalisation of our cities.

Also, it aligns with the strategies and plans that, in the scope of Spain, are included in instruments such as the Plan for Recovery, Transformation and Resilience of Spain, or the Spain Digital Strategy 2026 and its specific plans.

Madrid, Digital Capital is, therefore, an exercise on strategic reflection that the Madrid City Council is undertaking in order to continue to contribute, through digitalisation, to the development and growth of Madrid.

However, the City moves and so does the digitalisation. The Strategy must be capable of keeping up with this pace, making it a Strategy that is open to dialogue and reflection, alive, constantly changing and updating, and so participative and collaborative governance mechanisms are defined.

In short, the Strategy seeks the digital leadership of Madrid, through solid bases and understand the areas of improvement in the City, with specific projects, both already existing and new, where digitalisation is a lever to accelerate well-being and opportunities in Madrid.

2. A strategy that considers the world, Europe, Spain and Madrid

Making global and European digital challenges our own

Madrid's digital Strategy is built on the digital priorities and orientations of the European Union, in line with the digitalisation plans and roadmaps for Europe and its Member States, regions and municipalities.

Madrid reinforces its digital competitiveness in order to remain a benchmark for cities. Proof of this is visible in its harmony, among various European Strategies, with the 2030 roadmap for digitalisation of the European Union, the *Digital Compass.*

About the *Digital Compass*

The passage of time has radically changed the function and perception of digitalisation in our economy and society, accelerating its implementation and making digital technologies essential for any activity in our day to day.

In light of this challenge, Europe places the spotlight on boosting digital policies and rights that enable people and companies to make the most of a digital future.

To achieve this, the European Commission presented its Digital Compass, which states the digital goals for 2030, establishing a monitoring system and outlining the key milestones and methods to reach them.

The four cardinal points that the Digital Compass uses are:

1. A digitally trained population,

2. Secure and sustainable digital infrastructures,

3. The digital transformation of companies and

4. The digitalisation of the public services.

Digital
Capacities

Public
Services

Digital
Infrastructures

Company
Transformations
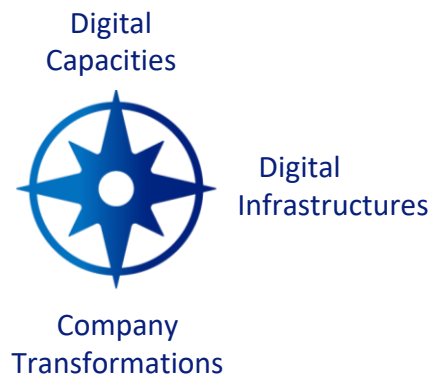
From these, the following goals are specified for 2030:

Digital skills
- 80% of adults with basic skills
- 20 million specialists in IT and Communication in the European Union and gender convergence

Digital infrastructures
- 100% of populated areas covered by 5G
- 10,000 secure and neutral edge nodes
- First quantic acceleration computer

Transformation of companies
- ¾ of companies in the EU use Cloud/AI/Big Data
- Over 90% of SMEs reach a basic level of digital intensity
- Double the number of unicorn companies in the EU

Public services
- 100% of key public services online
- 100% of citizens with access to medical records
- 80% of citizens using digital identification

Key aspects for the Digital Strategy

- Technologies must protect the rights of people and citizens must have control over their data.
- Online access to public services must be guaranteed.
- Digital devices must favour sustainability and ecological transition.
- The digital environment must be secure, offer protection and reinforce ethics and digital rights.

Being coherent with progress and Digital strategies in Spain

The pillars of this Strategy, as well as pivoting around the European orientations, allow **Madrid to participate and align** with the national digitalisation plants included in the **Digital Spain 2026 agenda**.

The Digital Spain agenda is the roadmap for the digital transformation of the country. This is an ambitious Strategy to achieve intense and sustained social and economic growth.

This agenda is the digitalisation axis of the *Recovery Plan for Spain,* to mobilise the *Next Generation EU* funds and articulate the national contribution to the *Digital Compass 2030*.

The agenda **acts in three dimensions**:

- *Infrastructures and technology: promoting connectivity, 5G, AI, etc.*

- *Economy: focused on the digitalisation of SMEs and the Administration.*

- *People: promoting the development of digital skills among the population.*

From these dimensions we can highlight **ten strategic and original axes** and two transversal ones that, at the same time, include 42 measures:

Axis 1. Digital Connectivity

Axis 2. Promote 5G Technology

Axis 3. Cyber-security

Axis 4. AI and data economy

Axis 5. Digital transformation of the public sector

Axis 6. Digital transformation of the company and digital entrepreneurship

Axis 7. Spain, Audiovisual Hub

Axis 8. Sectoral and sustainable digital transformation

Axis 9. Digital Skills

Axis 10. Digital Rights

Axis 11. PERTE (Strategic Projects for Economic Recovery and Transformation)

Axis 12. RETECH (Territorial Networks of Technological Specialisation)

The Digital Spain 2026 agenda is, at the same time, completely aligned with all of the investments and reforms of the **Recovery, Transformation and Resilience Plan** (PRTR), oriented towards digital transformation.

Madrid City Council is coherent with the Plan and actively participates in the application of various components of the PRTR, such as:

- C11: *Modernisation of Public Administrations*

- C13: *Promotion of SMEs*

- C15: *Digital Connectivity, promoting cyber-security and deployment of 5G*

- C16: *National Artificial Intelligence Strategy*

Key aspects for the Digital Strategy

- **Digital transformation is transversal to all scenarios, European, national and with particular attention to cities.**

- Digitalisation is not an end, but rather a **tool to improve** public services for the City and for society in general.

- It seeks the creation of a **connected Europe**, and Madrid is reinforced as a *connected City that connects*.

- The **digital inclusion and education** of the entire population is a key goal to increase digital skills.

**Digital
Capital**

Reinforcing Madrid's digital strengths in line with Europe and the world

Madrid already has significant digital strengths though it accepts the challenge of continuing with its digital transformation in line with the European and national strategies, thus relying on its priorities to reinforce its own strengths. These strengths respond to:

⊕ WELL-BEING

♡ SERVICES FOR PEOPLE

♻ **SUSTAINABILITY**

🧠 **INNOVATION AND BUSINESS**

🔍 **DATA**

Below are details on each of the strengths mentioned:

WELL-BEING

Madrid focuses on improving the well-being and quality of life of people in the City.

For this, Madrid has numerous initiatives aimed towards increasing quality of life for people, promoting digital, social and territorial inclusion and cohesion.

SERVICES FOR PEOPLE

Madrid is an open City, committed to the concerns and needs of its citizens. In the digital transformation, people come first.

Madrid is acknowledged and positioned as one of the leading cities in the world in digital public services for people, companies and the city itself that reinforce the firm and decided pace of its digital transformation .
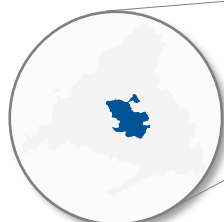
SUSTAINABILITY

Sustainability is a priority and Madrid is making this a reality every day. We are working to arrange a city that is even more sustainable, green and clean, with technologies that respect and promote the protection of the environment and contribute towards the fight against climate change.

The strong push towards the green and digital development of Madrid is accompanied by the intensive application of technologies, such as *sensorisation*, digitalisation and energy efficiency.

INNOVATION AND BUSINESS

Madrid has an innovative and entrepreneurial fabric with great potential. Madrid's technological ecosystem is in constant growth and development, promoting, from the Capital, the initiatives that boost digital talent in Madrid.

Madrid's focus lies in boosting the innovation generated by the *startups*, *scaleups* and SMEs, in line with the challenges to develop a more green and digital Madrid.

DATA

As a transparency benchmark, Madrid focuses on opening the City's data and reusing it to improve services. Data is a strategic asset and a nucleus upon which to progress in the excellence of digital services. For this reason, we work to achieve the maximum quality of the data .

Accelerating compliance with the City's challenges, priorities and objectives

Starting with the vision and priorities relative to digitalisation established by the European Union and by Spain, and Madrid's own strengths, the *Madrid, Digital Capital* must include, as well as these, the plans and model for the City developed in Madrid, accelerating its own priorities.

In this sense, the Strategy aims to create a key lever to roll out and execute the municipal strategic framework that has been used up until now.

Strategic Plan for the City of Madrid

To complete the definition, monitoring and evaluation of the municipal Strategy established by the City Government for each tenure, which currently consists of 5 strategic axes:

1. Madrid, City of opportunities
2. Madrid, City for all families
3. Madrid, Sustainable city
4. Madrid, Open, cultured and sporting city
5. Madrid: Responsible, transparent and easy

Strategies and Plans of the Government Areas

Madrid, to progress in its City model, develops various strategic and operative plans and programs through the various Government Areas, as in the case of Madrid 360, Young Europe and the Employment Plan for the City of Madrid, to which the Digital Strategy will contribute.

Recovery, Transformation and Resilience Plan for the city of Madrid

It includes transformative investments in key areas to boost the economy, employment, environment and social cohesion in the City of Madrid. Specifically, it has 12 large driving projects that are characterised by the powerful transformative effect in the long term:

1. Madrid Metropolitan Forest
2. Madrid Circular
3. Madrid Energy Rehabilitation
4. Renewable and Efficient Madrid
5. 5G Intelligent Madrid
6. Madrid Clean Public Transport
7. Madrid Electric Mobility
8. Madrid Audiovisual and Video Games
9. Madrid Fashion Capital
10. Madrid Social Rent
11. Madrid Integrates Cañada Real
12. Madrid Renews Neighbourhoods

Town Agreements

They include a total of 352 measures to rebuild Madrid after the pandemic, structured around four axes:

1. City Model: 117 measures
2. Social: 169 measures
3. Economy, employment and tourism: 38 measures
4. Culture and sports: 28 measures

Key aspects for the Digital Strategy

- Technology has influenced the sustainability of the city, services and resources.
- The neighbourhoods of Madrid and the mobility are renewed to make them intelligent, integrated and cohesive.
- We seek social inclusion and the generation of opportunities through the use of new technologies.
- Employment and economic activity are boosted through the digital environment.

3. On a solid basis, because Madrid is digital, too

Madrid is digital and is a benchmark digital City

The City of **Madrid is decidedly digital**. Technology and digital transformation are very present in the day to day of people, companies, services and the City Council itself.

For this reason, the Strategy is aimed towards reinforcing the **digital leadership with an inclusive approach;** not leaving anybody behind and moving towards **complete inclusion and digital cohesion**.

When we talk about Madrid, we're talking about a City with:

3.3 million people, positioned as the 2nd European City par excellence

5 million people to take care of every day through public service

+500,000 companies that choose the Community of Madrid as their headquarters

+10 million tourists who visit us

The City of Madrid has a notable **digital profile.** The City aspires to lead the management of change and its own digitalisation, without ignoring future challenges that may arise.

This digital profile is centred on **three scopes** that are very differentiated but completely complementary to each other, which are:

1 POLE OF ATTRACTION FOR DIGITAL TALENT

2 CITIZENS WITH DIGITAL EXPERIENCE

3 DIGITALISED EQUIPMENT AND SERVICES

Key aspects for the Digital Strategy

Pole of attraction for digital talent...

1,756
ICT companies

+1,000
Startups

+ 33.5%
of the TIC Employment in Spain

64%
of the TIC Investment in Spain

+€6B
in investment for data centers

Digital citizenship...

87%
People who use the Internet every day (at least once a day)

99.6%
Of homes have a mobile phone

97.1%
Of homes have Internet access

86.7%
Of homes have some type of computer

98.7%
Of companies have computers

Digitalised services...

+1 million calls
for remote assistance annually

84% rent sports fields
via app and web

+6 million electronic procedures
with the Tax Agency

7.8 satisfaction index
for the Website and Electronic Office (record maximum)

- Madrid, a **digitally inclusive and cohesive City,** with a focus on people.

- Digital profile based on **scopes:** pole of attraction for investment and digital talent, digital citizenship and digital services.

- Madrid City Council as a **digital leader**, attentive to **future challenges.**

Important challenges where we are all included

Madrid positions itself as the national, European and international digital capital. However, digitalisation, as well as granting opportunities, also brings new and multiple challenges.

In accordance with the national and European Strategies, some of these challenges can be summarised as follows: access by the population and companies to new digital tools; training on digital skills to acquire capacities for personal and professional development; preparation for the maximum u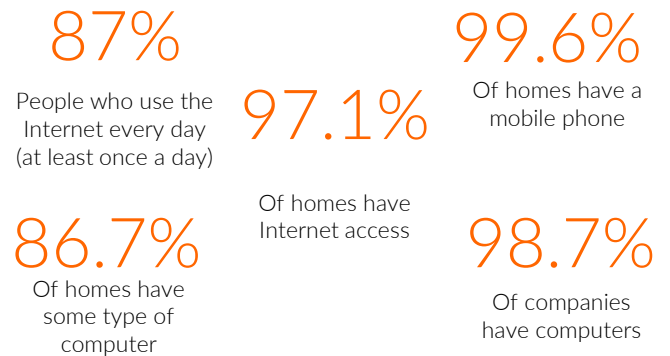sage of digital platforms; as well as the possible impact on individual and collective digital rights for people represented by the online environment, such as the risk of loss of privacy, among others.

One of the main concerns regarding the advance and disruption of the technological solutions is the appearance of issues related to the digital transformation, with special care required for ethics and digital rights.

In order to minimise this possible repercussion, if it cannot be reduced to a *0 impact*, the Madrid City Council delves into a transformation procedure with people at the centre, an inclusive and human digitalisation process.

For this reason, some of its actions place people at the centre of digital transformation.

Digital is for and by people.

The main challenges faced by Madrid as a benchmark Digital City and therefore, the Madrid City Council, are those mentioned below:

Increased % of people who interact with the Public Administration through the Internet

Increased % of people who obtain information from the Administration's websites

Development and multiplication of the number of intelligent services in Madrid (intelligent lighting, etc.)

Growing % of people with advanced digital skills

Increased % of companies who employ information and Communication Technologies specialists

Increased total expenses on Information and Communication and Technologies assets

By overcoming these challenges, the City of Madrid seeks to reinforce and boost the digital leadership of a digital Madrid for everyone. In the same way, there is a goal to reduce the digital gap, which remains evident in some sectors of the population, by brining technology to the citizens: *technology for and by people*.

Challenges for the Digital Strategy

- Increased number of people demanding digital attention and digital services that respond to their needs in good time and format.

- Greater and better digital skills among citizens and, consequently, their needs and requirements with particular attention to digital inclusion and cohesion.

- Increased level of use of technology in daily activities.

From ideas to actions: a Strategy consisting of plans of action

The Digital Transformation Strategy *Madrid, Digital Capital* is a project with clear targets: *people and companies*, the *territory* and the *City Council*. To reach the goals set and tackle the challenges considered, the Strategy relies on and integrates a series of plans of action, designed to include emerging technologies that facilitate the digitalisation of the municipal services and the City, which are the following:

Action Plan for rationalisation and simplification
To develop ten high impact transversal projects in the projects with the most use and the highest volume of procedures.

Artificial Intelligence and Robotisation Strategy
To progress with the reduction of red-tape at the City Council through ethical and responsible automation of the services.

Strategy involving mobile Apps
To facilitate the mobile channel as a means of connection and presentation of services in order to permit more simple, comfortable and faster access to the services.

Cybersecurity Strategy
To guarantee the development and implementation of the cyber-security with an integral approach through the coordination of efforts under a common governance framework.

Digital Management Plan
To offer the best digital administration based on simple, proactive services on the mobile phone, with a clear orientation towards people and improving internal management.

5G Agenda
To accelerate the roll out of high capacity communication networks in order to facilitate hyper-connectivity (IoT) and its application to the City, connecting people to services.
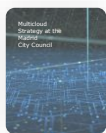
Multicloud Strategy at the Madrid City Council
To provide the City Council and the City with flexible and resilient technological infrastructures that process and treat the information.

Data Strategy at the Madrid City Council
To showcase the management data for the municipal services and for the City in order to develop management based on data analysis, guaranteeing suitable processing and ethics.
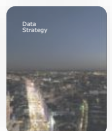
Madrid GovTech Program
To boost the digital technology sector in order to improve public and municipal services, combining different initiatives with the innovative potential.

Digital Training Plan
To boost digital skills among the citizens, public employees and companies in order to achieve optimum adaptation to digital transformation and facilitate personal, social, professional and economic development.

4. The Strategy *Madrid, Digital Capital*

For the people and companies, the territory and Madrid City Council as the *facilitator*

The digital transformation of the City of Madrid responds to the needs and expectations of the people, companies, Government Areas and the totality of the districts in Madrid.

The goal is to avail of a holistic and integral Strategy, with an ambitious yet realistic scope that responds to everyone's needs.

Digitalisation is global for everything and for everyone, always available to include new proposals through permanent dialogue and processes of collective reflection.

Digitalisation to improve everybody's day to day.

The *Madrid, Digital Capital* Strategy focuses on most impacting three well-defined *stakeholders*: people and companies, the territory and the City Council.

All people and companies participate and benefit from digitalisation.

People and companies
It seeks to improve the well-being of districts and their economic growth through digitalisation.

Territory
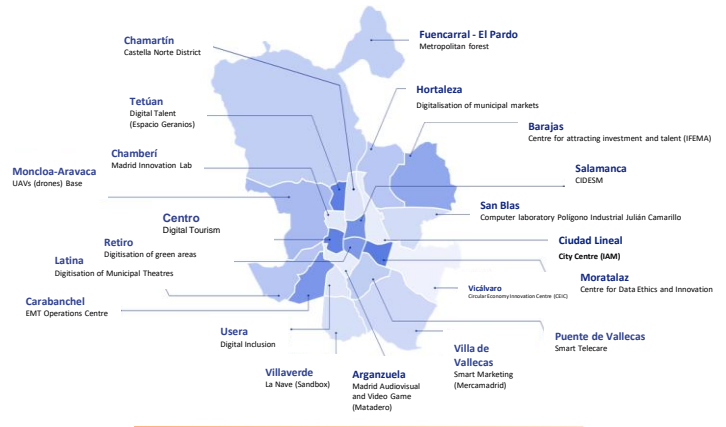It seeks better municipal services and policies adapted to the digital context.

Madrid
The digital transformation Strategy is based on these areas, integrating the plans of action designed and through which the emerging technologies that facilitate the digitalisation of the municipal and City services are included and applied.

Below we see the scope that each sector covers:

People and companies

Encourage collaboration and cooperation with entities and institutions from the public, corporate, and social sectors.

Disseminate a digital culture that enables effective management for public employees.

To be at the side of families and meet their needs.

To provide visitors with a unique experience

Provide personalised assistance to the elderly.

Promote the growth of the research and academic fabric

Supporting young people's development and growth

Develop a competitive ecosystem for companies and entrepreneurs

Ensure the safety of vulnerable persons.

Territory

Chamartín — Castella Norte District
Fuencarral - El Pardo — Metropolitan forest
Tetúan — Digital Talent (Espacio Geranios)
Hortaleza — Digitalisation of municipal markets
Chamberí — Madrid Innovation Lab
Barajas — Centre for attracting investment and talent (IFEMA)
Moncloa-Aravaca — UAVs (drones) Base
Salamanca — CIDESM
Centro — Digital Tourism
San Blas — Computer laboratory Polígono Industrial Julián Camarillo
Retiro — Digitisation of green areas
Ciudad Lineal — City Centre (IAM)
Latina — Digitisation of Municipal Theatres
Vicálvaro — Circular Economy Innovation Centre (CEIC)
Moratalaz — Centre for Data Ethics and Innovation
Carabanchel — EMT Operations Centre
Usera — Digital Inclusion
Villaverde — La Nave (Sandbox)
Arganzuela — Madrid Audiovisual and Video Game (Matadero)
Villa de Vallecas — Smart Marketing (Mercamadrid)
Puente de Vallecas — Smart Telecare

Madrid

01 Citizenship and families
02 Finance and personnel
03 Economy and employment
04 Environment and Mobility
05 Social Inclusion
06 Tourism, congresses and trade
07 Territory, transparency and citizen participation
08 Culture, health and sport
09 Security and emergencies
10 Technology
11 Innovation
12 Urban planning, infrastructures and property
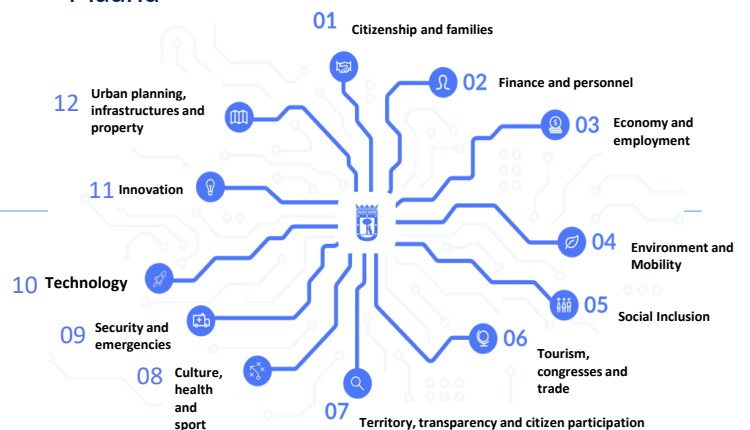
Key aspects for the Digital Strategy

- The digital transformation of the City of Madrid impacts everybody and is for everybody.
- Flexible and open to adapt to a City context that is continuously changing and evolving.

Why Digital Transformation?

The City of Madrid develops a digital transformation Strategy with a clear purpose: to make **Madrid the best City for everything and everybody**, considering digitalisation to be the vehicle upon which to pivot the improvements in the City.

With this goal, Madrid develops a digital transformation Strategy that contributes to:

People To guarantee the social well-being and quality of life of all of our citizens, favouring social and territorial cohesion and increasing the quality of life and the social and urban habitat.

Services. To offer easy, quick and comfortable services, adapted to the characteristics and needs of each citizen and to keep ahead of them.

Sustainability. To progress in the model for a Digital City that is sustainable and responsible with the environment.

Economy. To promote the development and growth of the productive fabric of the City and position it as a global technology benchmark as a digital pole.

Data. To use the data to improve the services provided and make objective decisions. To showcase the City's data as a source of energy to boost the digital economy.

Infrastructures. To avail of technological infrastructures that are capable of responding and adapting to the changing needs and that reinforce the digital capacities of the City of Madrid.
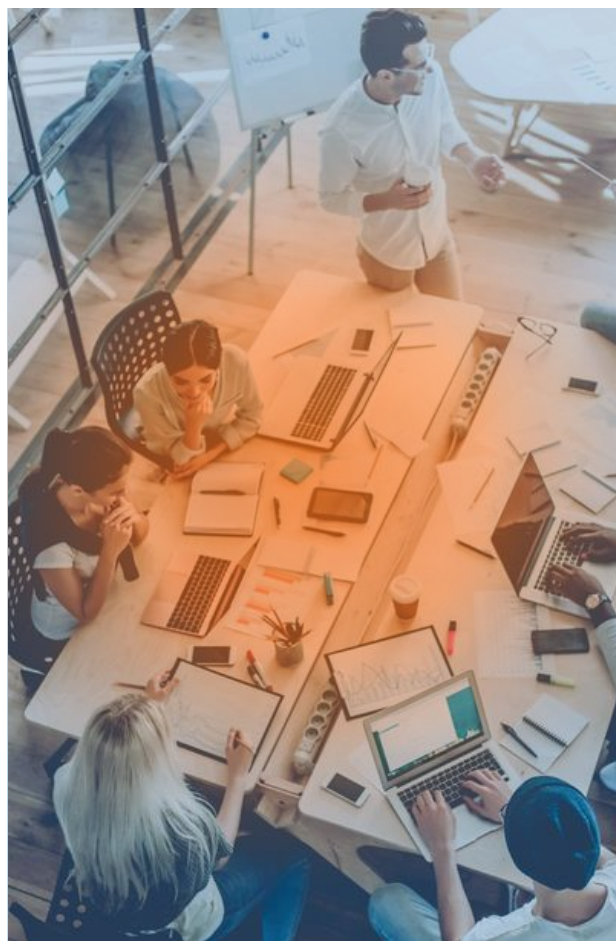
The definition and development of this digital transformation **Strategy impact all of the scopes** defined above, which form part of the City of Madrid. For this reason, it is defined as a **holistic and transversal Strategy** so that, through a coordinated and corporate action, Madrid can position itself at the **head of the digital capitals** of the world, and therefore present itself as one of the best cities to live, visit, invest, work, study or enjoy.

Which *Digital Capital* model does Madrid want to be?

Madrid aspires to be the European Digital City par excellence, a benchmark on a national and international level.

With this purpose, the City of Madrid aims to structure its digital transformation Strategy on key pillars that respond to the true needs of the City.

Having considered different variables, such as the characteristics and situation of the citizens and the public and private entities of the City, as well as the current and future social, economic and technological context, three strategic goals have been established around which the Strategy must pivot.

These goals represent the ultimate goal of Madrid's transformation process, and also structure the Strategy to be followed, and are the following:

1 | DIGITAL SERVICES FOR THE PEOPLE
Digital services for everyone

To facilitate the day to day for all citizens of Madrid through excellence in the digital services: easy, quick and comfortable.

2 | CITY INTELLIGENCE
City intelligence

To achieve more efficient and sustainable management of the City through more intensity in the use of technology. A City that is alive and responds and adapts to its environment.

3 | DIGITAL INNOVATION HUB
*Digital innovation hub*

To make Madrid the preferential destination for innovation, investment and talent in the digital sector, creating an attractive ecosystem to invest, work, study, visit, enjoy and live.

These three strategic objectives are inter-related, complementary to each other. Due to this link, the impact generated by any of the strategic goals will affect all of them.

The *Axes and Levers* that guide the transformation

We establish a Digital City model where the three strategic objectives simultaneously contribute to boosting the digital transformation of the City, promoting a global and integral digitalisation in Madrid.

The three strategic objectives that form part of the model and upon which the Strategy relies are 1) *digital services for people*, 2) *City intelligence* and 3) the *digital innovation pole*:
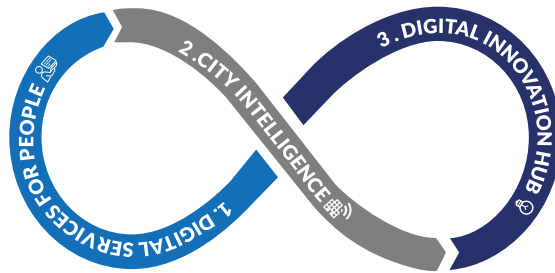
The graphic representation of these objectives reflects, on one hand, that Madrid must be the Digital Capital (DC) and, on the other hand, represents infinity, given that digital transformation is, and must be, a continuous process over time, a road with no return that each City must explore and travel in order to maximise the opportunities and synergies derived from the intensive application of technology to municipal and City services.

For each of these strategic objectives, there are two strategic axes which are profiled as tools for defining the scope and field of action for the specific objective. The axes are:

Digital services for the people

- The best digital Administration with public employees as the protagonists of the change.
- Technology focused on making life easier for people.
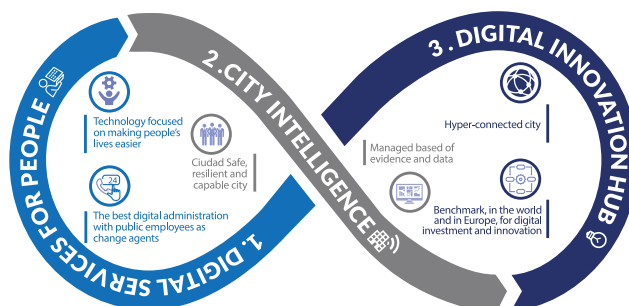
City intelligence

- Safe, resilient and capable city.
- Managed with a basis of evidence and data.

Digital innovation hub

- Hyper-connected city.
- Benchmark, in the world and in Europe, for digital investment and innovation.

The *Axes and Levers* that guide the transformation

In addition, the set of strategic objectives and axes is promoted and influenced by enabling levers for the Strategy, which drive the digital transformation of the City through the various objectives and axes. These levers are the people, the services, the City, the data, the technology and the economy.

PEOPLE   SERVICES   CITY   DATA   TECHNOLOGY   ECONOMY
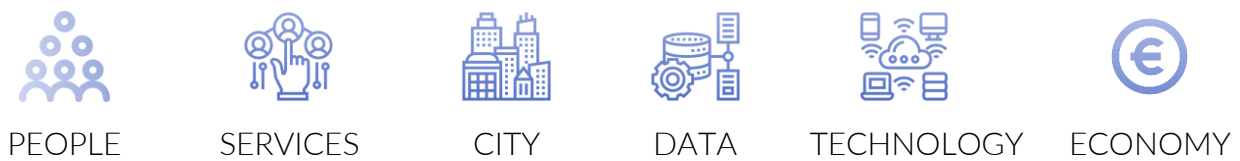
Thus, and from a holistic perspective, the configuration of the Digital City model is structured as follows, connecting the **strategic objectives**, their corresponding **strategic axes and**, finally, the **enabling levers**:
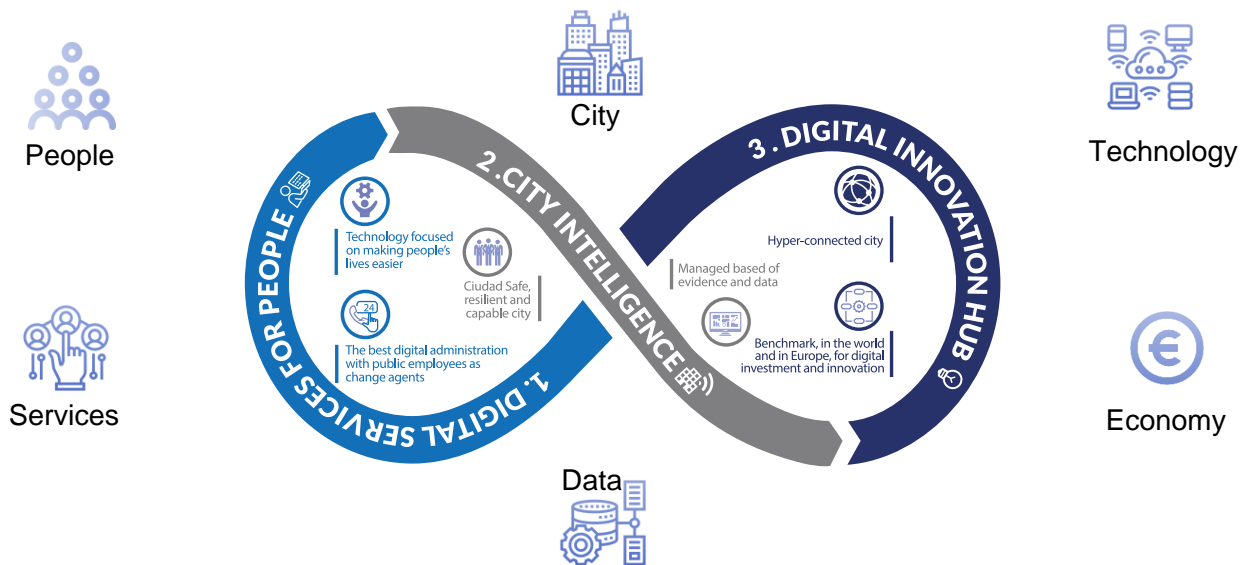
This model clearly reflects the principle of transversality and globality sought by the *Madrid, Digital Capital* Strategy. As can be seen, it delves into all scopes of society, from people, as a priority for the actions and commitments of the City of Madrid, to technology and services.

The goal is to undertake the digitalisation of the City by achieving **ambitious but realistic milestones** that respond to the challenges and demands of an advanced society in the 21st century.

These milestones and objectives cover, at the same time, various strategic plans and lines of action to be followed, derived from orientations and priorities on a European, local and municipal level. For this reason, the Strategy is perfectly **aligned and in harmony with its peers**.

Strategic objective 1: Digital services for people

One of the objectives of the digital transformation of the City of Madrid is to provide excellent digital services for citizens, so that they can be used to facilitate the day to day of their lives and improve their well-being.

For this reason, we aim to provide the companies and entities in Madrid with the best experience in digital services, with platforms and solutions that are integral, flexible and adapted to change, easy and comfortable to use, with similar practices and operations as other services that they use in their daily life.

> *To avail of* **excellent digital services**, *with integral solutions*

The **main mission** of this strategic objective lies in **providing services** that are **agile** and offer solutions to all of the citizens' requirements, **adapting to their needs** and providing simple, understandable digital services that are easy to use.

Madrid is going to spend **over €398 million** in order to digitalise the municipal public services, with the goal of undertaking a transformation that will provide services that are:

- Focused on the citizen
- Proactive, agile and simple
- Available 24 and by mobile
- Intelligent and automated
- Integral: 360° care
- City Transformers

#UserCentricity

#CitizensFirst

#MadridInclusion

Our progress

Madrid City Council is already working to provide excellent digital services for citizens, including:

- **Madrid in your pocket:** Citizens can access information on the management and procedures carried out with the City Council.

- **360° integrated and integral service and relationship:** This will allow more contact with the citizens through a technological platform for integral service, with a 360° view that offers the possibility of carrying out all of the procedures from start to finish in order to achieve key in hand services.

To continue with the development and achievement of excellent digital services, this goal pivots around two strategic axes:

The best digital administration with public employees as the protagonists

With **simple, proactive and accessible services.** The citizen will continue to be our main concern, as well as the internal efficiency in the management through established digital culture and with municipal personnel that promote and facilitate digitalisation.

For this reason, two programs will be carried out:

- Personalised services to attend to people.
- Digitalisation and automation of internal management.

Technology focused on making life easier for people

For everyone, particularly for the elderly and the most vulnerable. Technology must be used to close gaps, never to open new ones.

For this reason, two programs will be carried out:

- Digital transformation of municipal and City services.
- Digitalisation of key sectors.

Strategic objective 2: City Intelligence

The *Madrid, Digital Capital* Strategy also focuses on **boosting the digitalisation of the City**. For this reason, one of the strategic objectives focuses on developing **City intelligence,** i.e., creating a City that is more capable and technological.

Thus, **more aware, suited and optimum decisions** will be made through the collection of data generated by the application of disruptive technologies such as the Internet of Things (IoT), *Blockchain*, *Edge Computing*, Artificial Intelligence and virtual reality.

Technology, present in the decisions to build a better City

In other words, the **mission** of this objective lies in achieving **efficient and effective planning and management thanks to the intensive** use and availability **of the data** for daily situations in the City of Madrid.

This goal will be reached through an investment of **over €388 million**, which will be used to obtain real time information on traffic, infrastructures and facilities, air quality, waste management, energy and other City services in order to gauge Madrid and progress in the automated management of services.

In this sense, the implementation of the **Digital Brain** will permit the processing of data in an ethical and secure way, and facilitate the management and provision of services through integral digitalisation and permanent monitoring.

Also, a **Digital Twin** for the City will be implemented to analyse the impact of planning actions and making transversal decisions that permit improvement of coordinated action by different services in the case of an incident, contingency or claim.

This will contribute to the construction of the #MadridMetaverse, both for the improvement of municipal and City services and for the development of products and services.

#Connectedness
#MadridMetaverse
#MadridDataDriven
#SmartMobility

Madrid City Council is already focused on data intelligence, as a result of the following projects:

- **Madrid Mobility** *360*: This will reinforce the City as a benchmark for sustainable and connected mobility, with a cutting-edge quality public transport system.

- **Madrid Data Lake:** This will allow the creation of an open and shared data environment allowing automation of searches and information analysis, boosting a management culture based on data and evidence.

In order to continue with the conversion towards City intelligence, this objective pivots around two strategic axes:

Safe, resilient and capable city

To **generate trust** among people, as a benchmark in cyber-security and in the use of technology to reinforce the safety and resilience of the City. Capacity to **immediately respond** to changes in the environment. Benchmark in science and knowledge.

For this reason, two programs will be carried out:

- Sustainable and digital intelligence for management.

- More secure and reliable Madrid.

Managed based on evidence and data

With the development of the Digital Twin for the City and understanding the **data as the raw material** that allows for more efficient and effective management and favours economic growth.

For this reason, two programs will be carried out:

- Data as energy for the City.

- Planning and management based on evidence.

Digital Capital

Strategic objective 3: Digital Innovation Hub

The third objective of the digital transformation of the City of Madrid is **to become the destination par excellence for innovation, investment and digital talent**, thus developing an attractive ecosystem.

To reach this goal, Madrid **must be vigilant and reinforce its digital skills and strengths**, where the technological infrastructures are those preferred by companies in the IT sector and *Startups* in the digital economy in order to remain a competitive City and improve its ranking as such.

Madrid as a technological benchmark, pioneer in digital innovation

This strategic objective has a very clear **mission**, which lies in consolidating and expanding the **digital innovation ecosystem** in order to position Madrid as a benchmark capital city for companies and *startups*, with the creation of spaces and assets that facilitate innovation.

For this, Madrid City Council will invest **over €223 million**, collaborating with boosting the concept of Madrid as a *Digital Ambassador* and highlighting this ecosystem and consolidating the City in national and international networks and forums.

The **digital priorities** that this final strategic objective pivots around are the following:

• *Hyper-connected 5G city.*

• *Digital hub of Europe.*

• *Innovative and technological pole of attraction.*

• *Technology for collaboration and cooperation.*

#Hyperconnectivity

#DigitalInnovation

#MadridIs5G

Madrid City Council is already working to position itself as a benchmark for digital innovation, which is evident in the following projects:

• **Madrid 5G:** It is going to develop a new hyper-connected City model to improve mobility, management and connection for people.

• **Madrid audiovisual and video game:** It is going to launch initiatives that include the chain of value of the audiovisual and video game sector, consolidating Madrid as a benchmark *Hub* in this field.

To continue with the development of the *digital innovation Hub*, this objective pivots around two strategic axes:

Hyper-connected city

With an **integral roll out of communications** that allow development of the **hyper-connected City** model in order to improve the mobility and connection of people with their City.

For this reason, two programs will be carried out:

• Infrastructures and technological assets

• Digital skills and talent in Madrid.

Benchmark, in the world and in Europe, for digital investment and innovation

A City that is **attractive to investment and entrepreneurship** of multi-nationals, *startups*, *scale ups* and digital SMEs, which translates to economic activity, growth, competitiveness and internationalisation.

For this reason, two programs will be carried out:

• Investment ecosystem and digital innovation

• A City Council with innovative digital DNA.

The map of Programs and Projects

Strategic objective 1: Digital services for people

STRATEGIC AXIS 1

24 | The best digital administration with public employees as the protagonists

1. Personalised services to attend to people

- Madrid is on your phone
- Madrid in your pocket
- Citizen Care: 360º integrated and integral link
- Digital census
- Agile management of subsidies and aid
- Madrid Advanced Digital Identity
- Digital skills for everybody

2. Digitalisation and automation of internal management

- Integral platform for employment services
- ★ Intelligent management of processes and services
- Corporate management of municipal information
- Digitalisation of files
- Municipal factory to boost robotisation
- Advanced work station

STRATEGIC AXIS 2

Technology focused on making life easier for people.

3. Digital transformation of municipal and City services

- Digital management of the Collegiate Bodies
- Digital transformation for taxes
- Digitalisation of municipal projects and works
- Cibeles++: Virtual town planning reporter
- Smart Sports Center
- City Museums in MetaMadrid
- Digital consumer's advice
- Advanced Remote Assistance Platform
- Integral digital transformation of social services
- AI for Madrid

4. Digitalisation of key sectors

- Digitalisation of retail and catering
- SmartMercaMadrid
- SMEs in the Twin Transition
- Digital platform for management of municipal personnel
- Digital tourist experience

★ *Transversal and corporate projects with an impact on all municipal and City organisation*

Strategic objective 2: City Intelligence

STRATEGIC AXIS 3
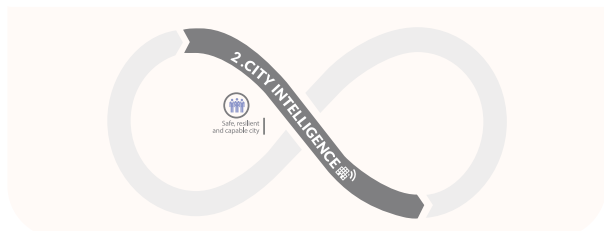
Safe, resilient and capable city

5. Sustainable and digital intelligence in management

- Intelligent management of Calle 30
- Intelligent transport systems
- Intelligent management of traffic and mobility
- Madrid Mobility 360
- Digital management of vehicle access and parking
- Intelligent control of electric mobility and emissions
- Digital infrastructures for mobility
- Digitalisation of the management of public carparks
- Digital waste management
- Digital cleaning and collection management
- Intelligent lighting and provision of SMART services
- ★ Digitalisation of air quality management
- Digitalisation of green areas
- Digitalisation of environmental control, evaluation and discipline
- Sensorisation of space and urban facilities
- Intelligent municipal buildings
- Digital city platform: Madrid Inteligente
- ★ Digital urban spaces

6. More secure and reliable Madrid
- Digital police
- ★ Drone base for emergencies, security, municipal and City services
- Hyper-connected emergency services
- Madrid City Council Coordination Centre (C.I.C.A.M.)
- Cybersecurity Centre

★ *Transversal and corporate projects with an impact on all municipal and City organisation*

STRATEGIC AXIS 4

Managed based on evidence and data

7. Data as energy for the City
- Madrid Open Data
- Madrid Data Lake
- Data governance
- Space for data excellence and ethics

8. Planning and management based on evidence
- ★ MetaMadrid, Digital Twin of the City
- Madrid Geoportal
- ★ Madrid's Digital Brain
- Advanced analytics in Madrid

Strategic objective 3: Digital Innovation Hub

STRATEGIC AXIS 5

Hyper-connected city

9. Infrastructures and technological assets

- Madrid Multicloud infrastructure
- Madrid 5G projects
- Digital transformation centre
- *Madrid, Capital Digital communication strategy*

10. Digital skills and talent in Madrid

- Digital volunteering
- Investment and talent training centre
- Madrid STEAM

STRATEGIC AXIS 6
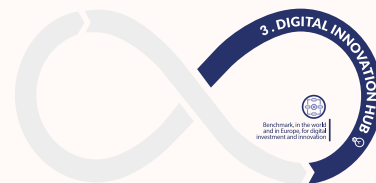
Benchmark, in the world and in Europe, for digital investment and innovation.

11. Investment ecosystem and digital innovation

- Madrid audiovisual and video games
- ★ Madrid, technological seed capital

12. A City Council with innovative digital DNA

- Innovation of municipal and City services
- Sandbox Madrid
- Madrid, Digital Laboratory
- Tax Datalab
- Madrid GovTech
- BlockchainLab Madrid

★ *Transversal and corporate projects with an impact on all municipal and City organisation*

5. The plan to comply with the Strategy and keep it alive

Governance that is open to change, transparent and participative

The *Madrid, Digital Capital* Strategy is much more than a strategy. It is not enough to set a theoretical basis for action, but rather the principle of continuous improvement is required. To achieve this, it relies on dynamic and malleable pillars of progress that adapt to the circumstances of society.

Because of how dynamic it is and its continuous transformation, it is considered an open Strategy.

To respond to this concept, the Strategy will be subjected to participative processes with the main agents in the City, acting as a dynamic Strategy that updates and includes periodic contributions and suggestions in order to achieve adaptation to:

The needs of the recipients,

the priorities of the municipal government areas and

the technological trends and good practices that are identified.

Furthermore, and following this line of action, the Strategy anticipates, throughout the time it is valid, an annual review of the same. The purpose of this is to assess its evolution and coherence with the context and needs of the recipients, i.e., citizens and companies, the territory and the Madrid City Council.

To be able to achieve and materialise an open Strategy, Madrid City Council aims to implement a series of formal mechanisms for participation and continuous improvement.

These instruments consists of the creation of a common space for experts in the sector as well as control and monitoring bodies, and the generation of management tools that facilitate the interpretation of data and gather them together; as well as other necessary actions.

DIGITAL ADVISORY COUNCIL

Creation of a Hub of Experts in the digital field, in both the public and private sector, to serve as a forum for discussion and debate on possible areas to reinforce and update the Strategy.

GOVERNANCE TEAMS

Strategy leaders

Directive Team, promoted by the Digital Office, with the participation of the managers of the digital officers from all areas of government.

Strategy management and development

Technical Team at the Digital Office, the various digital officers and technical managers for the municipal and City services.

SCORECARD

Develop a scorecard with the main indicators and goals of the Strategy, allowing monitoring of the same and, at the same time, measuring and reporting the evolution and results.

ANNUAL REPORT

Each year that the Strategy runs, the intention is to prepare a report with the progress of the Strategy and which will identify areas for improvement or update.

In this way, the Governance model that allows digital transformation of the City to take place focuses on:

1) An open and dynamic Strategy.

2) Some review and update mechanisms.

3) Some control and reporting mechanisms.

A first look at the Programs and Projects

In order to present the details of the *Madrid, Digital Capital* Strategy, below is the benchmark structure:

1 | STRATEGIC OBJECTIVES

There are three strategic objectives represented through a **colourful infinity** that will show which of them the detail is about.

2 | STRATEGIC AXES

Each objective consists of two strategic axes, six in total, that are **reflected within each objective**.

3 | PROGRAMS

Each strategic axis includes two programs to include projects from one functional scope that share and reuse components and modules:

OBJ. 1	Axis 1	P1. Personalised services to attend to people
		P2. Digitalisation and automation of internal management
	Axis 2	P3. Digital transformation of municipal and City services
		P4. Digitalisation of key sectors

OBJ. 2	Axis 1	P5. Sustainable and digital intelligence for management
		P6. More secure and reliable Madrid
	Axis 2	P7. Data as energy for the City
		P8. Planning and management based on evidence

OBJ. 3	Axis 1	P9. Infrastructures and technological assets
		P10. Digital skills and talent in Madrid
	Axis 2	P11. Investment ecosystem and digital innovation
		P12. A City Council with innovative digital DNA

Finally, each program will include various **projects**, with this last point being the final detail.

Strategic objective 1: *Digital services for people*

In order to boost this strategic objective, the City of Madrid has various enabling and driving projects for transformation, structured in the following strategic axes:

Strategic axis 1:

The best digital administration with public employees as the protagonists

Program 1. *PERSONALISED SERVICES TO ATTEND TO PEOPLE*

Madrid is on your phone

Direct, easy, comfortable and quick access to all of the municipal and City services by mobile; facilitating the *co-creation* and *co-design* of the digital services, from and by the experience of the users and facilitating the co-production of the information and management through the figure of the citizen as a prosumer of those services.

Madrid in your pocket

The City Council in your pocket. The virtual space where people have access to information, their documents and services geo-referenced from their various personal, professional or corporate scopes.

Citizen Care and 360º integrated and integral link

To set up a metaplataform with integral citizen attention that favours transformation of the attention service through omni-channel attention that is agile and has a global perspective. An *all-in-one* that includes the principal digital services focused on people with the corresponding segmentations, in order to personalise the attention and respond to the different needs of the citizens.

Digital census

Digitalisation of the management and processing of services provided by the municipal census, including automation of processes and driving administrative simplification and reduction of administrative loads. The project permits registrations and modifications to the census through electronic means.

Agile management of subsidies and aid

Advanced management of subsidies and aid promoted by Madrid City Council through artificial intelligence techniques and *machine learning*, with the objective of evolving towards a model based on proactivity and personalisation, with a focus on reducing administrative loads and making processes more agile. This is considered part of the integrated platform for intelligent process management.

Madrid Advanced Digital Identity

To establish digital identity solutions with mass acceptance by the citizens of Madrid, to provide simple, quick and comfortable access to digital municipal processes and procedures, including the principles of *usercentricity* through the *co-design* through ecosystems and processes of social and digital innovation of services oriented towards missions.

Digital skills for everybody

Boost the digital skills of the population, public employees and companies in order to face a context impacted by the digital transformation. Strengthening of digital skills in technological tools, with the aim of taking on challenges and opportunities. Training actions will be increased in areas related to technology in order to reduce the digital gap, promoting inclusion and digital cohesion.

Program 2. *DIGITALISATION AND AUTOMATION OF INTERNAL MANAGEMENT*

Integral platform for employment services

This is a technological solution for orientation relative to employment, designed to facilitate employability, including techniques of *big data*, artificial intelligence and virtual reality that contemplate self-diagnosis among job seekers in order to accelerate their professional insertion. This integral platform includes services for the omni-channel attention.

★ Intelligent management of processes and services

To provide the City Council with an integral and integrated platform for intelligent process management, contemplating a new technological governance model through a *software* as a service *SaaS*. This solution considers the design of services and procedures in a digital key and includes automation capabilities in order to streamline processes and reduce administrative obstacles and burdens, both for society and for the City Council. It is designed as a management nucleus and will form an integral part of the City management, with its network open for connectivity of things.

★ Corporate management of municipal information

To design and build an architecture for management of municipal information, in order to progress the quality through unique data and internal and external reuse -interoperability- to advance its quality through single data and its reusability -interoperability- for all municipal procedures and services, in order to progress with the digitalisation of the services oriented towards processes and with an integral and integrated view of economic processes, contracting, budgets, taxes, finances, municipal personnel management and intelligent management of processes and services.

Digitalisation of files

Digitalisation of paper files, turning originally physical documents into electronic documents for easier access, consultation and, where applicable, automated treatment and thus to simplify the administrative procedures and improve *Madrid in your pocket*, applying the corresponding protocols for secure digitalisation and facilitating the creation of reliable and secure electronic copies.

Municipal factory to boost robotisation

To provide automation and robotisation capabilities for tasks, procedures and activities that require intensive use of people and that, however, provide little value for the activity and objectives of the public services. This factory of task robotisation will service the municipal areas of government and districts in order to reduce the time and resources dedicated to manual tasks with little value or that are very repetitive, thus freeing up municipal resources that can carry out activities that provide more value to society and the City. The factory will be an integral part, as its own entity, of the centre for innovation and excellence of digital services.

It will include ecosystems that are open to innovation and excellence for the advanced management of the municipal and City services that have participation of the City Council, the academic world, the research centres, the companies and the people who use the various municipal services.

Advanced work station

Digitalisation of the work station of municipal personnel, accompanied by an integral plan for digital training for municipal employees that contemplates knowledge of cybersecurity, data protection, platforms, analysis and skills for team management in remote environments, with the purpose of progressing in the digital transformation of the Administration.

Strategic objective 1: *Digital services for people*

Strategic axis 2:

Technology focused on making life easier for people.

Program 3. *DIGITAL TRANSFORMATION OF MUNICIPAL AND CITY SERVICES*

Digital management of the Collegiate Bodies

This will be an integral part of the intelligent process management and will contemplate data-based management to facilitate the operation of the collegiate bodies, including a cutting-edge audiovisual system for digital assistance for the collegiate bodies and for the provision of video-services identified with a simple video-call. The incorporation of video-reports is included in the management of the collegiate bodies.

Digital transformation for taxes

Inclusion of the latest technologies for optimisation of tax procedures with the objective of expanding the capabilities and potential for generating income and progressing in tax modernisation. For this reason, a tax lab has been created that is focused on the advanced use and processing of data, making the most of technology opportunities such as the internet of things, artificial intelligence and virtual reality.

Digitalisation of municipal projects and works

Centralisation of project information in a single model using a collaborative and real-time work methodology including a corporate solution for constructive project management (BIM *Building Information Modeling*), allowing study of the life cycle. This contemplates its integration, on a nucleus level, with the intelligent process management platform.

Cibeles++: Virtual town planning reporter

Improved access to town planning information through the use of natural language processing. Through the application of artificial intelligence, consultations are processed, written town planning regulations are read, queries from citizens and professionals are interpreted and responded to in a simple, quick and comfortable way.

Smart Sports Center

Digitalisation of sports facilities and the practice of sports through the implementation of advanced technologies at the sports centres with the aim of improving environmental conditions, comfort and the experience of users. The objective is to provide the sports facilities with intelligent devices that facilitate data-based management, energy efficiency and transition, better adjustment of variables in the environment, as well as offer and demand of sports services.

City Museums in MetaMadrid

Development of a website as a single access point to the network of municipal museums, driving consultation and use of multimedia resources and improving interactivity with the users. It will include audioguide systems that will allow visits to municipal museums in an interactive way and reinforce the City's digital resources in order to promote culture, leisure and free time.

Digital consumer's advice

Integral digitalisation of the consumer information offices, driving the application of technology in order to modernise its services. It will be an integral element, responding to the essential characteristics of consumer care, intelligent management of processes and services, attention and 360° integrated and integral communication, with *Madrid in your pocket* and *Madrid on your phone*.

Advanced Remote Assistance Platform

Improved quality of life for the elderly or people with special needs through advanced remote assistance services, providing immediate access to consultations through digital channels and including technologies for sensorisation and monitoring. It guarantees a predictive, preventive and integral service that facilitates more personalised and individualised care and is accompanied by an extraordinary plan for training, accompaniment in the use of devices and workshops and group dynamics for active listening, the *co-design* of services and gamification to facilitate access and use.

Integral digital transformation of social services

To provide the social services with an integrated management platform for digitalisation that provides a global vision and attention for the social action in order to progress towards greater efficiency and efficacy of the social policies and to increase well-being, inclusion and social cohesion. It applies advanced artificial intelligence technology and *big data analytics* and is part of the integral platform for intelligent process management.

AI for Madrid

To drive, through various instruments and initiatives, the ethical, humane and responsible application of artificial intelligence in all of its forms in order to resolve challenges in the City, improve the day to day of the citizens of Madrid and to facilitate municipal management and decision making. It will be an integral part, as its own entity, of the centre for innovation and excellence of digital services.

Opinions

- Elena, 37 years old, self-employed: For me, it's important that the City Council makes my life easier.

- Juan Carlos, 58 years old, retailer: For my business, it's important that customers can easily find me on their phones.

- Marietta, 41 years old, tourist and fan of Madrid: I love Madrid, but I don't know where to start when I come here.

Program 4. *DIGITALISATION OF KEY SECTORS*

Digitalisation of retail and catering

To facilitate the transformation of municipal markets, trade and catering in Madrid through digital tools, encouraging training in digital skills in order to facilitate the implementation of Strategies for e-commerce and *online* marketing and boosting online commerce to make it more competitive. It will apply technological services and infrastructures to the intelligent urban spaces as they are set up.

SmartMercaMadrid

MercaMadrid is a small city within Madrid. A place where commercial activity, logistics and distribution, security, energy, water, waste treatment and management and the environment are fields where the inclusion of digitalisation will contribute towards making the day to day easier for the companies and professionals that visit it and work in it, and promote more efficient, effective and sustainable management of its facilities, spaces and resources. For this, there is an initiative called Energy 5G Madrid aimed at including *hyperconnectivity* and *hyperautomation* in its daily operations.

SMEs in the Twin Transition

Evolution of the micro-SMEs and SMEs in Madrid towards a green and digital model, promoting sustainability through the implementation of digital technologies in order to build a climate-neutral Madrid and make the most of the opportunities of the green pact and the European digital agenda. There will be a strategic and operative framework to transfer the European strategic objectives for the digitalisation of professionals, including specific measures to adapt to the green and digital transition. It is an integral part of the program to drive Govtech.

Digital platform for management of municipal personnel

Update of the platform aimed at facilitating both the management and the access to the municipal personnel information and to streamline and automate the management processes, merging the internal procedures onto a single website and progressing with the digital culture of the municipal organisation and with the digital training program for municipal personnel.

Digital tourist experience

This is to include digital solutions for communication and interaction with tourists, driving the use of *big data*, augmented reality, the gamification of routes and artificial intelligence, with the purpose of revitalising the business network in the sector and the experience of the people who visit and enjoy Madrid, and to progress towards MetaMadrid as a tourist resource.

Strategic objective 2: *City Intelligence*

In order to boost this strategic objective, the City of Madrid has various enabling and driving projects for transformation, structured in the two strategic axes:

Strategic axis 3:

Safe, resilient and capable city

Program 5. *SUSTAINABLE AND DIGITAL INTELLIGENCE FOR MANAGEMENT*

Intelligent management of Calle 30

Consolidation of the digitalisation of the M-30 as an infrastructure with benchmark technology in terms of security and resilience, mobility, energy, sustainability, efficiency and innovation, through the incorporation of new broadband services in the tunnels, 5G, development of solutions for networks of the internet of things, *edge computing*, artificial intelligence, *blockchain* and extended reality, services for information and interaction with users, aimed towards improving their experience during the use of the infrastructure and guaranteeing the availability of the network throughout the infrastructure. It will be related to the corporate and transversal projects for *hyperconnectivity* and *hyperautomation*.

Intelligent transport systems

Reinforce and update the various intelligent urban transport systems that improve the connectivity and efficiency of EMT, including cutting edge technologies that position Madrid among the benchmark capital cities in the international context, automating the connection and communication between devices in order to achieve optimum exchange of digital information and facilitate the digital transformation of mobility in the City.

Intelligent management of traffic and mobility

Application of emerging technologies to improve urban mobility and road safety. Constant real-time monitoring of the streets of Madrid, obtaining data in order to offer personalised solutions for drivers through Madrid Mobility 360 and including the connectivity capabilities from the 5G and IoT agenda and latest generation technologies such as *edge computing*, artificial intelligence, *blockchain* and extended reality.

Madrid Mobility 360

Reinforcement of the City as a benchmark in the application of technology for safe, sustainable and connected mobility, with a vanguard and quality public transport service. Strengthening technology in order to progress towards more intelligent mobility through a technological platform that drives the multimodal nature of mobility, giving a central role to public transport and consolidating its application both for citizens and for internal management at EMT.

Digital management of vehicle access and parking

Boost and development of the digital management of the Special Protection Zone with Low Emissions (ZBEDEP) and the Regulated Parking Service (SER), including the digitalisation of types of control, incorporating the connectivity capabilities from the 5G and IoT agenda and the latest generation technologies such as *edge computing*, artificial intelligence, *blockchain* and extended reality, and being an integral part of the intelligent process management, of the City Council as a platform and of the City platform.

Intelligent control of electric mobility and emissions

Digitalisation of the monitoring and management of greenhouse gases, as well as the evolution of electric mobility parameters (charging, users, kilometres travelled, etc.), through the roll out of intelligent sensors and artificial intelligence technologies and advanced analytics, reusing the neutral, open and interoperable network of the internet of things as a backbone for the connectivity of City devices.

Digital infrastructures for mobility

Intensive application of the analysis and use of mobility data through infrastructures that permit monitoring of City data, and also facilitate the design and development of a scorecard for mobility in the City of Madrid. The data obtained will power and calibrate the *Mobility Simulation Model for Madrid.*

Digitalisation of the management of public car parks

Renovation of the management of municipal car parks with the objective of reducing the environmental impact, contributing towards optimising the quality of life for the citizens of Madrid. It will be an integral part of the intelligent process management, reusing the capabilities for *hyperconnectivity* of the municipal services. The publication of relevant data for citizens will be encouraged, such as waiting lists, job assessments or the inventory of car parks with available spaces in real time.

Digital waste management

Refinement of the integral management of urban waste in order to optimise the recycling processes, improve the environment and guarantee the well-being of all citizens of Madrid. Achievable through solutions based on emerging technologies (IoT, IA, 5G, etc.) and progressively including robotisation and automated management, as well as autonomous vehicles.

Digital cleaning and collection management

Incorporation of digital solutions that allow modernisation of the integral management for urban cleaning and collection with the goal of making the current cleaning and waste collection processes more efficient, improving the quality of the environment and increasing well-being for all citizens. This will include solutions based on emerging technologies (IoT, IA, 5G, etc.) as well as robotisation and automated management, or the use of autonomous vehicles and equipment.

★ Intelligent lighting and provision of SMART services

Turn the street lighting into a backbone infrastructure for the City on which to roll out the network for the internet of things, its nodes, sensors, switches and concentrators in order to include other City services on the same and facilitate the digital transformation. The point by point management will be included in order to improve the energy efficiency and achieve better adaption of the light intensity to the needs of people or the special characteristics of the urban space or the variables in the environment. This is considered a key project in order to facilitate the connectivity of the other assets in the environment and monitoring of the same. The aim is to support the development of the *Sandbox Calle Siglo XXI,* as well as the development of intelligent urban spaces.

Digitalisation of air quality management

Complete digitalisation of the Integral System for Surveillance, Prediction and Information on Air Quality through its integration in corporate platforms for the management of electronic assets distributed throughout the City and the normalised use of artificial intelligence and advanced analytics techniques for the simulation of measures, monitoring and improvement of air quality. Reuse of the integration with the neutral, open and interoperable network of the internet of things and with the City platform.

Digitalisation of green areas

Optimisation of the management of municipal forests and gardens and reinforcement of the maintenance and cleaning services for these through IoT and City management platforms, allowing for improvement of the service (*SmartPark & SmartTree*). Configuration in parks with spaces for citizen experimentation with digitalised City services: lighting, facilities, equipment, furniture, etc.

Digitalisation of environmental control, evaluation and discipline

Integration of services for environmental discipline and environmental control and evaluation in intelligent process management, responding to integrated and integral management that contemplates the processing of files, the management of fees at the Municipal Acoustics Centre, authorisations, complaints and queries, inspection reports and electronic publication.

Sensorisation of space and urban facilities

Management of municipal urban spaces and facilities through *sensorisation* to learn their status, situation, consumption and automation, and to facilitate maintenance and cleaning through tools and technological systems that permit optimisation of the service. This project responds to the need to scale to the next level the functional scope of the network for the internet of things, public lighting, intelligent buildings and other projects where the connection of devices favours the optimisation of the service management.

Intelligent municipal buildings

Advanced management of municipal buildings through the installation of sensors and switches, as well as the application of technology in order to improve energy efficiency and the integral management and maintenance of the facilities at the buildings, their security and access control. A new governance model for the municipal buildings resulting from the use of opportunities from the application of technology. It contemplates the creation of a virtual replica of the municipal buildings in order to carry out simulations between scenarios and predictions of the impact of use adaptation projects and equipment installation projects, facilitating the identification of the best alternatives. This initiative will be supported by the Digital Twin for the representation of the buildings, the City platform, the IoT network, etc.

Digital city platform: *Madrid Inteligente*

To make progress on the City Council model as a platform, expanding its functional scope to include interconnected sensors and switches through standard, neutral, open and interoperable protocols and thus facilitate the roll out of the Internet of Things (IoT), helping the City's assets to be connected, monitored and included in the intelligent management.

The connectivity of the assets allows for the creation of a live inventory, very reliable information on the operation of the City, geo-references and integration with the municipal management processes. For this peripheral nervous system implemented on public streets, the capabilities of *edge* and *fog computing* will be used, as well as the techniques of *blockchain* and artificial intelligence and new 5G networks that provide advanced functionalities.

All of this culminates in the integration with the City platform, with the City Brain, with the City Twin and with the uniqueness, integrity, consistency and quality of the data.

✦ Digital urban spaces

Integral digital transformation of the urban space through a design and configuration that is holistic, social, environmental and economic through the implementation of initiatives that facilitate the roll out of innovative digital solutions and *smart city* business models that can be replicated in other environments and national and international cities through public, private and social collaboration and innovation oriented towards missions.

Opinions

- Steve 28 years old, entrepreneur in the world of data: Madrid must allow me to grow and to meet the best.

- Luisa, 48, municipal employee: It's important that the digitalisation of the City Council includes the improvement of our digital skills.

- Sandra, 34 years old, school teacher: Digitalisation is great, but we don't think that everyone is equally prepared for it.

Program 6. *MORE SECURE AND RELIABLE MADRID*

Digital police

To apply technology to police activity, improving the connectivity of mobile devices and terminals to include geo-referencing and automated data transmission. Simple access and consultation of information and the catalogue of services on the Data Intermediation Platform (DIP) to facilitate the efficacy of the police actions and interventions and include the progressive automation of its processes. This is configured and contemplated as an integral part of the intelligent process management.

★ Drone base for management of emergencies, security, municipal and City services.

Inclusion in the Integrated Security and Emergency Centre and part of the future City Brain of an intelligent system for public services management to facilitate remote operations with unmanned aerial vehicles (UAV). Techniques of artificial intelligence and *big data* will be applied to the data obtained for the development and roll out of solutions.

Progress in facilitating the progressive incorporation of unmanned aerial vehicles for the management of municipal and City services, improving the collaboration with European and national agencies and participating in initiatives that encourage their use.

Hyper-connected emergency services

Development of a connections network between the main City infrastructures. Technological update of the Emergency Management Systems for Firefighters and Samur-PC, improving their functionalities and connectivity with other systems, such as refinement of the radio or digitalisation of reports and documentation, actions related to the 5G agenda and the City Brain.

Madrid City Council Coordination Centre (CICAM)

Construction of an energetically autonomous and sustainable facility, technologically equipped and connected, to host the CICAM and City Emergency Services as well as the services currently hosted by the CISEM. Spaces will be added that allow coordinated operation. The scope of the project will include the City Brain as a centre for integration and corporate monitoring that consolidates the information from the entire control and operations centre for the municipal and City services.

Cybersecurity Centre

Definition of a corporate and City centre to specify cybersecurity policies in the framework of detecting risks, issuing alerts and actions of immediate response. The resilience of the municipal and City services will be refined.

Strategic objective 2: *City Intelligence*

Strategic axis 4:

Managed based on evidence and data

Program 7. *DATA AS ENERGY FOR THE CITY*

Madrid Open Data

Reinforce and expand the publications by the municipal Open Data Website to provide the citizens and other interested parties with content that can be consulted, analysed and downloaded, and generate applications and services through the data and viewing through scorecards. Promote the culture of reuse, improving the Govtech program and the ecosystems and social and digital innovation processes of the services and the City oriented towards missions.

Madrid Data Lake

Creation of an environment for open and shared data that includes multiple repositories and allows the automation of searches and analyses of the information stored through advanced *big data* techniques with the objective of encouraging an evidence and data-based management culture. It is an integral part of the project of the City Council as a Platform and the City as a Platform, sharing the management design and infrastructure of municipal and City information.

Data governance

Creation of a new paradigm in the management and governance of data, through the implementation of the *Data Office*. It seeks the development of a transversal and integral data economy in the City, with standards that drive accessibility, interoperability and reuse of data. Promotion of datalabs to encourage innovation oriented towards missions.

Space for data excellence and ethics

Production of a space that promotes digital rights and defines policies for protection and ethical use, with the purpose of guaranteeing responsible processing of data. It establishes a model to apply artificial intelligence, algorithms and robotisation in municipal and City services, including guarantees for the protection of people's rights.

Program 8. *PLANNING AND MANAGEMENT BASED ON EVIDENCE*

★ MetaMadrid, Digital Twin of the City

Production of a 3D map, applying virtual reality and extended reality techniques, of the City for town planning and for mobility and municipal and City facilities and equipment, allowing it to be used by various sectors of society in Madrid. It will have intelligent functionalities and include emerging technologies such as IoT or augmented reality in order to expand its capabilities.

Madrid Geoportal

Evolution and integration with the municipal website, facilitating the free distribution and download of the municipal map in all formats, adjusting the town view and including tunnels and digital models of the terrain. Aimed at a corporate geographic infrastructure that stores geopositioned data and facilitates analytics through algorithms. It will be an integral part of the City Council as a platform, the City as a platform and the intelligent process management.

★ Madrid's Digital Brain

Design, construction and implementation of a City Brain that allows cohesive work on a centralised and common environment, providing a holistic view of Madrid and facilitating *real-time* predictive analysis (through automatic learning) of the data and providing information for making strategic and operative decisions through advanced tools for visualisation and monitoring.

Advanced analytics in Madrid

Development of initiatives that are transversal to the entire City Council in order to boost the quality of the data, improving the analytical capacity of these in real time, as well as making decisions based on knowledge, through the use of techniques with artificial intelligence and *machine learning* in the activities of data management and processing.

Strategic objective 3: *Digital Innovation Hub*

In order to boost this strategic objective, the City of Madrid has various enabling and driving projects for transformation, structured in the two strategic axes:

Strategic axis 5:

Hyper-connected city

Program 9. *INFRASTRUCTURES AND TECHNOLOGICAL ASSETS*

Madrid Multicloud infrastructure

Processing and storage of municipal data to guarantee the availability and security of the digital services. Optimisation of the storage of all municipal information and improvement of analysis and use of data thanks to secure, resilient, scalable and open environments. There must be virtual environments that are suitable for each application and service.

5G projects Madrid

To facilitate and promote the roll out of networks, infrastructures and 5G services. To establish an open and interoperable network, reinforced with 5G, to facilitate the IoT, achieving that the City's assets are connected and monitored and that intelligent management is included. A management platform will also be created for the information generated on the network as well as a laboratory in order to be able to carry out tests and verify the compliance of the projects and their devices, including the promotion of innovation oriented towards the missions.

Digital transformation centre

Implementation of an expert centre to drive the Strategy for municipal and City digital transformation, to guide and coordinate the planning of initiatives, support the design and boost of the actions, provide guidance in the scope of funding and promote the implementation of technological trends in order to achieve digital leadership. This expert centre will guarantee compliance with the milestones and will seek synergy with teams including the periodic update of the Strategy through active listening processes.

Madrid, Digital Capital communication strategy

Definition and implementation of a Communication strategy focused on the design of communication plans, development of distribution activities and coordination of the distribution to different agents, management of the relationship with the media, channels and participants, the monitoring of actions and the preparation of reports to showcase and distribute the results obtained.

Program 10. *DIGITAL SKILLS AND TALENT IN MADRID*

Digital volunteering

Digital cohesion and inclusion that makes it easier to connect with people and establish a direct dialogue, designing mechanisms for immediate access to assisted digital channels. This will be done by the community itself, reinforcing citizen empowerment and showcasing the figure of the collaborator or digital volunteer. These functionalities will be included in the *Madrid Te Acompaña* app.

Investment and talent training centre

Technological and digital development and progress to attract and retain talent and investments, reinforcing Madrid's position as one of the benchmark regions in digital innovation and technology in Europe.

Madrid STEAM

Establishment of a hub of STEAM vocations, supported by other benchmark municipal initiatives (*Microhubs 4.0 live, e-sports, sandbox* Madrid, video games, etc.). The collaboration with education and innovation centres will be promoted, as well as with the technological agents of the City and its surroundings, in order to expand and distribute the STEAM offering in the scope of education in order to achieve excellence.

Opinions

- Emilia, 34 years old, daughter of a dependent person: I hope that the digitalisation of Madrid will help with the daily care of my father.

- Estefanía, 28 years old: For me, the digitalisation of Madrid has to help there to be more quality of life in my neighbourhood.

Strategic objective 3: *Digital Innovation Hub*

Strategic axis 6:

Benchmark, in the world and in Europe, for digital investment and innovation.
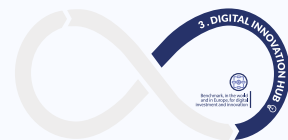
Program 11. *INVESTMENT ECOSYSTEM AND DIGITAL INNOVATION*

Madrid Audiovisual and Video Games

Development of initiatives that integrate with the chain of value in the audiovisual and video game sector, consolidating Madrid as a *benchmark* hub. A campus will be developed for the video game industry, to promote the creation and attraction of talent and boost the business competitiveness of the sector, creating the *e-sports* centre for the celebration of relevant activities in this field.

★ Madrid, technological seed capital

Conceptualisation and development of acceleration programs for high potential *startups*, boosting the public-private collaboration in the field of capital risk. The creation of investment funds will be encouraged through the promotion of the public-private collaboration and investors in order to promote entrepreneurs, SMEs, *startups* and *scaleups* with a technological basis and headquarters in Madrid.

Program 12. *A CITY COUNCIL WITH INNOVATIVE DIGITAL DNA*

Innovation of municipal and City services

The creation of a platform for collaboration with companies, entrepreneurs, universities, investors, etc., in order to generate digital innovation programs to promote the transformation of the municipal services, based on a new model for organisation and configuration of the services, designed to facilitate the opportunities provided by applying the technologies. It will be designed as a centre for digital innovation and excellence in the City of Madrid to share user experiences and learning, exchange good practices and generate 360° *co-creation* processes with the boost of innovation oriented towards missions.

Sandbox Madrid

Promotion of the development of controlled test spaces to test innovative pilot projects in a real urban environment. There will be a draw for companies and *startups* with high technology and innovation so they can test their projects and for them to be useful for improving public services.

Madrid, Digital Laboratory

Implementation of projects with the objective of developing innovative and replicable solutions, applying emerging digital technologies to various aspects of the City such as, for example, the development of a B2B entrepreneurial digital platform or the launch of a technology development program, *edge computing*, artificial intelligence, virtual and extended reality, internet of things, *blockchain* and other enabling technologies in digital transformation.

Tax Datalab

Innovation regarding taxes, with the purpose of facilitating the study of various scenarios of tax policies and fraud detection, as well as the application of R&D to taxes and detection of tax fraud. The aim is to reach a more fair and efficient system.

Madrid GovTech

This boosts, in Madrid, the sector of digital technologies applied to searching for solutions to City challenges, improving public services and municipal modernisation. For this, through various initiatives, it will combine the innovative potential of the digital *startups* and SMEs in Madrid, the capabilities of the technological companies in the City and the knowledge and experience of the municipal personnel.

BlockchainLab Madrid

It develops a set of use cases of interest to the citizens, the companies and the City Council of Madrid, where **blockchain** *technology* **is enabling for the transformation and improvement** of certain municipal public services.

MADRID