Wellness Telecom
Quamtra for Smart Waste Collection
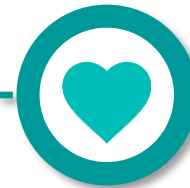
WellnessTelecom

Core
Values

"You can only make progress when you think big, you can only move forward when you look far into the horizon

José Ortega y Gasset

PASSION

EFFORT

INNOVATION

TEAM - WORK

WellnessTelecom

Company Overview

OUR TECHNOLOGY IS PRESENT IN +230 CITIES

EMPLOYEES

+100

PROJECTS IN +60 COUNTRIES

6 OFFICES

Spain (Sevilla & Malaga), Mexico, Germany, Sweden & USA

+ 100 PRIVATE COMPANIES TRUST US

PIONEERS IN SMART CITY IoT

Vertical Applications

10

TEN YEARS OF EXPERIENCE

What We Do & How we work

Discovery & Analysis

Blueprinting

Implementing

Realizing

Growing

Sensoring

Communications

Cibersecurity

Big data

Analytics & Prediction

Big data

Analytics & Prediction

Artificial Inteligence

Information as a service

Company History

2008
- Company is founded during the economic crisis
- Telecommunication networks company
- 4 person staff

2009
- Innovation department opens as an engine for development
- Smart Cities division is launched

2010
- Staff grows to 60 employees
- Andalusian Society Information Award 2010, for the best R&D project, Quamtra

2011
- CISCO Avant Garde Partner of the year
- 1st version of WeLight is launched
- 1st version of Quamtra is launched

2012
- Awarded Gartner Cool Vendor in Smart City Applications Award
- Mexico branch opens

2013
- Over 100 private companies trust our services & solutions

2014
- Wellness Smart Cities & Solutions company is started
- Staff grows to over 80 employees

2015
- + 60 R&D projects
- Over 100 cities trust our Smart Solutions
- USA branch opens

2016
- Selected for training program in San Francisco (Spain Tech Center)
- More than 200 Smart Cities projects

2017
- City Next MICROSOFT Program Onboarding
- Waste Management IoT CISCO reference provider
- UK & Germany branches open.
- Foreign investment.
- + 100 Employees

WellnessTelecom
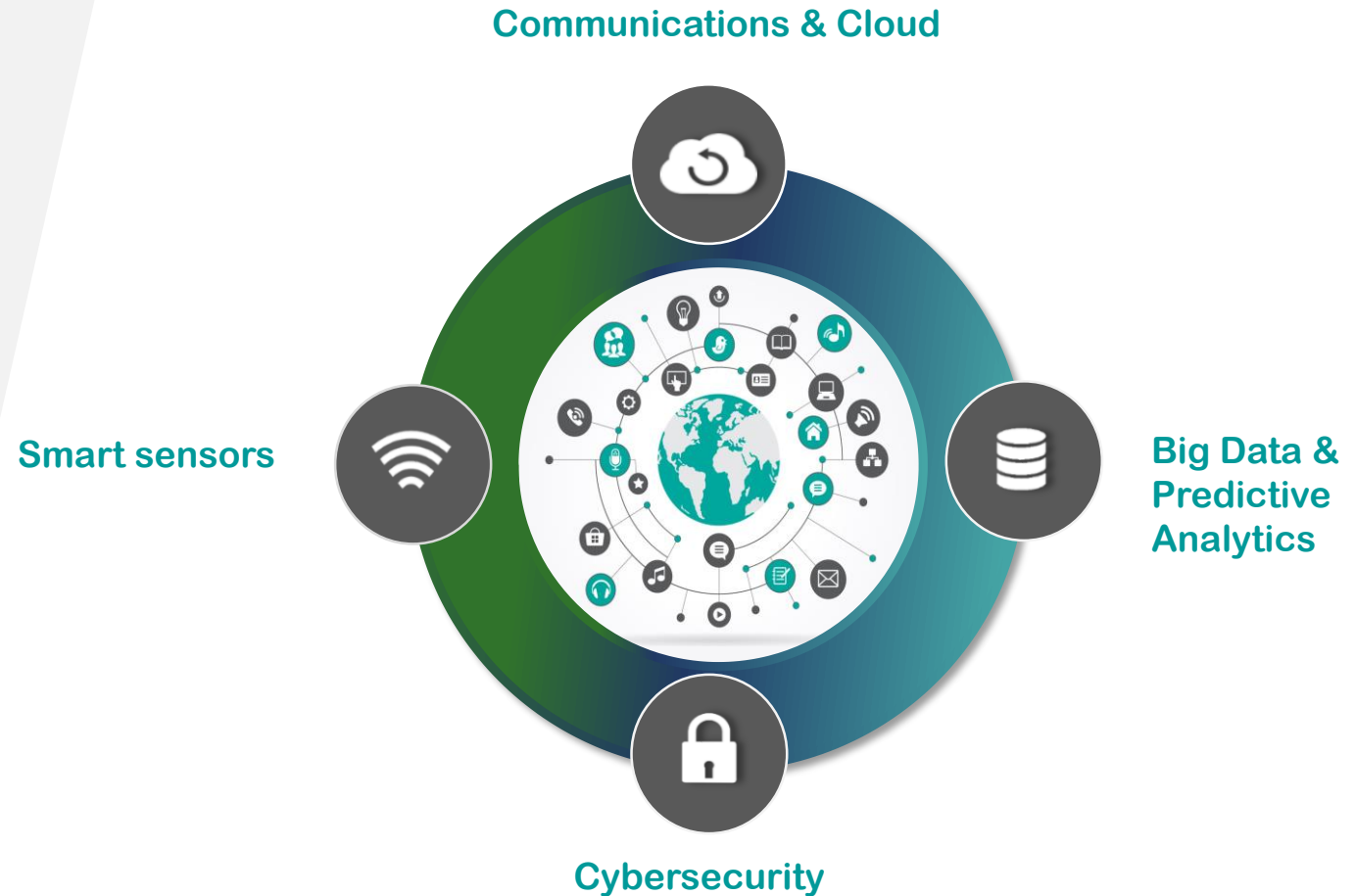
About us

> " From sensors to predictive analytics, our company has the know-how the IoT world demands. We developed the only horizontal IoT architecture with our knowledge of specific verticals.
>
> Our excellent engineering capabilities allow us to tackle IoT projects in all stages "

Communications & Cloud

Smart sensors

Big Data & Predictive Analytics

Cybersecurity

Value proposition

Cybersecure and AI oriented products

A unique end-to-end open ecosystem

Hardware & Software products

Agile, adapting to different use cases

Flexible business models

Innovative high quality products

WellnessTelecom

Industries we serve
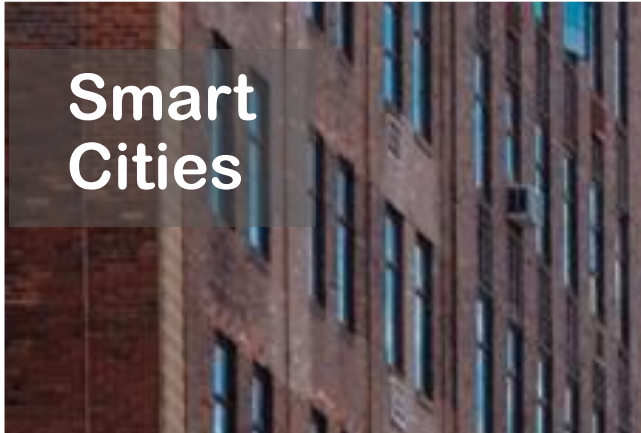
Smart Cities

Connected manufacturing

Utilities

Awards

2011
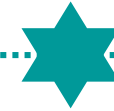
Cisco Avant Garde Star Partner of the year 2011 prize.

2012

Gartner 2012
CoolVendor

Gartner Cool Vendor in Smart Cities Applications

2015

CISCO

CISCO PARTNER SUMMIT ESPAÑA 2015 A "CAPITAL PARTNER OF THE YEAR"

2016

ΣiNnoVest

Best Technology Company in Europe 2016

SPAIN TECH CENTER STC

STC Silicon Valley Immersion Program

2018

Premio Ciudad Sostenible

Sustainable City Prize in the public-private collaboration category awarded by the Ministry of Agriculture and Fisheries, Food and Environment

Clients

Meet the Team

Our CEO

Telecom Engineer, from KTH (Sweden) and University Of Michigan (USA). After having worked in multiple ICT companies, he undertook the Wellness Telecom project, which he has directed since its inception. David believes in the potential of innovation and internationalization are the pillars of differentiation and growth. His main challenge is to turn Wellness Telecom Group into a world-class reference. Some of his hobbies are basketball, reading and traveling.

David García Ternero
CEO & Co-Founder

Management Team

Ignacio Gonzalez
Strategic Advisor
Ex-CEO Telvent

TELVENT

Lorenzo Madrid
Ex-Director Smart Cities
Microsoft. COO USA

Microsoft

David García Ternero
CEO & Founder

Victor García Ternero
COO & Founder

Enrique Villa Crespo
CTO & Founder

Mª Jesús Domínguez
Director of Solution
Architectures

Manuel Ventura Sala
COO International Division

Francisco Bernardo Álvarez
Director of Product &
Innovation

Mayte Rdguez. Mayoral
Director of Control and
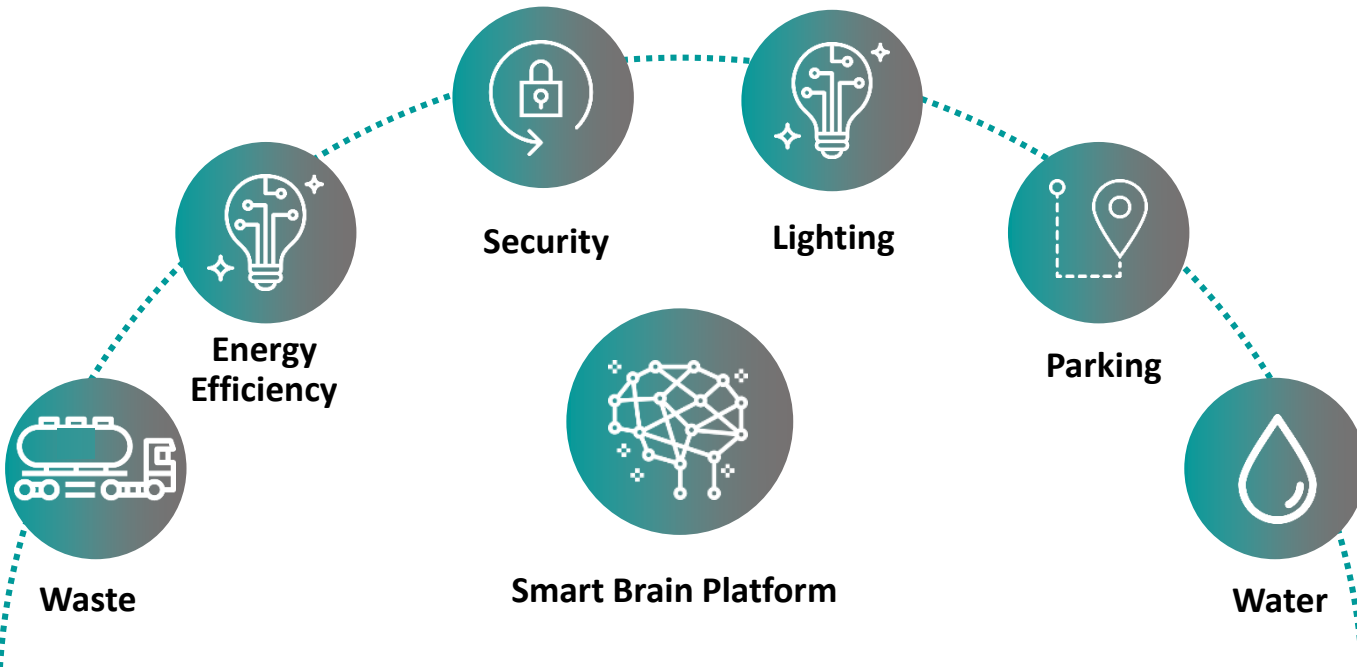Logistics

A Plethora of communication options

3G

GPRS

LoRa

NB IoT

Wifi

Sigfox

Ethernet

" We are Telecom agnostic. Our products support open connectivity options to ensure the maximum benefits for our clients.

Smart Cities
IoT Products

Waste

Energy Efficiency
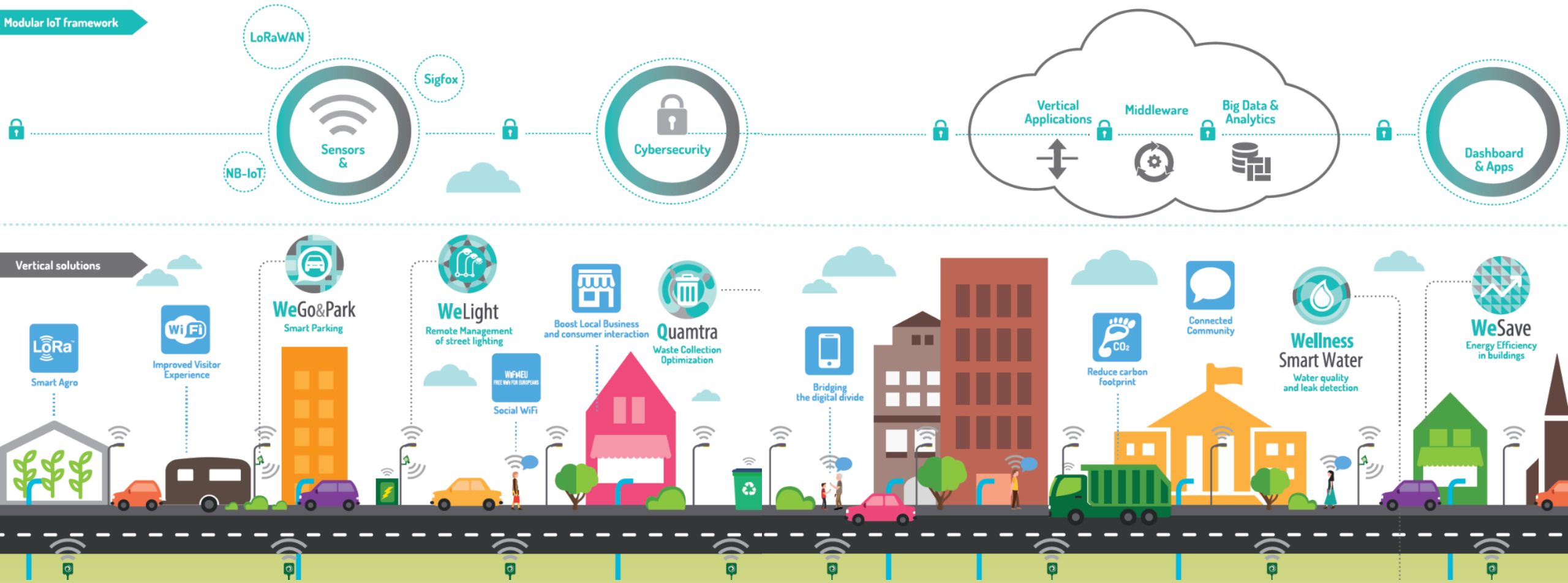
Security

Lighting

Smart Brain Platform

Parking

Water

Wellness Telecom

Smart Cities

Building a sustainable and energy efficient ecosystem

Smart Cities

Building a sustainable and energy efficient ecosystem

Wellness Telecom

SmartWater
Sensors for water quality detection, leak detection and alert generation.

Quamtra
Dynamic management and planning of waste collection using sensors to create an optimized, on-demand model.

WeSave
Energy efficiency monitoring systems for buildings to help to reduce energy consumption.

WeGo&Park
Intelligent parking spot detection based on real-time video analytics to ensure hassle-free parking, reduced traffic and emissions and efficient management of parking infrastructure.

WeLight
City Lighting Management System to control and optimize the infrastructure.

SmartSentinel
Inbuilt cybersecurity solution for end-to-end infrastructure protection.

PhysicalSecurity
The surveillance and security system for unattended assets and urban safety.

Smart Brain
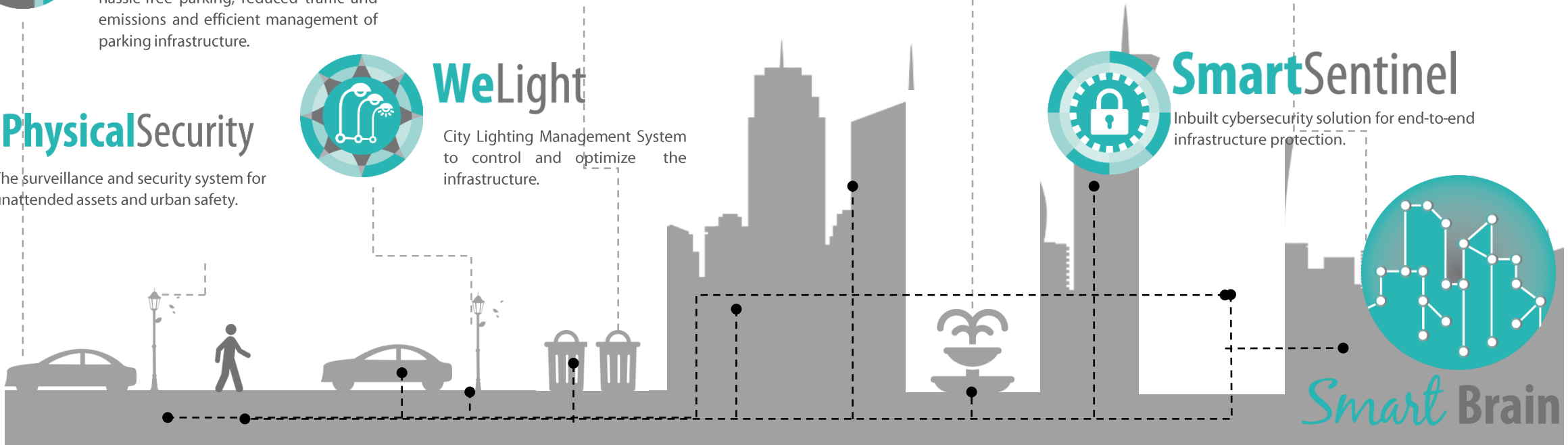
Quamtra: Optimize the collection, supply and transport of waste & making it quantifiable

WellnessTelecom

CHALLENGE

- ✓ Optimize waste management models in cities
- ✓ Reduce operational costs
- ✓ Avoid missuse of resources
- ✓ Avoid unnecessary travel and save fuel costs
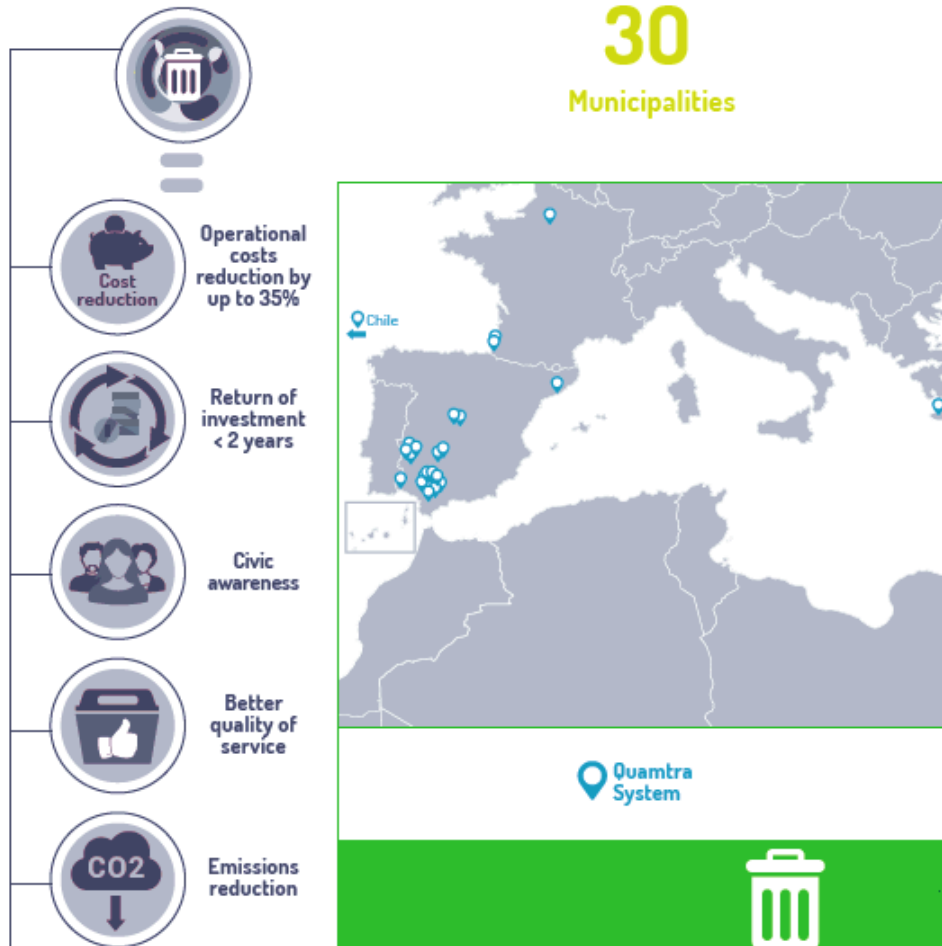- ✓ Improve services to citizens

SOLUTION

- ✓ The Quamtra system optimizes collection routes by constantly monitoring the content level of waste containers.

- ✓ By installing sensors in the containers, it is possible to receive real-time alerts for collection based on container content level, temperature variation (fires) or vibrations, enabling a reduction in damage liability and response time.

- ✓ Our solution facilitates resources reallocation according to real demand, therefore improving overall service quality

BENEFITS

- ✓ Reducing costs of collection due to route and fuel optimization.
- ✓ Real time filling status of containers
- ✓ Real time fire alarms to reduce response time and damage compensations and liability.
- ✓ Emissions reduction through optimization of collection routes.
- ✓ Better quality of service and street cleaning.
- ✓ Traffic decongestion.

Benefits:

30
Municipalities

Operational costs reduction by up to 35%

Cost reduction

Return of investment < 2 years

Civic awareness

Better quality of service

CO2 Emissions reduction

Chile

Quamtra System

- Reduce operational costs by up to 35%
- Reduce collection costs by optimizing routes and fuel
- Real time fill status of containers
- Real time fire alarms to reduce response time
- Container location monitoring (optional GPS module)
- ROI < 2 years
- Emissions reduction through route optimization
- Easy installation and deployment
- Successful installation in wide range of containers in the market
- Reduced traffic

Customers:

ΔΕΔΙΣΑ Humana. INCITAT environnement MOVISAT PROMEDIO DIPUTACIÓN DE BADAJOZ

TALHER LIPASAM Ayuntamiento de Adeje ayuntamiento de la rinconada Ayuntamiento Marbella

Waste Collection

## Over 66% reduction in costs in Seville, Spain:

Success Case

Monitoring phase results

- **67%** of bins were collected at 15 – 25% fill level
- **21%** of bins were collected at 25 – 50% fill level
- **8%** of bins were collected at 50 – 60% fill level
- **4%** of bins were collected at 60 – 90% fill level

Results of route optimization

- 3 fixed routes → 1 dynamic route
- 66% reduction in waste collection costs
- Better service, reduced traffic
- Permanent monitoring and adjustment of routes depending on fill level
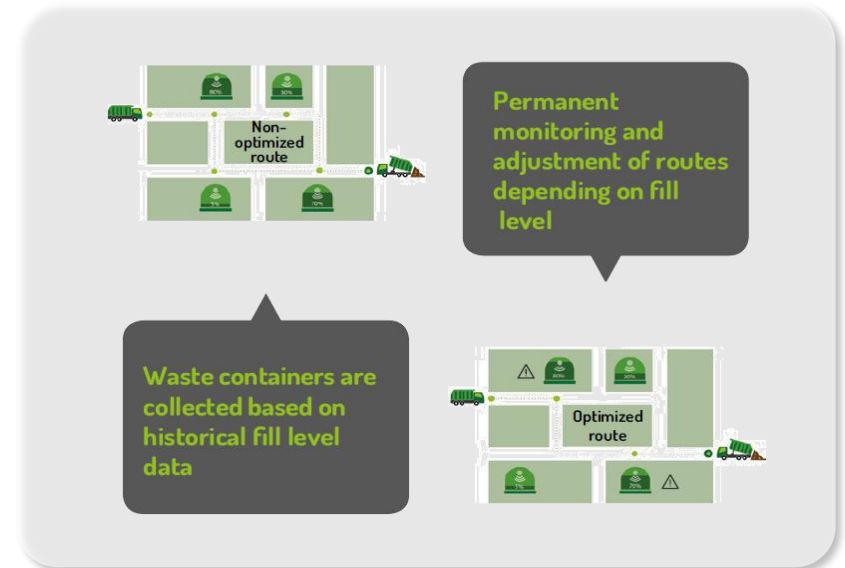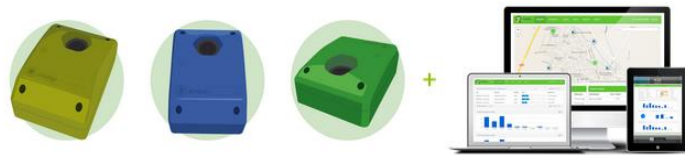
Waste Collection
End-to-end IoT deployment

Wellness Telecom delivered a "turnkey" project starting with LoRa communications deployment through to implementing our Quamtra monitoring solution for containers.

210 containers monitored by Quamtra in 6 districts

WellnessTelecom

Customer Challenge

The local government in Granada launched a project in six districts of the city to improve the collection of urban waste in the municipality, going from static routes to dynamic routes of waste collection. This was possible due to real-time information supplied by volumetric measurement sensors.

CISCO **ferrovial** servicios

Our Solution

- Propietary sensors device for measuring waste container fill level, temperature variation, vibrations and collecting data compatible with the new communication standard LoRa
- Compatible with software platform for data management and visualizations powered by CISCO (Kinetic)
- LoRa network deployment and management

Results

- Up to 66% reduction in waste collection costs.
- Better service
- Decongesting traffic
- Permanent monitoring and adjustment of routes depending on fill level

Quamtra Sensors

Fill level monitoring

- Ultrasonic technology measures fill level (40KHz)

- Accuracy within ±2cm

- Range of measurement: 25cm - 300cm

- IP66 certification

- 10 year battery life

- Tested in 15+ container types

- Celular, Sigfox and LoRa enabled
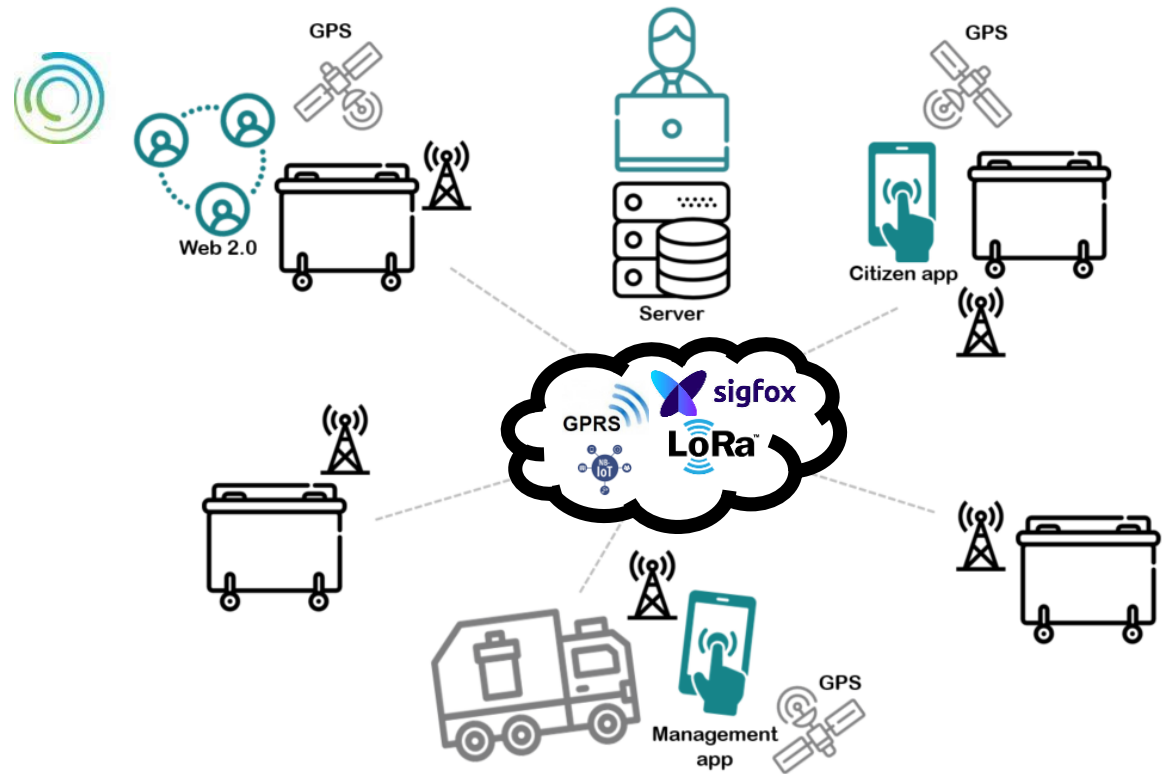
WHERE CAN IT BE INSTALLED?

Bilateral load · Black load · Lateral load · Igloo · Double-hook · Textiles · Underground

Quamtra Software

Business Intelligence Dashboard

- AI oriented

- Container data in real time

- Configurable, real time alerts

- Geolocation of assets

- Historical information and graphs

- Route control and optimization

- Integration with 360° horizontal platform, Smart City Brain
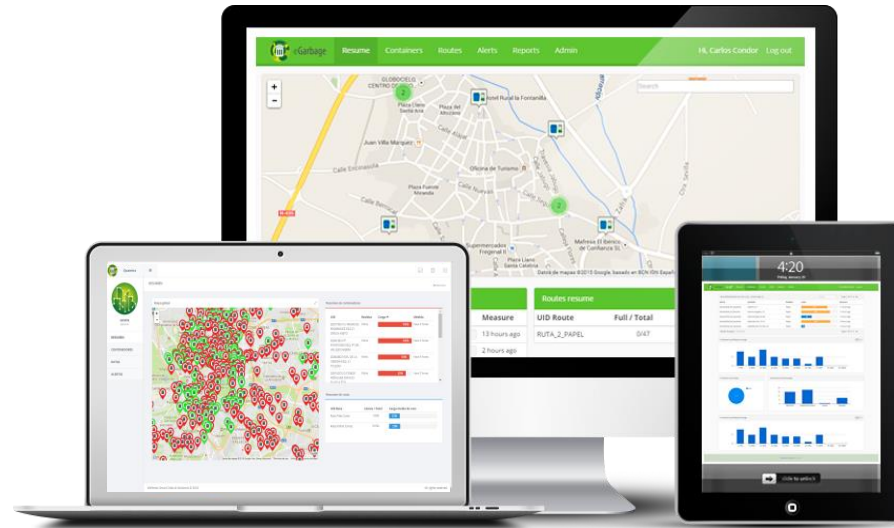
Fill Level Data

Fill level between 80% - 90%

Fill level between 35% - 50%

Success cases

Wellness Telecom

More than 60% savings in waste collection

PROJECT

LIPASAM, Seville's waste management company, had pre-defined collection routes. Costs were high and resources underutilized. Some containers were collected when practically empty while other bins were left overflowing, resulting in increased cleaning costs and a negative experience for citizens.

By implementing the Wellness Telecom **QUAMTRA** solution, LIPASAM began to monitor containers on three of their collection routes.

With the information collected by monitoring the fill level with Quamtra, LIPASAM replaced the **three pre-defined routes** with just **one dynamic route**.

RESULTS

- 66% savings in operations
- Improved quality of service
- Reduced traffic throughout the city
- Permanent bin monitoring and dynamic planning of collection routes

QUAMTRA

Wellness Telecom

Cambridge: IoT Project for waste management

PROJECT

Wellness Telecom deployed a LoRa network in Cambridge, UK and deployed its Quamtra waste management solution. The project was developed in the city's university town.

- Partners: Connexin, Cisco (Kinetic platform), Actility (Network Server ThingPark)
- LoRaWAN network rollout
- 624 Quamtra sensors
- 8 different bin models: all < 200 liters, rear-loading

QUAMTRA

KSRR Kalmar Sweden
Waste Management

PROJECT

The City of Kalmar wanted to **audit** the municipal door-to-door waste collection service. Wellness Telecom transformed 500 bins into Smart elements capable of communicating fill level and other parameters.

The **Mini-Q**, a smaller version of the Quamtra fill level measuring device ideal for smaller waste containers and trash bins, was installed in all of the bins of one of Kalmar's door-to-door collection routes.

Wellness Telecom's solution (hardware and software) allows Kalmar to take an on-demand approach to waste collection.

RESULTS

- Auditing of SLA compliance
- Improved quality of service for citizens
- Virtual Chief Smart City Officer
- Permanent monitoring of bin fill level for a dynamic, on-demand approach to collection

Wellness Telecom

Mini- Q

Client Case Study: Background
Quamtra for Humana Spain

Humana is a Non Profit organization founded over 30 years ago with the goal of promoting sustainability on a global level through their work on issues related to the environment, international development and cooperation, as well as humanitarian aid in underprivileged nations.

In Spain, Humana has 5.000 clothing collection bins placed throughout the country. They have established relationships with over 2.000 municipal governments as well as private companies. Humana owns and operates 48 second hand clothing shops: 19 in Barcelona and surrounding areas, 1 in Reus (Tarragona), 24 in Madrid, 3 in Seville and 1 in Granada.

Client Case Study 1
Quamtra for Humana Spain

Situation: Cost Optimization for Long Distance Routes

- Monitoring of long distance routes (Ex: Ayamonte y Pozoblanco): With travelling distances of over 400km per route, these long distance routes with **high associated costs** can now be **controlled in real time**.

- Before the sensores were installed in containers along these routes, pick-up was scheduled one a week in the slow seasons and twice a week during peak seasons. Oftentimes the trucks came back to the warehouse partially empty after travelling the long route.

- After installing the Quamtra sensors, Humana has achieved their goal of bringing the **truck back to the warehouse full of donated clothing**, therefore making the most out of these long journeys. While in peak season pick up is more frequent, during the slow season they are now able to cover these routes approximately once every 10 days.

Results
- Dramatic savings in fuel costs
- Savings in vehicle maintenance and vehicle wear and tear
- Route Optimization

HUMANA
Fundación Pueblo para Pueblo

WellnessTelecom

Client Case Study 2
Quamtra for Humana Spain

Sitaution: Containers Full at Pick-Up leads to Greater Customer Satisfaction

- <u>At Indoor Shopping Centers:</u> (Ex: Centro comercial Zoco, Córdoba, 130 km)
- Before installing the sensors, these containers were picked-up on average only half full (50%).
- After installing the Quamtra sensors Humana can **accurately program pick-ups** and has achieved their goal of **pick-up when containers are considered to be full (80%)**.

- <u>Outdoor Bins at Shopping Centers:</u>(Ex: Centro Comercial Día, Chiclana de la Frontera, 130 km):
- Before installing the sensors, these containers were picked-up on average only half full (50%).
- After installing the Quamtra sensors Humana can **accurately program pick-ups** and has achieved their goal of **pick-up when the containers are considered to be full (70%).** For outdoor containers Humana deems the optimal fill level at pick-up to be 70% in order to try to prevent theft.

Results
- Theft protection
- Greater user satisfaction by always having space available in the bins
- Greater customer (shopping centers) satisfaction reported by having well functioning bins that don´t overflow, don´t cause problems of cleanliness or tidiness

Client Case Study 3
Quamtra for Humana Spain

Situation: slow to fill bins

- There are clothing donation bins that take above average time to fill, but because of certain agreements they can not be removed or moved to another location.

- After installing the sensors, Humana is able to better **configure the frequency of collection**. As well they are able **to collect data to support/ recoomend any changes** in the future that would help to collect more donations.

Results

- Ability to adjust accordingly the frequency of pick-up
- Route Optimization
- Fulfilling agreements or commitment to provide service is less profitable areas.
- Reduction of carbon footprint

Wellness Smart

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