THE CONNECTED BUILDING IN A SMARTCITY

José Luis Fernández Carnero
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Vice President of AMETIC's Industry Committee

What is Televes Corporation?

Televes Corporation is a group of technology companies, a benchmark in the design and development of equipment and solutions for all types of telecommunications infrastructures and service platforms in homes, **buildings and cities**.
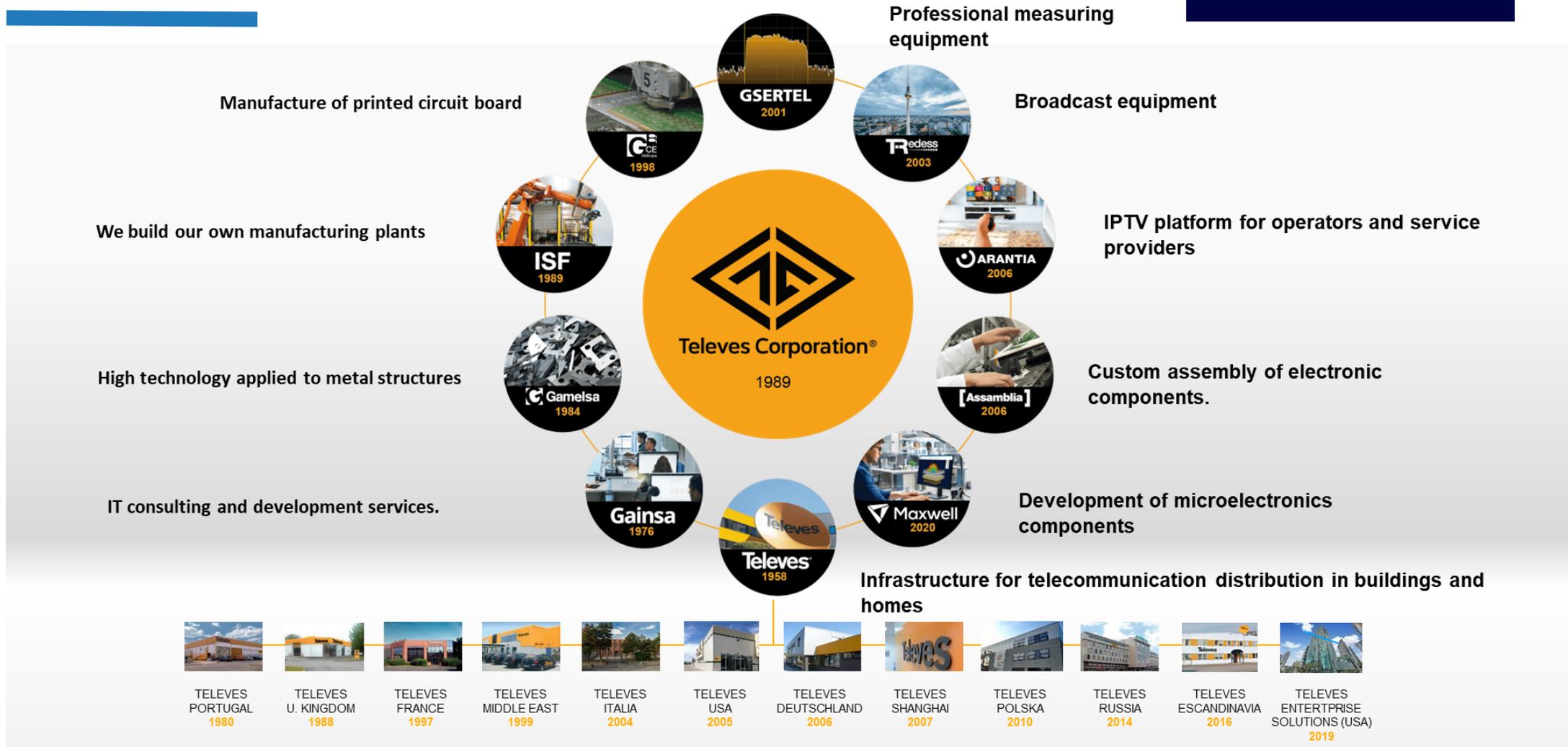
+20

Televes Corporation is a group of over 20 companies working towards a common goal: to design, develop and manufacture products and solutions for the telecom industry.

100 countries

Televes Corporation is present in over 100 countries, directly through its 11 subsidiaries (Portugal, France, United Kingdom, Italia, Deutschland, Polska, Scandinavia, Russia, United States –Denver and Miami, China and United Arab Emirates) and through an extensive network of professional distributors

Business within the Corporation

Professional measuring equipment — GSERTEL 2001

Broadcast equipment — TRedess 2003

Manufacture of printed circuit board — GCE 1998

We build our own manufacturing plants — ISF 1989

IPTV platform for operators and service providers — ARANTIA 2006

High technology applied to metal structures — Gamelsa 1984

Custom assembly of electronic components. — [Assamblia] 2006

IT consulting and development services. — Gainsa 1976

Development of microelectronics components — Maxwell 2020

Televes Corporation® 1989

Televes 1958

Infrastructure for telecommunication distribution in buildings and homes

| TELEVES PORTUGAL 1980 | TELEVES U. KINGDOM 1988 | TELEVES FRANCE 1997 | TELEVES MIDDLE EAST 1999 | TELEVES ITALIA 2004 | TELEVES USA 2005 | TELEVES DEUTSCHLAND 2006 | TELEVES SHANGHAI 2007 | TELEVES POLSKA 2010 | TELEVES RUSSIA 2014 | TELEVES ESCANDINAVIA 2016 | TELEVES ENTERTPRISE SOLUTIONS (USA) 2019 |

Business areas of Televes

Telecon and TV Infrastructures
Radiofrequency signal distribution in buildings and homes is at the **core of our business**

DATACOM
Cabling and networking solutions for data infrastructures at homes, companies or the Hospitality industry

HOSPITALITY
Efficient and ubiquitous internet access through a high capacity multiservice network

PROFESSIONAL LED LIGHTING
Development and manufacture of luminaires for industrial sorroundings

eHealth
Advanced teleassistance with intelligent technology.

OPTICAL TRANSPORT
Solutions for high capacity, high availability, maximum efficiency and minimum latency optical networks, from 1Gbps to 1.2 Tbps

Televes Corporation Financial Data

Year founded

1958
Televés

1989
Televes Corporation

Sales
(mill.€ 2021)

207

R&D investment

7,1%

Employees

806

Subsidiaries

+20

Countries

+100

Patents

+75

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Objective of the presentation

✓ **To explain the origin of the connected building concept.**

✓ **What does connected building means?**

✓ **And some consideration for its implementation.**

AMETIC is the Spanish Association that represent the Digital Technology Industry

It is important to say that in AMETIC there is an specific **Working Group** to study the implementation of the connected building (group of which I am the coordinator) and their work has been taken into account in my presentation.

An objective of humanity, the sustainability of cities, SDG nº11 (2015)

The sustainability of cities is closely linked to their digitalization, and this digitalization means:

- Have a data analysis platform (or a set of them integrated into a governance system) where all kinds of smart applications can be developed.

- Having data of all its economic entities that make up the city, and **the building is one of the most important.**

- And naturally a communications system without "limitations" (to make it possible to receive all data).

**Ensuring privacy and security**
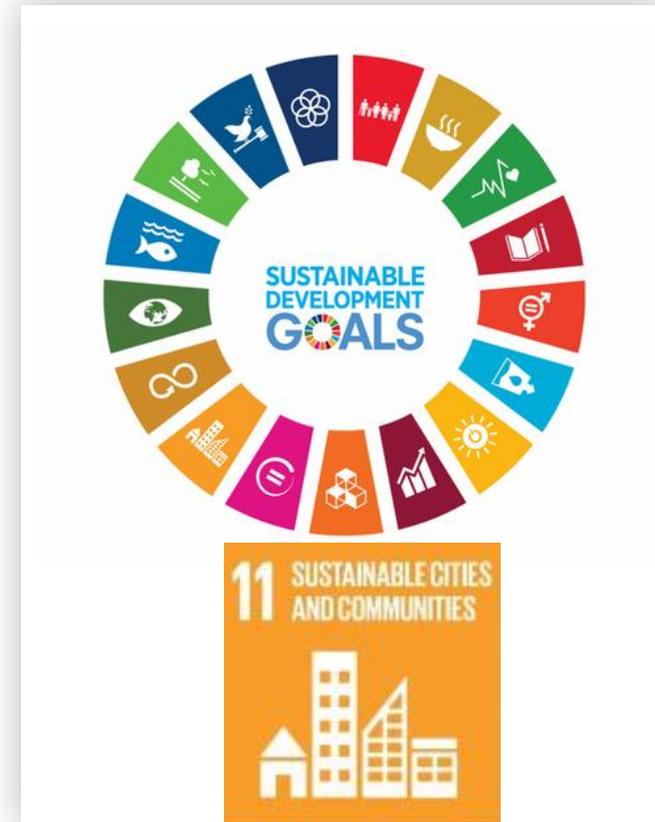
Source of the European commission.

The building is a key element of the city

- The building is key economic entity in the socioeconomic development of cities. (when we say cities, we really mean, coexistence units, living units that have a platform)

- *It consumes 40% of the total energy,*

- *it is the origin of 36% of the greenhouse effect emissions,*

- *and we are there practically all our lives, more than 85% of our time.*

With these figures the building can generate relevant DATA and INFORMATION, **very useful for the coexistence unit (usually the city), and <u>this is the origin of connected building concept</u>**
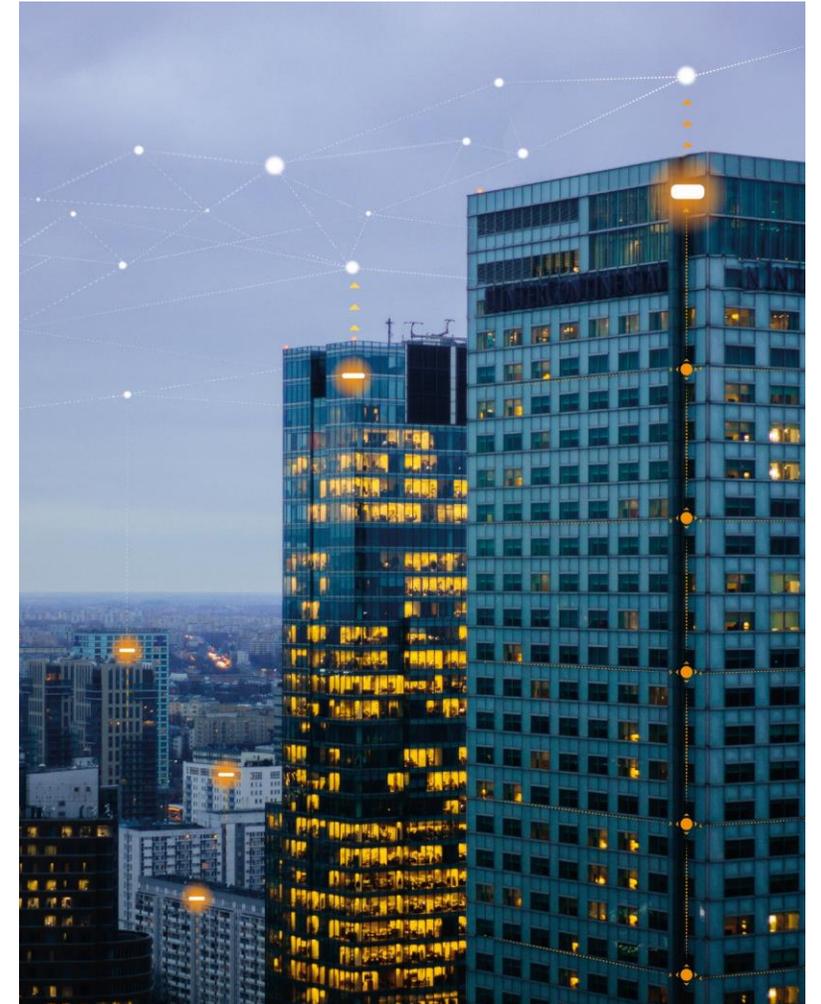
What does it mean connected building?

In short, It is a building that generates useful data and information, but with a dual (triple) vision, useful for the building and useful for its occupants, and useful for the city.

And what does this vision brings?

1. **Firstly**, the data from the building systems can be used to improve their efficiency (in the same way as a classic BMS), where it is possible to develop smart applications within the framework of the EU delegated regulation 2155, (Smart Readiness Indicator (SRI) 2156).

2. **Secondly,** this data, converted into information, can be presented (display in common areas, on mobile phones or any wearable) to its occupants, so that they are aware of the impact of the building (and themselves) and are empowered and improve their behaviour.

3. **And thirdly,** the data and information on the building can be sent or better be available (to have more efficient communications) to the coexistence unit (usually the city) that has a management platform

Data is the transforming variable for cities

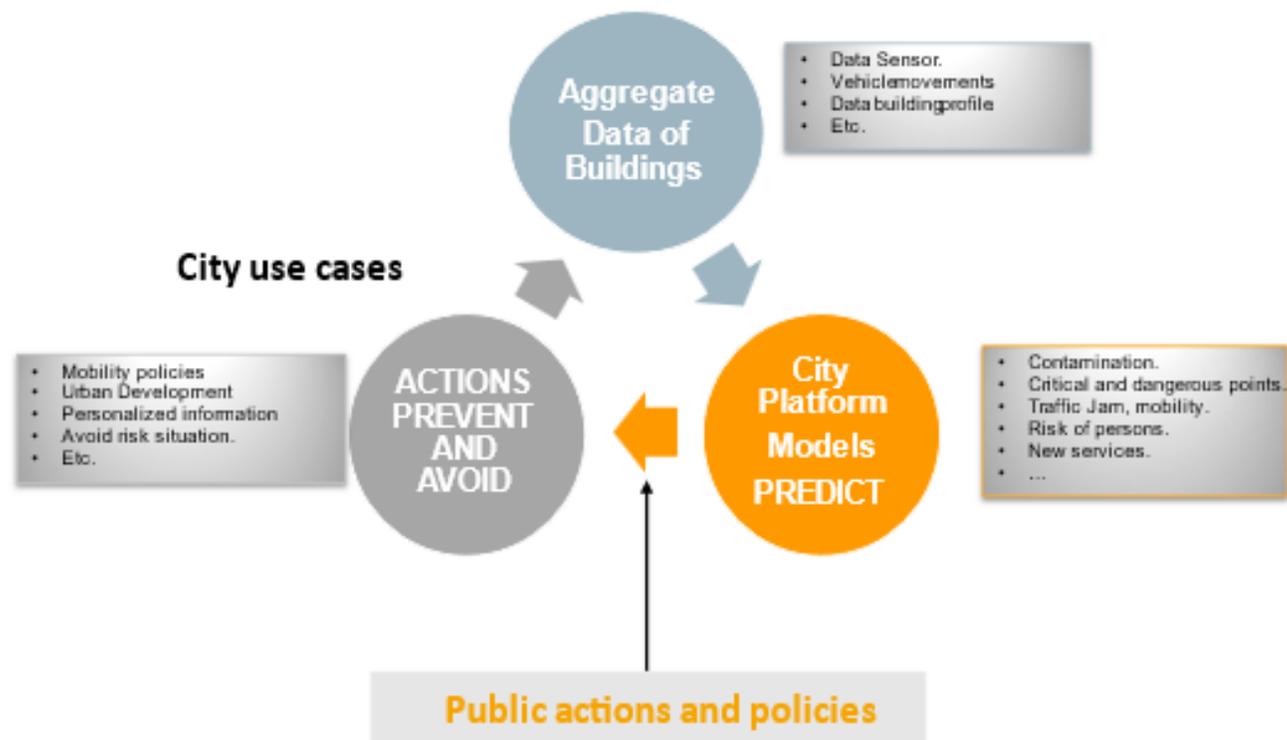The aggregate data allows to generate models and identified trends.

And with models we can making decisions and generate policies and actions **predictive** and preventive.

With time and using enable technologies (AI) we can have a continuous improvement of de models, and then, we can have a continuous improvement in the management of everything (any system of the city).
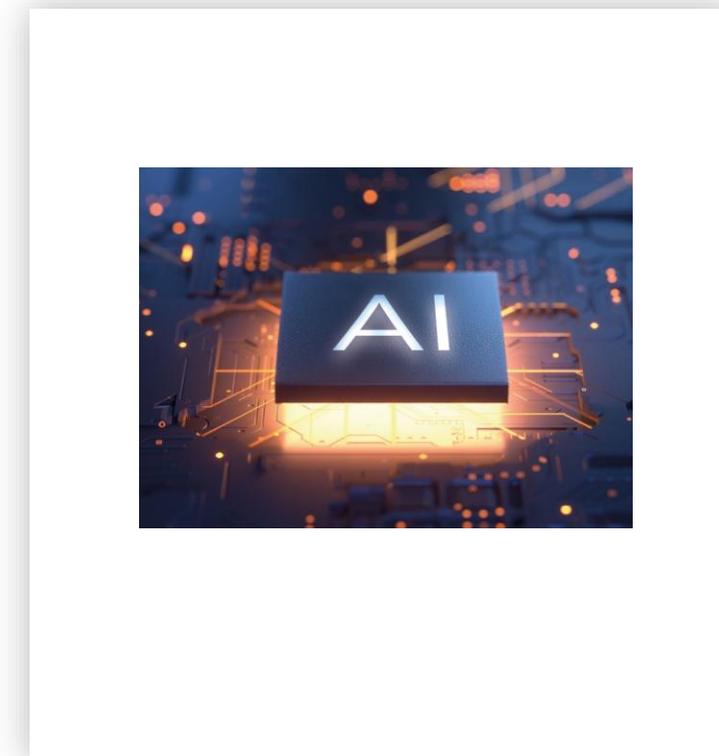
We can develop a continuous improvement in the management of cities

Data generate the virtuous circle of system intelligence

City use cases

Aggregate Data of Buildings
- Data Sensor.
- Vehicle movements
- Data building profile
- Etc.

ACTIONS PREVENT AND AVOID
- Mobility policies
- Urban Development
- Personalized information
- Avoid risk situation.
- Etc.

City Platform Models PREDICT
- Contamination.
- Critical and dangerous points.
- Traffic Jam, mobility.
- Risk of persons.
- New services.
- ...

Public actions and policies

Virtuous circle of continuous improvement.

What is our goal?

We know that the important thing about the data is its aggregation, so our objective is that **all buildings have an installation that specifies this concept** and **is a mandatory** installation.

And that it be mandatory for both new and **rehabilitated** buildings (aggregation is the key)

(It must be understood that in Spain we have regulations for installations in community buildings (is ICT (common telecommunications infrastructures) regulation) and we want to add to the current regulation the infrastructure of the connected building).

The problems of the cities (traffic jam, pollution, critical events, etc.) are so complex that, the way to solve the problems of cities is to avoid them.

What infrastructure is it based on?

Very simply, it is a **global infrastructure of the entire building**, based on an integrating or facilitating element (gateway or **IoT node**) surrounded by sensors and connection infrastructure so that the data from the sensors reach the IoT node and it stores and processes them, to convert them into useful data and information for the building, for its occupants and for the city.

And this concept is consolidated for its implementation through national norms (UNE 178104, UNE 178 108, UNE178 204) and international standards of the ITU (L.1370 and Y.4200).

What parameters or user cases are useful for de system (city and building)?

The minimum user cases are those defined in the ITU standard L.1370, *sustainable, and intelligent building services*:

This information is about:

- energy efficiency;
- consumption of basic services (water and energy) of the building and its common areas;
- quality of air outside and inside;
- technical alarms of essential systems (HVAC, water, etc.);
- entry and exit of vehicles;
- and in seismic zones, information about their support.

To be mandatory the user cases must be essential (only parameters to affect, energy efficiency, safety or health).
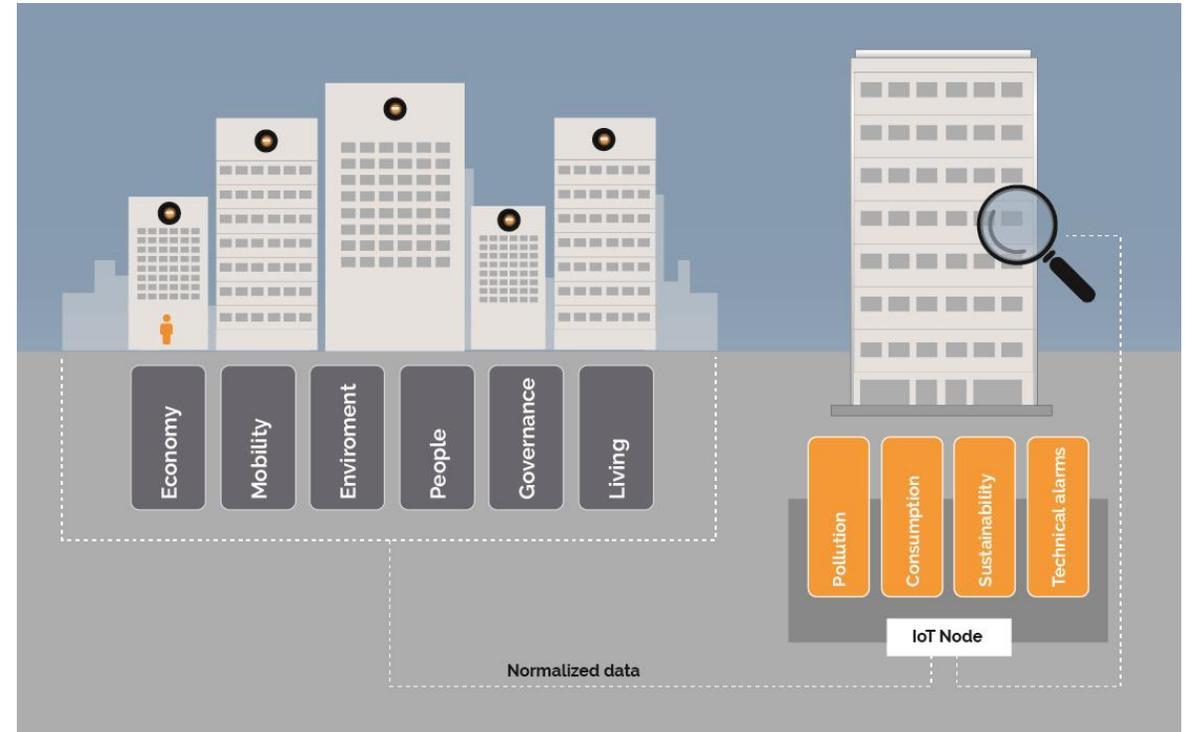
What are we doing in Spain?

- In the first place, make the concept international, to consolidate it, and because we believe that they have enormous potential and usefulness, as has been done with the L.1370 and Y.4200 standards.

- Secondly, writing a draft proposal for the extension of Spanish ICT regulation, from an infrastructure that only allows access to telecommunications services to an infrastructure that, in addition, integrates the concept of a connected building. *The draft proposal is called Annex VI.*

- And we are also distributing this draft to achieve the "global" consensus of the entire sector.

- It must be said that the Spanish administration has been sensitive to this proposal and has included the possibility of extending the current ICT in the LGT, in its article 55, to achieve sustainability.

ICT
(Infraestructuras Comunes de Telecomunicaciones)
Common Telecommunications Infrastructures).
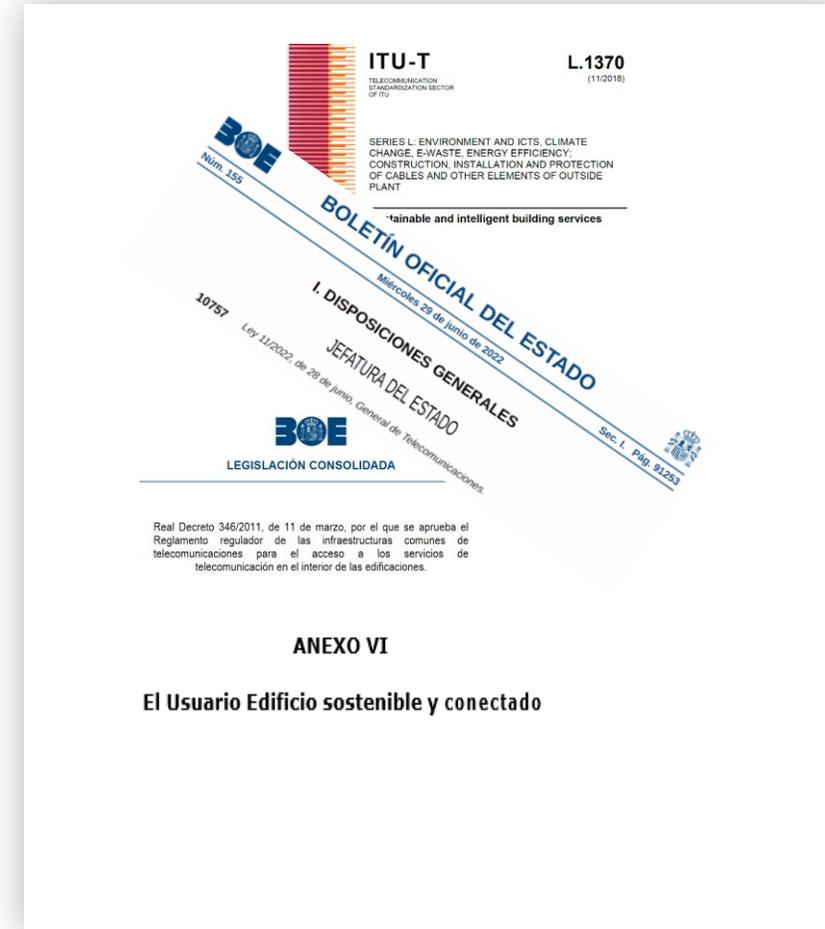
And there are no barriers to its implementation1

INTERNATIONALS NORMS.

- RECOMMENDATION **L.1370** (11/18): sustainable and smart building services.

- [ITU-T **Y.4200**] RECOMMENDATION ITU-T Y.4200 (2018). Requirements for the interoperability of smart city platforms. (transposition UNE 178104)

- [ITU-T **Y.4201**] RECOMMENDATION ITU-T Y.4201 (2018). High-level requirements and reference framework of smart city platforms.

- COMMISSION DELEGATED REGULATION (EU) 2020/**2155**. Supplementing directive (EU) 2010/31/EU by establishing an optional common European union scheme for rating the smart readiness of buildings.

- COMMISSION IMPLEMENTING REGULATION (EU) 2020/**2156**. Detailing the technical modalities for the effective implementation of an optional common union scheme for rating the smart readiness of buildings.

- DIRECTIVE 2010/31/EU and DIRECTIVE (EU) **2018/844**. On the energy performance of buildings and directive 2012/27/EU on energy efficiency

NATIONALS NORMS.

UNE 178108:2017 SMART CITIES. requirements for the application of UNE 178104 to smart buildings

UNE 178104:2017 comprehensive systems for a smart city management. requirements of interoperability for a smart city platform

UNE 178204:2021 SMART CITIES. semantics applicable to data and information from building monitoring and their integration into higher-level living units

All these norms support the draft of the proposal (annex VI) that the Building Infrastructure Working Group (GTiE) wants to make to the Spanish administration (SETELECO).

And there are no barriers to its implementation2

And the current situation, we are close to reaching consensus and delivering the draft to the administration so that it can be implemented in the ICT regulation.

INSTALATION IN BUILDINGS.

There are products on the market, according to annex VI.

There are professionals with capacities to carry out the technical project.

And there are installation companies prepared to install and generate installation bulletins.

(Both the engineers and installers are in the AMETIC group GTiE.)

Security

CO₂ Air Polution

Energy

City

IoT Node

Buiding Occupants
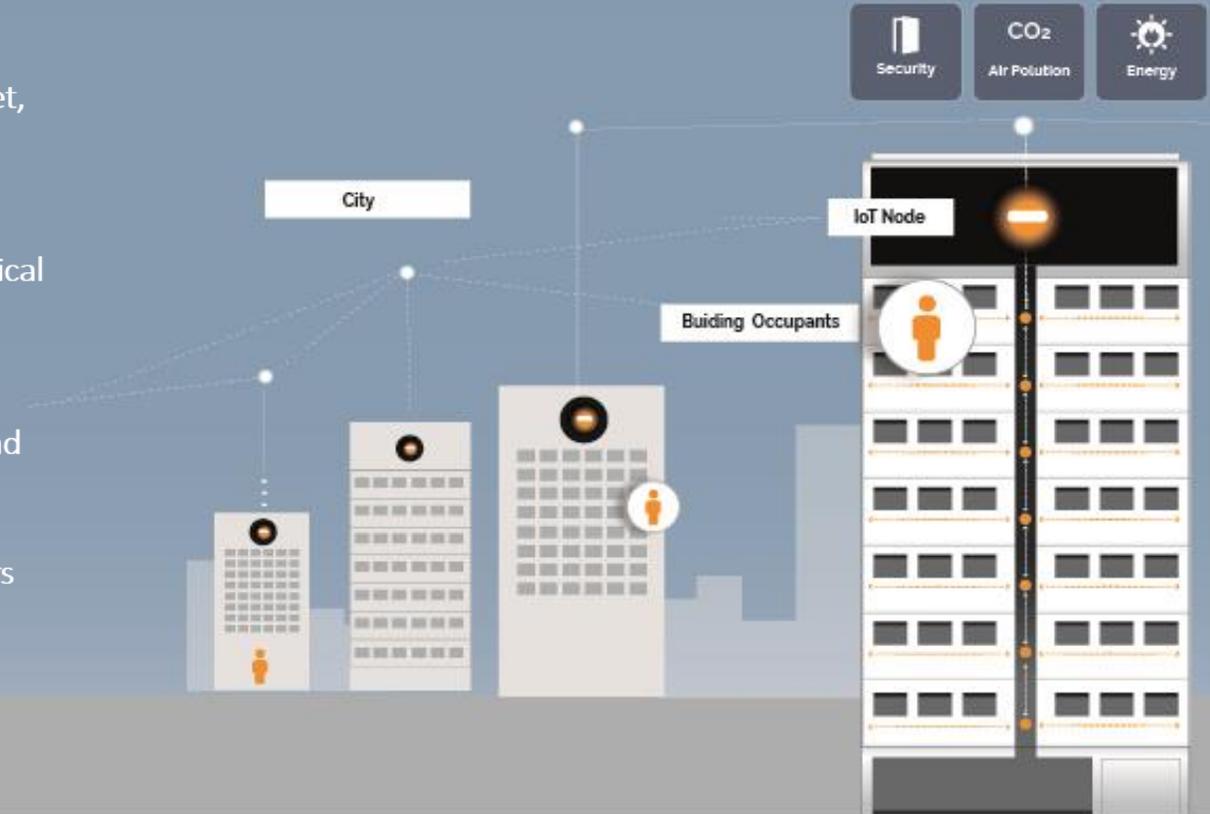
Conclusions

- The data and information of the connected building are essential for SDG nº11.

- That the connected building has a double vision: the building as an isolated entity and the building as the basic cell of the city.

- That **its implementation is supported by current standards** (international and national standards).

- **In Spain, the regulation sees it to achieve sustainability.**

- **And we are ready for its implementation in new and rehabilitated buildings** (national and International implementation).

- And important thing is, the **data opens a world of possibilities with economic value, and sustainable business.**

THE CONNECTED BUILDING IN A SMARTCITY

The sustainability of the city needs data from its basic cell,
the building, but it must be connected.

the objective of predicting the problems of cities is to improve
the quality of life of citizens
(like citizens themselves and as occupants of building).

Thank you for your time

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