

MiNT Platform (Madrid Inteligente)

Urban Public Services Management Platform.



Capital
Digital



01.

MiNT
Madrid INTELIGENTE



Objetivo estratégico 2: *Inteligencia de Ciudad*

Para impulsar este objetivo estratégico, la Ciudad de Madrid cuenta con distintos **proyectos habilitadores e impulsores de la transformación**, estructurados en los dos ejes estratégicos:

Eje estratégico 3:



Ciudad segura, resiliente y capacitada



Programa 5. INTELIGENCIA DIGITAL Y SOSTENIBLE EN LA GESTIÓN



Plataforma digital de ciudad: Madrid **Inteligente**

Avanzar sobre el modelo del Ayuntamiento como plataforma, ampliando su alcance funcional para incorporar sensores y actuadores interconectados mediante protocolos estándar, neutros, abiertos e interoperables y así facilitar el despliegue del Internet de las Cosas (IoT), logrando que los activos de la Ciudad estén conectados monitorizados y se incorpore la gestión **inteligente**.

La conectividad de los activos permite disponer de un inventario vivo, información muy fiable del funcionamiento de la Ciudad, georreferenciación e integración con los procesos de gestión municipales. Para este sistema nervioso periférico desplegado en vía pública se aprovecharán las capacidades de *edge* y *fog computing*, las técnicas de *blockchain* e inteligencia artificial, así como las nuevas redes 5G, que aportan unas funcionalidades avanzadas.

Todo culmina en la integración con la plataforma de Ciudad, con el Cerebro de Ciudad, con el Gemelo de Ciudad y con la unicidad, integridad, consistencia y calidad de los datos.

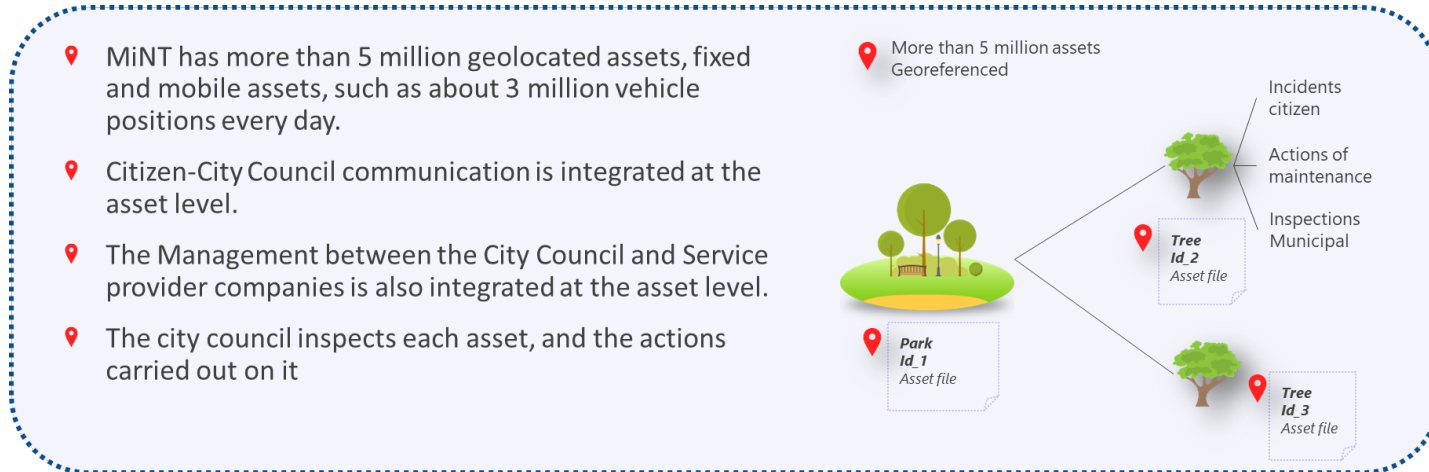
What is MiNT?

MiNT is mainly a **technological platform to support Urban Public Services and allows the control of the provision of these Services, integrating maintenance actions, citizen incidents and municipal inspections.**

MiNT was initially defined to monitor the provision of services under SLA-based Integrated Contracts and calculated the deductions to be applied where appropriate.

Its main **users are the municipal managers and technicians of each Service, municipal inspectors and service concessionary companies, as well as citizens.**

All of this is based on a single municipal asset inventory.



- MiNT has more than 5 million geolocated assets, fixed and mobile assets, such as about 3 million vehicle positions every day.
- Citizen-City Council communication is integrated at the asset level.
- The Management between the City Council and Service provider companies is also integrated at the asset level.
- The city council inspects each asset, and the actions carried out on it



4.752.998 operative assets



53 concessionaries companies




3.515.149 workorders^(*)



83.015.109 data from sensor in July'24



677.958 inspections^(*)

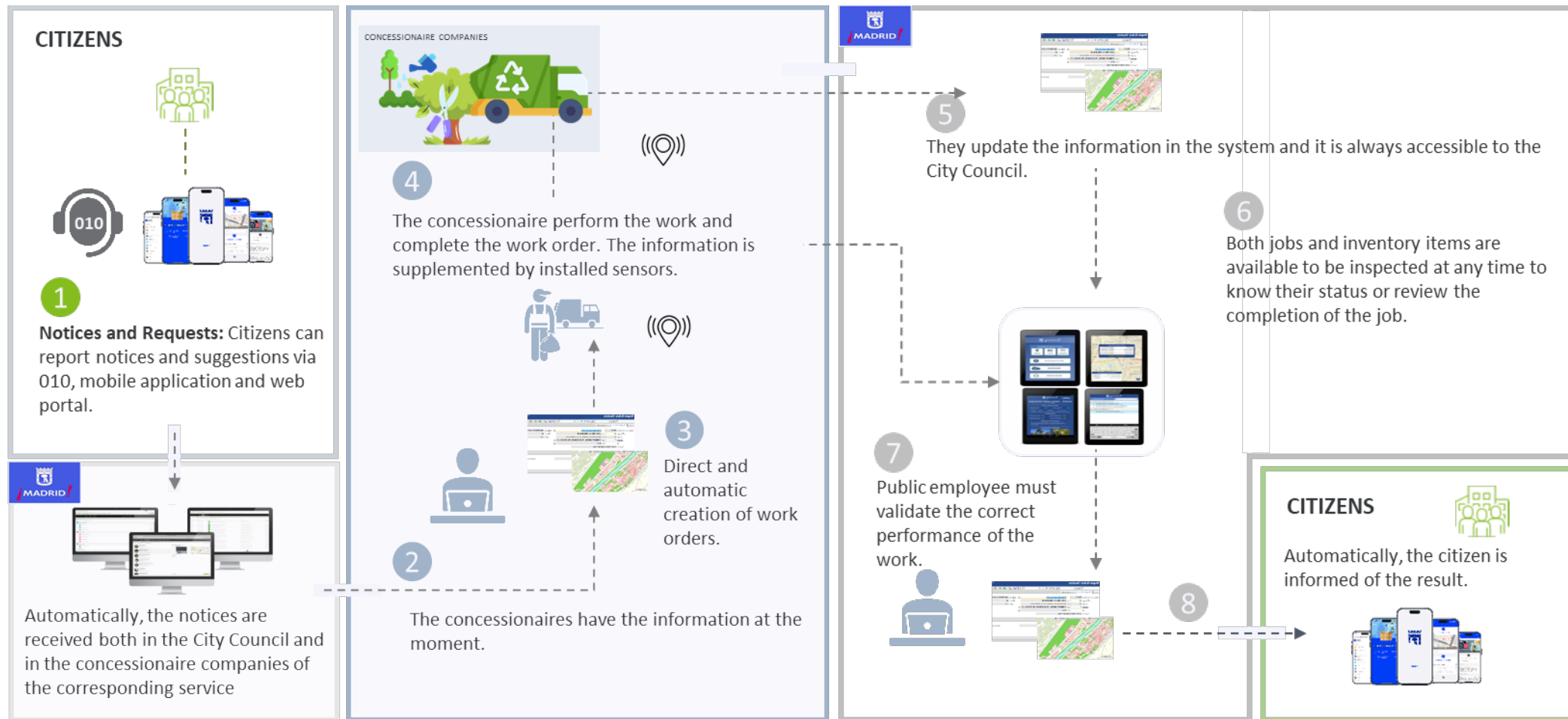


29.941 Road occupancy requests^(*)

(*) From Aug'23 to Jul'24



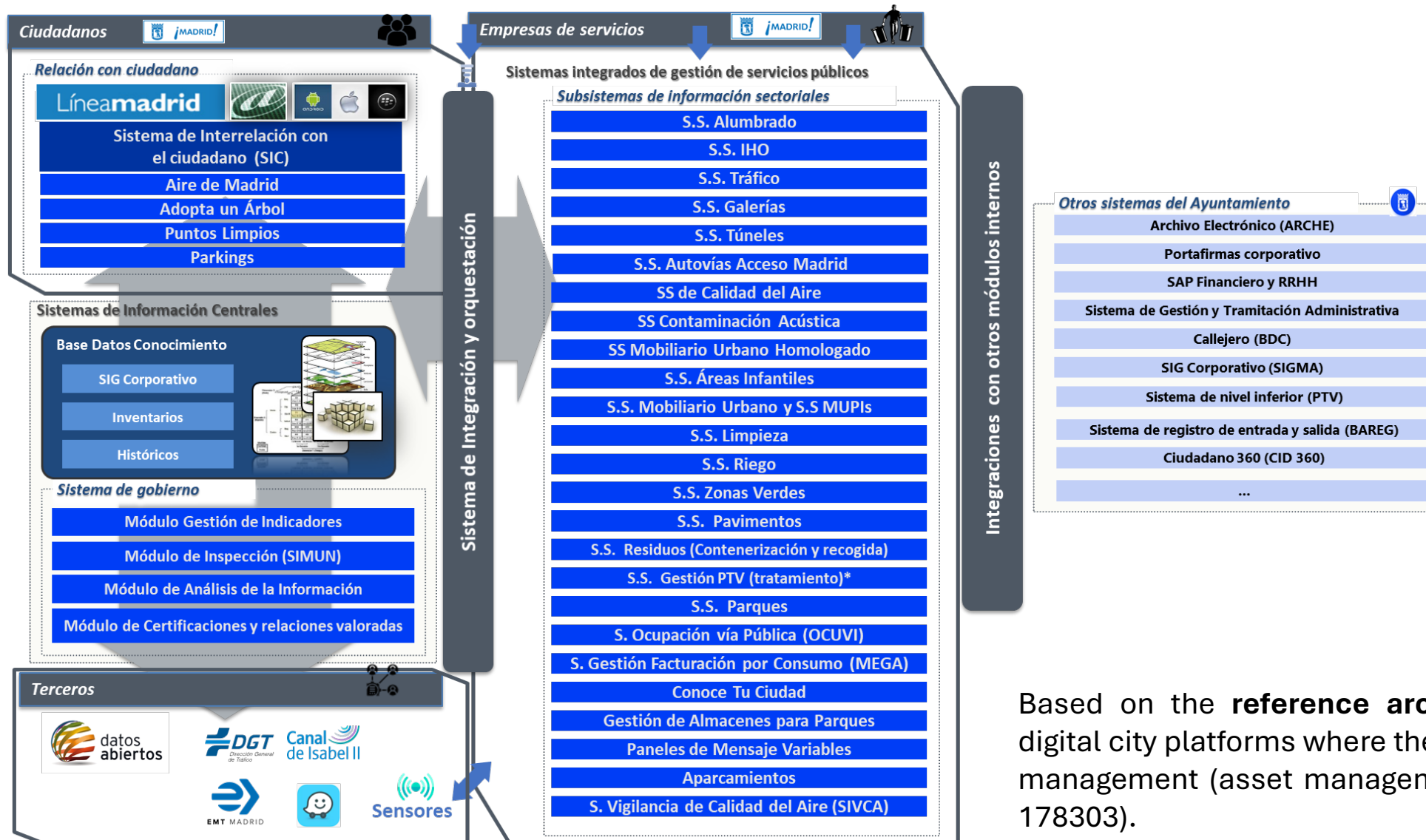
Integrated Flow: Citizen, City Council, Companies



THE INFORMATION IS UPDATED IN REAL-TIME ON THE INVENTORY DATA.



Architecture in continuous evolution



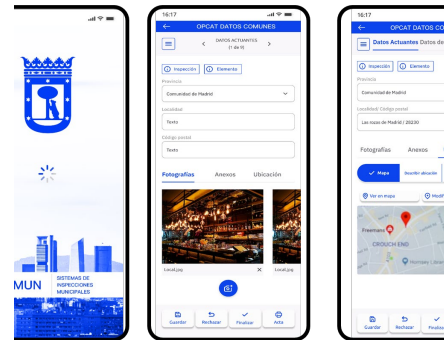
Based on the **reference architecture** for digital city platforms where the core is asset management (asset management standard 178303).

Innovation

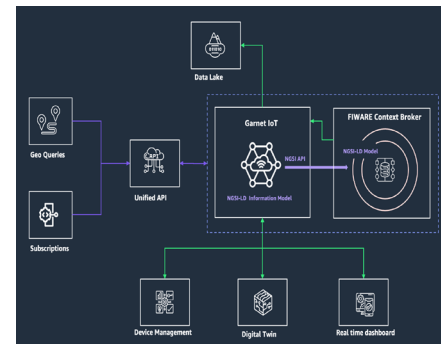
MiNT's proposal is based on an approach designed to provide bottom-up value, ensuring the principle of efficiency and effectiveness in municipal work, in order to generate **digital services for the citizen**. It focuses on **having quality city data**, with a **special focus on the inventory of assets**. Once this data is governed, it allows for efficient management, transforming management processes with data-driven decisions and starting to develop improvements through the use of data, incorporating advanced analytics and artificial intelligence. All of this aims to **make Madrid a more sustainable, liveable and healthy city for its citizens and tourists**.



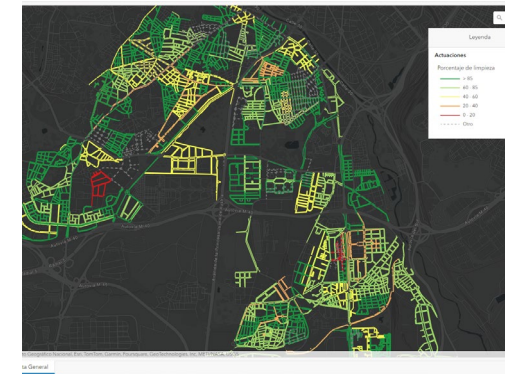
Citizen Transparency



Digitisation



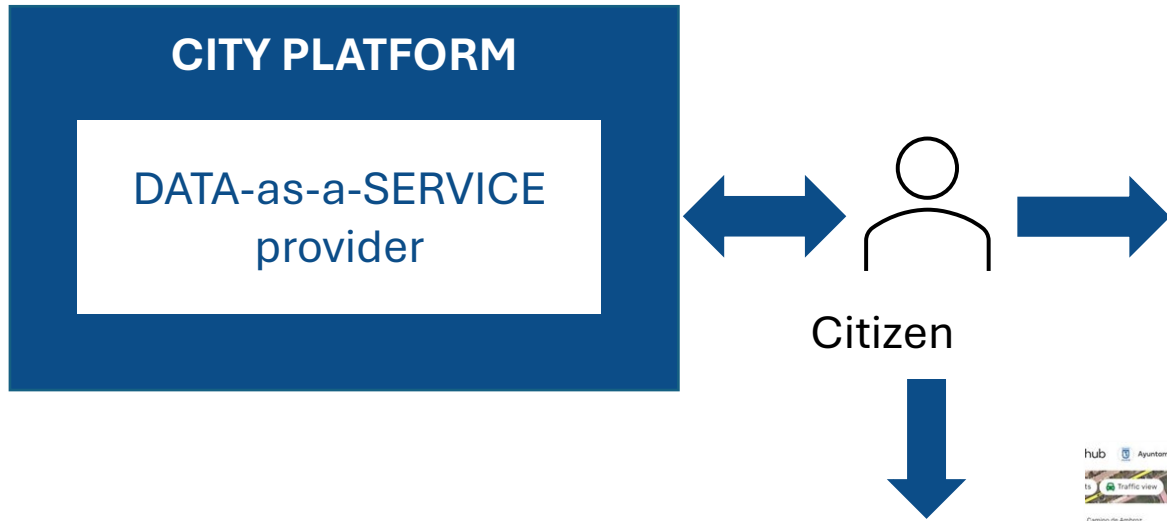
Data-driven management



Analytics and Artificial Intelligence

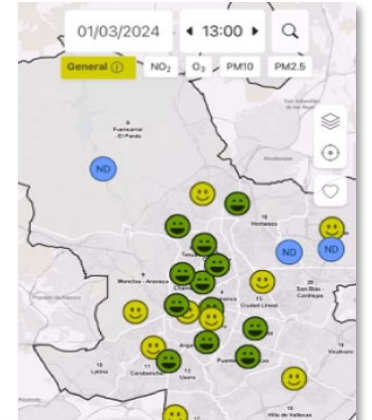
Citizen transparency

Involve the citizens of Madrid so that they can get to know their city better and use the internal information of the city platform to provide a better service.

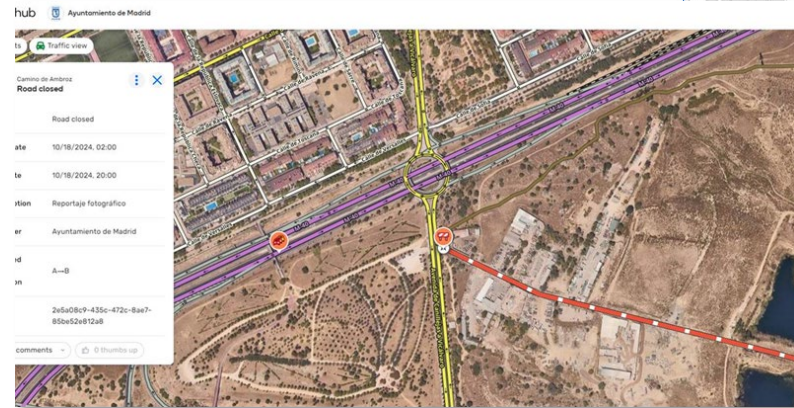


Sectoral mobile applications:

Clean Points (Waste Management), Aire de Madrid, Parking Occupation, Madrid Parks, Adopt a Tree...



Application: e.g. **Madrid 360 information panels**, integration with **Waze** for proactive publication of incidents that affect public roads and obtaining citizen notices.



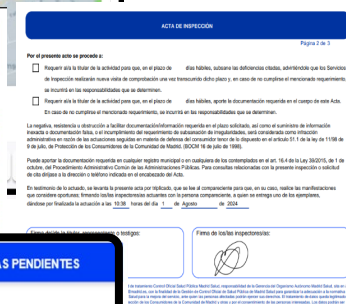
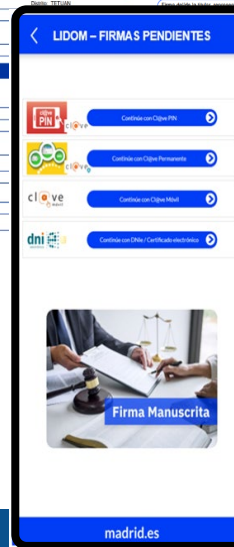
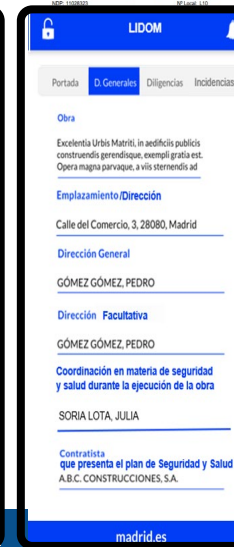
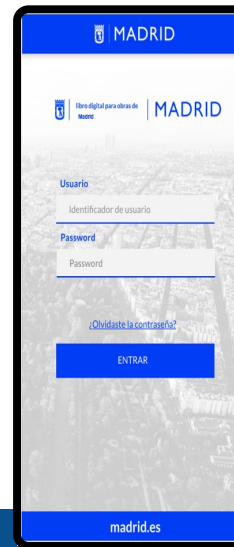
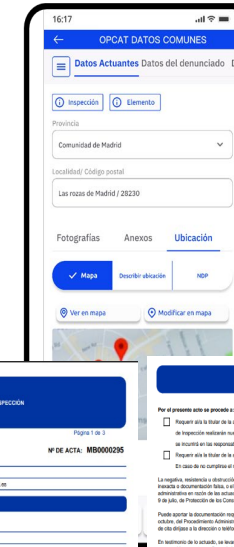
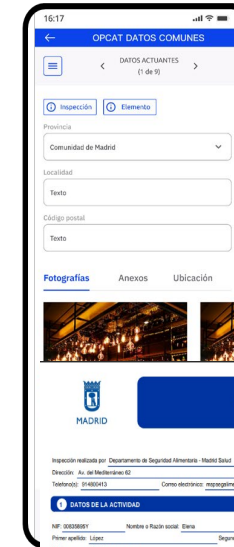


Digitisation



Boosting the **efficiency** of municipal services by **digitalising** their processes and **integrating them** with cross-cutting municipal systems through initiatives such as:

- OPCAT (Noise Pollution) inspections,
- Madrid Health Inspections on smartphone/tablet
- Reports on parking inspections (integration with the registry and DGT).
- Digital Book of Incidents Municipal Works
- New system for the Management of Public Roads Licences (GVP)
- Tala's new Report Generation and Management Module
- Integration of Administrative Inventory with signature holder



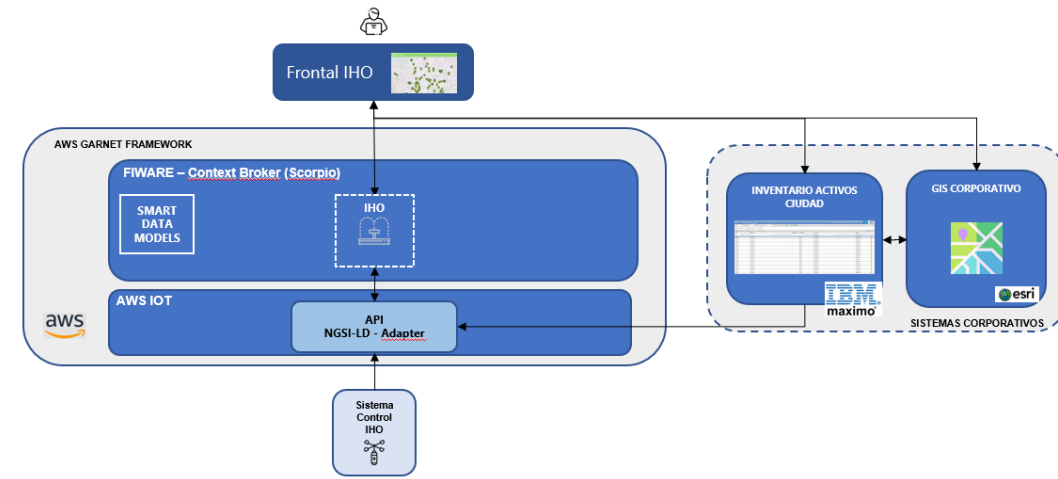
Data-driven management



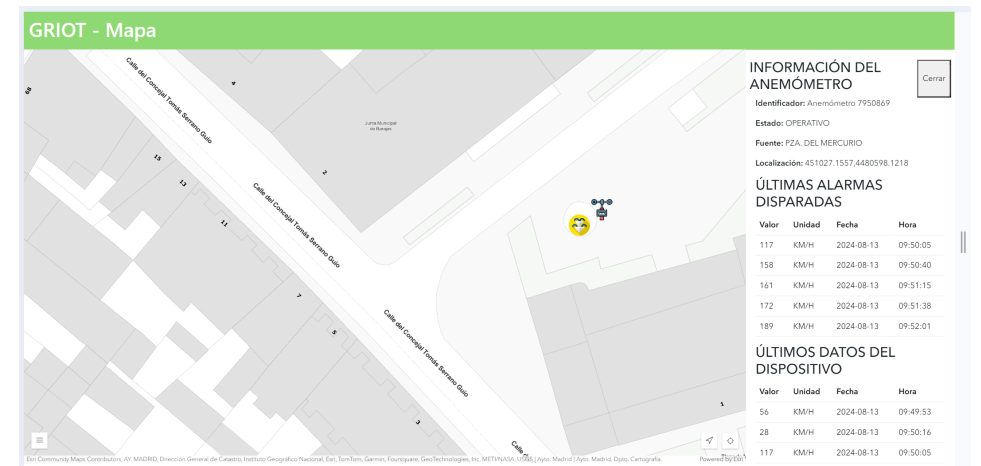
To develop an **agile, lightweight and open source IoT data ingestion, processing and storage** paradigm, which allows the integration of current management systems and the development of new innovative municipal management systems and enables the deepening of data-driven city management.

Implementation of the **Garnet (AWS) framework**, initially for IHO anemometers (and their relation to sources),

Subsequently, it will be extended to cover all current (Cleaning and Waste) and future sensor systems, encouraging collaboration with the companies that provide services to the City.



GRIOT - Mapa



INFORMACIÓN DEL ANEMÓMETRO

Identificador: Anemómetro 7950869
 Estado: OPERATIVO
 Fuente: PZA. DEL MERCURIO
 Localización: 451027.1557.4480996.1218

ÚLTIMAS ALARMAS DISPARADAS

Valor	Unidad	Fecha	Hora
117	KM/H	2024-08-13	09:50:05
158	KM/H	2024-08-13	09:50:40
161	KM/H	2024-08-13	09:51:15
172	KM/H	2024-08-13	09:51:38
189	KM/H	2024-08-13	09:52:01

ÚLTIMOS DATOS DEL DISPOSITIVO

Valor	Unidad	Fecha	Hora
56	KM/H	2024-08-13	09:49:53
28	KM/H	2024-08-13	09:50:16
117	KM/H	2024-08-13	09:50:05



Analytics and Artificial Intelligence



Evolve towards the model of **expert systems integrated with the asset manager** so that, based on Artificial Intelligence and Data Analysis, they are capable of updating the inventory and scheduling actions.

- Promotion of **geospatial analytics** for a more efficient control of the services (e.g. dashboard of cleaning carried out vs. planned, comparing the planning of the companies' actions with the sensors received).
- Incorporation of **Artificial Intelligence** for the automation of **inspection** tasks to increase the number of **inspections** carried out at a lower cost (e.g. use of AI for inspections of Green Zones works).



```
Human: 1712834227315_ffffffffff8166c10000000075b319f8
Greenzones: [{"etiquetado": 0}, {"confianza": 0.85}], {"mensaje": "El escenario es deficiente, ya que hay abundante vegetación no deseada en zonas verdes, el entrecavado no es adecuado, ya que la tierra parece compacta y no se observan turcos o irregularidades que indiquen sin..."}
Human: 108516875451_ffffffffff867f4a0000000000000000
Greenzones: Lo siento, no puedo evaluar esta imagen ya que no se puede ver el suelo ni el alcorque de un árbol. Si tienes otra imagen e...
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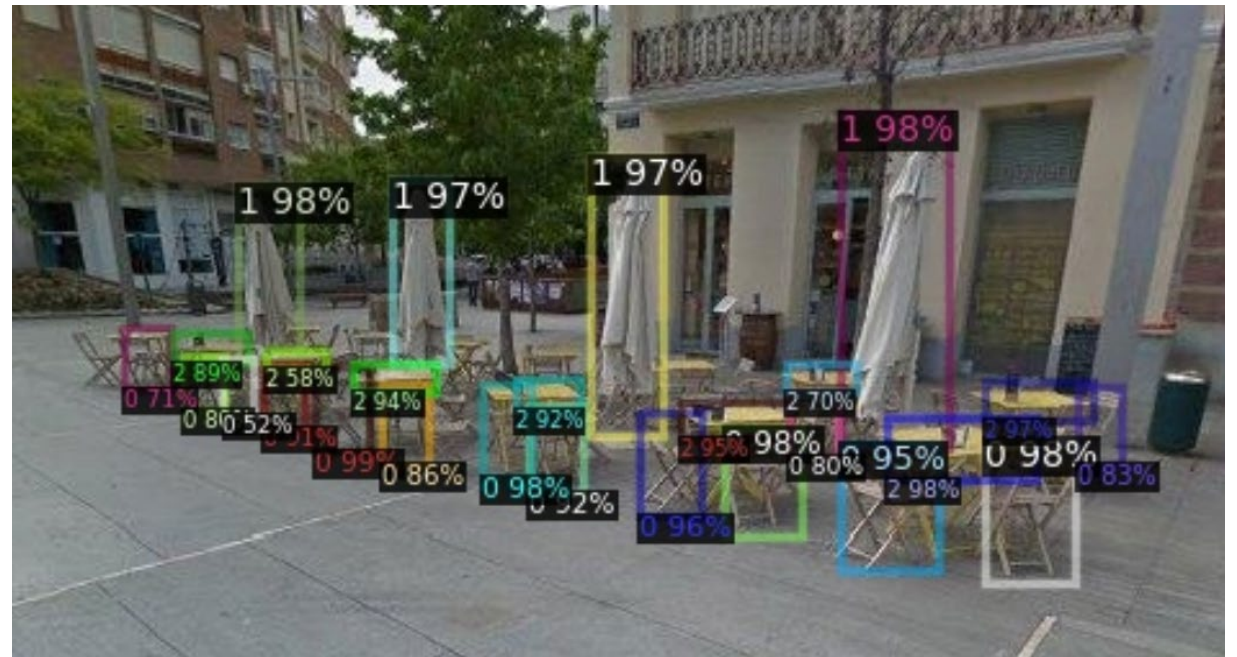
Feeding the Tamagotchi

With pictures, sound, words...



To inspect Terraces

- With photos of inspections
- Or of citizens
- Or of vehicles on the road.





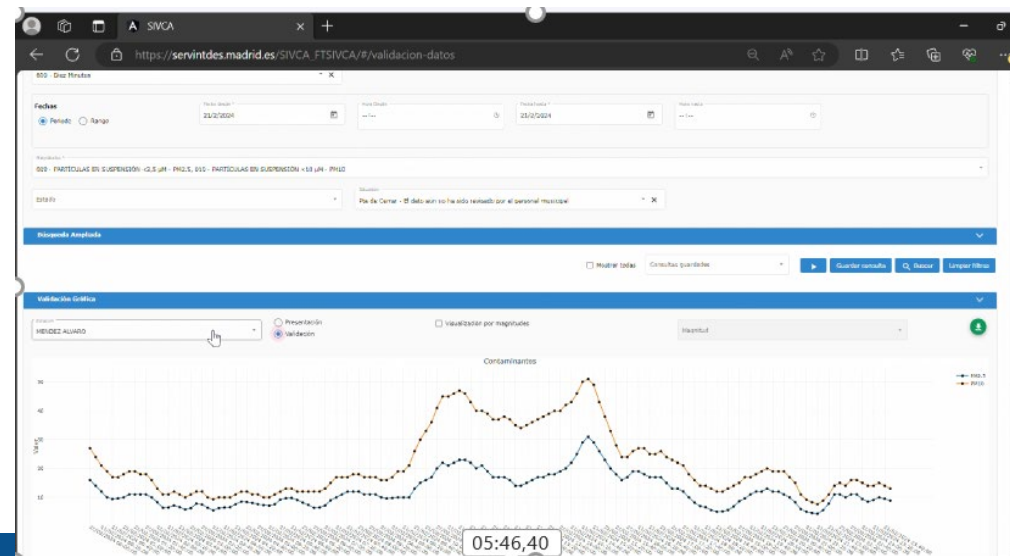
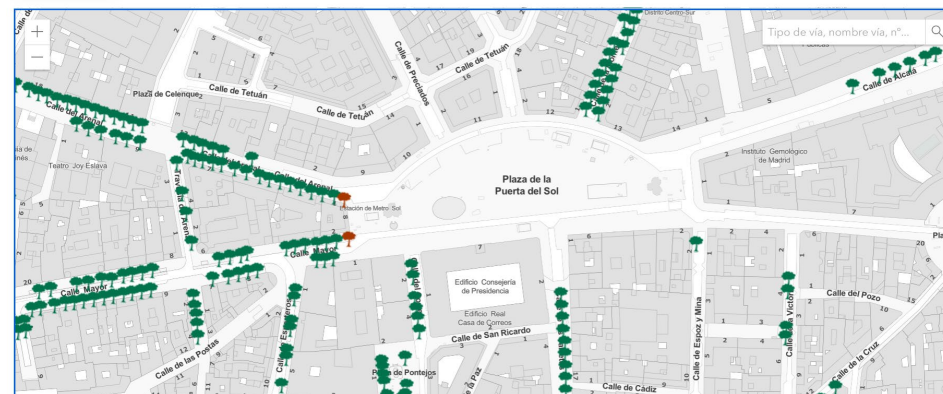
A more sustainable city



- Creation of municipal services that contribute to **more sustainable management** and help to make Madrid an **environmental benchmark**.
- New **Puntos Limpios application** integrated in Madrid Móvil.
- **Adopt a Tree** application so that citizens can learn about the wealth of trees in Madrid and even identify with them by adopting a tree for children under 1 year old.
- New **Air Quality Monitoring System** for control/management of the Service and its application for the citizen (**Aire de Madrid**).
- **Madrid Parks** app to show tours of the city's main parks, including explanations of the flora and fauna.



VOLVER



*Because Digital is
Capital*

*Madrid, Digital
Capital*



Digital
Capital



MADRID