

## LEADING SMART CITY SOLUTIONS IN CATALONIA

Catalonia o Trade & Investment



Index





LEA

CATALAN ECOSYSTEM



COMPANIES



SUSTAINABLE DEVELOPMENT GOALS



CATALONIA TRADE & INVESTMENT



INTERNATIONAL PROJECTS AND OFFICES

### EXPLORE SMART CITY USE CASES



## **1. ABOUT**

The present document is a Catalogue of Smart City use cases implemented by the Catalan smart city ecosystem aimed to share experiences, exchange knowledge and inspire cities and territories worldwide.

The Catalogue showcases different use cases, covering all the areas of a city, highlighting in each case the urban challenge it tackles, the technological solution implemented as well as the companies that have made it possible.



## What are the key challenges your city is facing?

Check the different topics in which the Catalan companies offer solutions to overcome different urban challenges.

## Want to know more about the companies behind each use case?

Per every use case there is a detailed fiche about the company that has implemented the solution as well as a link to the company's website and a channel to contact the company.

## **Smart City Interactive Catalogue**

The Catalogue is focused from the perspective of a city and covers the different areas that a Smart city strategy can include.

It is an interactive tool that allows you to browse through city areas showing the use cases and allows you to know more about the companies that have deployed a specific solution.



+ 65 Use Cases Use Cases EXPLORE SMART CITY USE CASES SMART CITY 3. COMPANIES (II) PROGRAMS 3. COMPANIES (I) CICO! Cases civicili DOXAA 🚞 OUAL ITY OF Companies 1. 1. MEEE Catatoria g Trade Convestment

### + 50 companies

## **2. CATALAN ECOSYSTEM**

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Generalitat de Catalunya Government of Catalonia

## **Catalonia leads a dynamic economic area**

With a strong industrial base and a hub of high added value industries



## Catalonia has all the assets of a powerful innovation economy

#### A powerful industrial base

Catalan economy is industrially based, and it leads the capture of Spanish foreign investment in manufacturing industry. Catalonia is on the global radar for the tech industry with more than 1,000 foreign companies established in.





#### A world-class tech hub

Catalonia's performance as a tech investment hub is unrivalled. Barcelona dominates the European tech investment landscape, behind London, Berlin, Paris and Stockholm. *London & Partners and PitchBook, 2018* 

## An open trade logistics crossroads

Unparalleled distribution capacity: Catalonia's excellent strategic position allows for efficient intercontinental connections to Asia and the Americas and easy fast distribution to Southern Europe and North Africa.





#### A pro-business environment in a top spot to live and work

Barcelona and its metropolitan area is Europe's third largest in terms of more knowledge and high technology personnel and also is the 4th most attractive city to work in for global talent. EAE Business School, 2018

Source: EIC (DGI- ACCIÓ)



## Southern Europe's top startup hub



More than 1,500 startups are located in Catalonia

Main rounds of investment (2017-2019)



Most relevant Catalan Startups of Barcelona & Catalonia Startup Hub



- 43% of startups have e-commerce & marketplace as a business model,
   29% Software as a Service and 25% Development and manufacturing
- 3 out of every 4 Catalan startups have obtained financial backing.
- 16,900 jobs related to Catalan startups.

Catalonia o

The technologies that more investors attract are ICT (21%), Big Data (16%) and Cloud Computing (13%).

Source: http://startupshub.catalonia.com/ (Barcelona & Catalonia Startup Hub)

Trade & Investment

Generalitat de Catalunya

Government of Catalonia

## **Smart City sector in Catalonia: Key data**

In relation to 2016, the number of companies has increased by 62%



Source: EIC (DGI-ACCIÓ) based on Orbis



## **Smart City sector in Catalonia: Value chain**

$\bigcirc$ The role of the company	log The smart cities sect	or					
Design and planning	Smart Government Dobility	Urban Environment	silience Environmen	nt Quality of life			
Service provision	<ul> <li>Electronic administration</li> <li>Transparency and and personal</li> </ul>	Urban service     infrastructure     Urban equipment     Secur	systems • Water ity and • Energy illance • Heat and cold	<ul><li>Health</li><li>Social well-being</li><li>Culture and leisure</li></ul>			
Software development	communication transporters • Open data and data governance connected vehicles	<ul> <li>Maintenance and servic surfacing of the Cyber public highway</li> <li>Green spaces</li> </ul>	es network security • Waste cy management • Gas	<ul> <li>Social inclusion and accessibility</li> <li>Ageing</li> <li>Housing</li> </ul>			
Software and hardware development	<ul> <li>participation and collaboration</li> <li>Innovative</li> <li>Electric vehicles other alternative fuels</li> </ul>	Smart and sustainable buildings	<ul> <li>Environmental quality (water, ai acoustics, lighting</li> </ul>	<ul> <li>Sustainable tourism</li> <li>Trade</li> </ul>			
maintenance and operations	management · Logistics strategies and · Last mile models · Traffic management	<ul> <li>Construction and materials</li> <li>Lighting</li> <li>Collaborative</li> </ul>	Circular economy	У			
<ul> <li>ITC integration</li> <li>Deployment and management of</li> </ul>	rights • Car parks	spaces					
infrastructures	Cross- sector						
Construction	ີລ Applied technologies						
Consulting	Internet of Things (IoT, RDFI – Radio Frequency Identification,	3D printing Robotics	Connectivity and 5G (5G, ITC infrastructures and	Technology hybridisation			
<ul> <li>Research (R&amp;D and innovation)</li> </ul>	Artificial Intelligence (facial recognition or pattern recognition and AI)	Photonics and quantum sciences (sensors, photonics and quantum sciences, fibre	GIS / GNSS connectivity) <b>Big Data</b> (Information systems and city	technological wearables, city platforms)			
<ul> <li>Training, communication and events</li> </ul>	Biockchain (blockchain and payment services) Virtual Reality and Augmented reality	optics) Nanotechnology	applications, cloud services, Big data and BI, BIM or similar, <i>Digital Twins</i> )	Biotechnology			

Source: EIC (DGI-ACCIÓ)

Catalonia o Trade & Investment



## **Barcelona, a leading smart city**





## 3. COMPANIES (I)





## 3. COMPANIES (II)





## ADTEL SISTEMAS DE TELECOMUNICACIÓN S.L.

#### **Description**

ADTEL Sistemas de Telecomunicación S.L. Is a company dedicated to the provision of telecommunications services with a high specialization in system integration in audiovisual, transmission, radiofrequency, fiber optic and multimedia communications. ADTEL is an independent private equity group, who owns a subsidiary company in Colombia.

#### Offering

Holistic solutions for Telecomunications and supply/system integration.

#### CONTACT

 ⊕ <u>adtel.es</u> im <u>ADTEL</u> im @grupoADTEL







## AIMSUN



A Siemens Company

#### Description

Aimsun is a leading international provider of software and services for traffic planning, simulation and prediction. Acquired by Siemens in 2018, Aimsun continues to build on decades of experience in algorithms, software and operational know-how for mobility applications. Aimsun does business in 85 countries and has offices in Barcelona, Edinburgh, London, Madrid, Melbourne, New York City, Paris, Singapore, and Sydney.

#### Offering

Mobility modeling software and services, Online and offline modeling and Impact testing for connected and autonomous vehicles.









## ALLWIZE

#### Description

AllWize creates end-to-end solutions for urban services companies based in the Wize IoT technology. All products are in open-source and open-hardware which empowers to create an infinity of applications that weren't possible before. The Wize technology is based on the 169 MHz frequency and has been used for more than 10 years for smart metering by water and gas companies and has shown outstanding performances especially in terms of indoor radio penetration. This makes it perfect for IoT applications in urban settings where walls typically mitigates the spread of other radio communications.

#### Offering

Hardware solutions for IoT devices.

#### CONTACT

allwize.io

in <u>AllWize</u>

<u>
@allwize\_iot</u>





## **ANTEVERTI**



#### **Description**

Anteverti is an independent consulting firm that advises cities and companies in adapting to new contexts and facing new challenges through innovation. Its expertise is focused in promoting the development of the Smart City model, encompassing from sustainability and economic development to open government and citizen engagement. As world experts in Smart Cities, anteverti's multidisciplinary team provides an advisory role for cities, public administrations and companies all over the world, with smart and innovative approaches. Anteverti is undertaking projects in Europe, Latin America, North America, Asia and Africa.

#### Offering

Tailored strategic city planning; smart city strategy; strategic consulting; project management

#### CONTACT

- anteverti.com
- in Anteverti
- Materverti
- info@anteverti.com







## **BARCELONA SUPERCOMPUTING CENTER**



Barcelona Supercomputing Center Centro Nacional de Supercomputación

#### Description

Barcelona Supercomputing Center or better know as Centro Nacional de Supercomputación (BSC-CNS) is the national supercomputing center in Spain. We specialise in high performance computing (HPC) and manage <u>MareNostrum</u>, one of the most powerful supercomputers in Europe, located in the Torre Girona chapel.

BSC is at the service of the international scientific community and of industry that requires HPC resources. Our multidisciplinary research team and our computational facilities –including MareNostrum– make BSC an international center of excellence in e-Science.

#### Offering

Supercomputer management in Spain.

### CONTACT

bsc.es

Barcelona-Supercomputing-Center

灯 <u>@BSC-CNS</u>







From data to business

#### **Description**

Bismart is a Business Intelligence and Big Data specialist company. Bismart helps decision making by transforming data into knowledge through Big Data, Command Charts, Dashboards, Key Performance Indicators, Data Mining, Reporting, Data Warehousing and Data Integrations.

#### Offering

Big Data Analytics and Business Intelligence.

#### **COMPANY RELATED USE CASES**



#### Generalitat de Catalunya Government of Catalonia

### bismart.com

CONTACT

- in bismart2009
- 💟 <u>@biSmart2009</u>

# CARNET FUTURE MOBILITY RESEARCH LAB

#### **Description**

CARNET, Future Mobility Research Hub, initiated by Seat, Volkswagen Research and the Universitat Politècnica de Catalunya (UPC), is an open hub to industrial and academic partners from the areas of automotive and mobility research & innovation, located in Barcelona with project based collaboration. Its research focus lies on innovations and solutions that close the gap between automotive and urban mobility.

#### Offering

Future Mobility Research Lab.

#### CONTACT

carnetbarcelona.com

- in <u>CARNET</u>
- 2 @carnetBCN







## **CESVA**

## CESVA

#### **Description**

CESVA, founded in 1969 in Barcelona, has been working to provide solutions to manage noise problems helping to protect the environment and improving people's quality of life. Its activity focuses on the design and manufacture of condenser microphones, sound level meters, acoustic limiters and noise sensors for noise monitoring in smart cities and noise management cloud platforms. CESVA also can offer cities specific solutions for the control of leisure activities with amplified music (discotheques, concerts, shops, gymnasiums, etc.) with our acoustic limiters and LIDACO platform for online control.

#### Offering

Integral noise management solutions for cities through the deployment of smart sensors.

#### CONTACT

- <u>cevsa.com</u>
- Cesva instruments slu
- 灯 <u>@cesva</u>







## CIGO



#### **Description**

CIGO! for Smart Cities is a mobility management platform to help cities and companies to make sense out of all the data available in order to improve the operational efficiency of their services to ultimately make an impact on the citizen's quality of life. CIGO! integrates data from various sources such as open data, mobile apps, sensors and government data, allowing for its visualization and analysis while making it actionable through associated mobile apps

#### Offering

CONTACT

IJ

Mobility efficiency solutions for individual users and company fleets.

#### **COMPANY RELATED USE CASES**





## @smartcigo

Smart-cigo.com

# CITCEA-UPC

#### **Description**

CITCEA-UPC is a research and innovation center in the area of electrical energy, from generation, transport, distribution and use of electrical energy. CITCEA-UPC is based in the UPC, Barcelona Tech specialized in developing power electronics based systems for renewables (PV, Wind,...), HVDC, FACTS, smart digital grids, microgrids, EV, drives and any system that needs energy management. Their knowledge includes also the use of Optimization and Machine Learning algorithms in applications such as energy markets and energy management.

#### Offering

**Energy Management Solutions** 

#### CONTACT

citcea.upc.edu

În <u>CITCEA</u>

2 @citcea\_UPC







## CITIBEATS



#### Description

Citibeats is the fastest and easiest Social data intelligence platform using NLP & machine-learning to turn speech into insights. We help our customers in fast changing environments to react faster and better to social needs.

Citibeats was recognized by the World Summit Awards as the best project in the world for governance and civic engagement, by the World Economic Forum as 'the first AI for measuring the SDGs', by SAP as a universal tool to foster civic responsiveness, as and by Twitter as a lead case study of using data for civic good.

#### Offering

Social data intelligence systems.

#### CONTACT

- citibeats.net
- in <u>Citibeats</u>
- <u>@theCitibeats</u>







## CIVICITI

## civiciti

#### Description

Civiti is an ICT company specialized in secure on-line voting and eparticipation solutions. Civiciti uses a ground-breaking online system which enables users to securely and easily cast their vote or engage in different participatory processes from any location and on any modern device with an Internet connection enriching the relationship between citizens and their leaders. Civiciti have successful implemented online consultation and public engagement applications in countries all over the world.

#### Offering

CONTACT

îm

IJ

civiciti.com

Civiciti

@Civiciti

Citizen participatory platform.

#### **COMPANY RELATED USE CASES**





HOME < COMPANIES



#### Description

DIGALIX is an IT Company based in Barcelona specialized in unique design solutions and multitouch large format devices. The company offers countless solutions based on interactive technologies, multimedia resources and custom development for different business areas (Education, eHealth, corporate showrooms and meeting rooms, hospitality, tourism, interactive events, museums and galleries exhibits, smart cities etc.). In addition, they provides holographic and virtual assistants, multitouch screens / tables, interactive tourism apps, augmented reality, hospitality/restaurants apps, etc.

#### Offering

Interactive multi-touch systems and immersive room experiences.

#### CONTACT

digalix.com

- in Digalix-Solutions
- 灯 @Digalix





## **DISTRICLIMA S.L.**



#### Description

Districlima, S.A. develops since 2004 an urban heating and cooling distribution network for use in heating, air conditioning and domestic hot water. The areas the company serves in Barcelona are Forum and the 22@ district. The company has a production plant in the Forum area -that uses steam coming from an urban waste-to-energy plant- and a second production plant in the 22@ district. The company is composed by 5 shareholders: ENGIE, Tersa, Institut Català d'Energia, IDAE and Aigues de Barcelona.

#### Offering

Heating and Cooling Urban Distribution Network

## CONTACT

districlima.com





## **DOXA INNOVA & SMART**



#### **Description**

Doxa IS has a team of highly qualified and multidisciplinary professionals and consultants with extensive experience in Smart City and innovation applied to cities, territories and the private sector.

Our team was involved in the design, implementation, execution and governance of the Barcelona Smart City project, which led the city to position itself as the first "Global Smart City" (Juniper Research, 2015) and European Capital of Innovation (European Commission). Since then, we have escalated and enriched our Smart Transformation Model in different cities and territories around the world, including the island of Majorca (Spain), Buenos Aires (Argentina) and Macau Transformation Plan (China).

#### Offering

Consultancy services.

#### CONTACT

- doxais.com
- doxa-innova-&-smart
- @DoxalS





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	80%	42%		20%	70% ABUD	00	1,1%
1	***	30%	25%	50%	21%	SUSTAINABLE GOALS	



## EASYMILE



#### **Description**

EasyMile is a pioneer in driverless technology and smart mobility solutions. The fast-growing start-up develops software to automate transportation platforms without the need for dedicated infrastructure. EasyMile's cutting-edge technology is revolutionizing passenger and goods transportation, offering completely new mobility options. It has already deployed over 210 driverless projects with more than 320,000 people transported over 250,000 km. Clients include the world's largest transport operators, city authorities, airports, corporations, business parks, and universities.

#### Offering

Autonomous vehicles.

### CONTACT

Easymile.com

in easymile







## **ECOOLTRA**



#### **Description**

Launched in January 2016, eCooltra is the pioneer company in the scootersharing industry in southern Europe. The company offers its services in Barcelona, Madrid, Valencia, Lisbon, Milan and Rome, with a fleet of more than 7.000 electric scooters fully powered by 100% renewable energy and 1 million of users. They offer a free float service, pay only as you ride, price with all included (insurance, battery charge, 2 helmets,...) and everything managed from a mobile app.

#### Offering

Scootersharing platform.

#### CONTACT

ecooltra.com

in eCooltra-motosharing

灯 @e\_Cooltra





# ÉKRATOS DIGITAL SERVICES

#### **Description**

éKratos is a new Blockchain Electronic Voting Platform, conceived for collective consultation and decision processes in city halls, entities and all types of private or public organizations, with the maximum Transparency and traceability. It is thanks to this platform that both on-site voting in an electronic ballot box and virtual voting in any electronic device (smartphone, tablet or computer) can take place at the same time. In this way, electronic participation is accessible to anyone, independently of their skills with the latest technologies. Our Platform improves Citizen reliance, the participation index and environmental sustainability.

#### Offering

eVoting platform with blockchain technology.

#### CONTACT

ekratos.org

in <u>Ekratos</u>

ジ <u>@eKratos</u>





## EURECAT eurecat

#### **Description**

Eurecat is the leading Technology Centre in Catalonia and the second largest private research organization in Southern Europe. Eurecat has a turnover of €50M and a workforce of 650 professionals, it is involved in more than 200 R&D projects and has a customer portfolio of over 1,600 companies. Eurecat R&D, innovation and training activities range from Industrial Technologies (metallic, plastic and composite materials, manufacturing processes, autonomous and professional robotics, functional printing and fabrics..) to Digital Technologies (Big Data analytics, IT security and smart management systems, e-health.) and Biotech (omic science and nutrition & health). Additionally, Eurecat is recognized by the European Commission as a Key Enabling Technologic Centre so it can partner with SMEs on close-to-market research and innovation activities.

#### Offering

Technology partner, provider of R&D&I services and innovative technology.

#### CONTACT

- eurecat.org
- in Eurecat
- @Eurecat\_news







#### Description

Foot Analytics is specialized in Big Data Wifi tracking analytics, ingesting and processing smartphone signals for understand people traffic and behavior in a way you've never been able to do before. Actually, with more than 1.300 sensors deployed in 8 countries, decision makers, are realizing that having real time data for analysing behaviour can take decision making to other level of effectivity.

#### Offering

Integral solution to measure foot traffic.

#### CONTACT

- **Footanalytics.com**
- In FootAnalyticsSL
- <u>
  @FootAnalytics</u>



#### **COMPANY RELATED USE CASES**



HOME < COMPANIES

## **I2CAT**



#### **Description**

i2CAT Foundation is a non-profit research and innovation centre that promotes mission oriented R&D activities on advanced Internet architectures, applications and services. The centre stands for a new open innovation framework, fostering the collaboration between companies, public administration, the academic environment and end-users. Fostering collaboration for an Internet based on intelligent systems and smart technologies.

**COMPANY RELATED USE CASES** 

#### Offering

CONTACT

îm

IJ

i2cat.net

i2cat

@i2cat

Research and Innovation centre.

# 5G Barcelona







#### 



#### **Description**

IMAGEEN is a Spanish company founded in 2014. Its innovative business model is principally based on Virtual and Augmented technologies applied to tourism sector in pursuance of the enhancement of the historical and cultural heritage. IMAGEEN's ultimate goal is oriented to diversify tourism through an attractive product offered by mobile technology, providing the end user a new tourism experience and an approach to the culture and history of the place visited. The project combines tourism, culture, entertainment and technology VR / AR.

#### Offering

Virtual and Augmented Technologies

#### CONTACT

- http://www.imageen.net
- im Imageen
- <u>
   @imageenNet

  </u>
- ☑ info@imageen.net









#### **Description**

Leitat is a private technology center with more than 110 years of experience in industrial innovation processes. We transform the technological and scientific results in economic and competitive value for our clients and collaborating entities. More than 1500 clients benefit from our talent, creativity and strong commitment. We provide knowledge and innovation to our clients through applied research and technical tests in the fields of chemistry, energy, the environment, materials, engineering and life sciences. We trust our team of 330 highly qualified people that offer flexible solutions to face any industrial challenge.



#### Offering

Integral innovation solutions

#### CONTACT

- Leitat.org
- in <u>Leitat</u>
- 灯 @Leitat
- ☑ info@leitat.org






## MASS FACTORY URBAN ACCESSIBLE MOBILITY



#### **Description**

Mass Factory Urban Accessible Mobility, S.L., is a high-tech company created in Barcelona, Spain in 2012, aiming to create innovative products that add value to society. We develop systems for trip planning, guidance & supervision of people with special needs, improving their mobility, quality of life and social inclusion.

#### Offering

Trip planning systems for people with special needs.

### CONTACT

- AppandTown.com
- ាំភ្លៃ <u>App&Town</u>
- ೮ <u>@appandtown</u>







## **MOCA PLATFORM**

# $MCC^{*}$

#### **Description**

MOCA provides solutions for tourism managers and local governments, making cities more accessible, interactive and discoverable. So that people can enjoy everything a city has to offer based on their individual needs and interests.

We provide a scalable and cost-effective citizen engagement solution that is helping Cities and Destinations like Benidorm (Spain), Mallorca (Spain), Zutphen (Netherlands) and Tequila Magic Town (Mexico) to easily and quickly convert digital and physical data into actionable insights using hyperpersonalized mobile communications.

#### Offering

Citizen Engagement Solutions, Tourism Engagement Solutions.

### CONTACT

- Mocaplatform.com
- in company/moca-platform
- Market Constraints and American Science of the second seco
- xavi@mocaplatform.com







## **MOMENTUM ANALYTICS**



#### **Description**

MOMENTUM Analytics empowers cities of the future by delivering artificial intelligence solutions to be more sustainable, prosperous, and inclusive. We transform pioneering ideas into real solutions for citizens.

#### Offering

CONTACT

Smart city solutions based in Artificial Intelligence.

#### **COMPANY RELATED USE CASES**



#### Vulnerability prediction





momentumanalytics.net
Momentum Analytics AI

# FIDELIZACIÓN MONEDER



#### Description

Company that is dedicated to providing consulting and business advice, for loyalty programs focused on customers.

To attain this loyalty from customers, Moneder developed "Fidelización Moneder" platform that is a loyalty and communication tool.

#### Offering

Business management and management consultancy.



#### **COMPANY RELATED USE CASES**





## CONTACT

- moneder.com
- in Moneder
- <u>
  @monedercat</u>

## MOREAPP



#### Description

MoreApp is an application that provides you with a app to get rid of paperwork, save time, and reduce costs, paper usage and waste. With the MoreApp form-Builder you can easily shape any type of digital form. Use the native app to capture data on any location, even in offline mode. MoreApp can also facilitate methodology processes for important tasks, so that no mistakes in the process are committed, this can be done by using paperless checklists from the app.

#### Offering

Paperless methodology for any kind of forms, easily adapted to any organization.

#### CONTACT

moreapp.com

- in Moreapp
- MoreAppEs





## **MOSAIC FACTOR**



#### **Description**

Mosaic Factor is a fully independent private company based in Barcelona. We are specialized in Big Data and Artificial Intelligence for Mobility and Logistics. Our technical expertise combined with more than 15 years of experience innovating in these two sectors, enables us to develop B2B data driven innovative solutions with a strong focus on data sharing and all related challenges and opportunities, helping each stakeholder on planning and managing mobility services through prediction, simulation and deep knowledge of real user behavior.

#### Offering

Big data and Artificial Intelligence solutions for Mobility and Logistics.

#### CONTACT

- mosaicfactor.com
- in <u>MosaicFactor</u>
- MosaicFactor



#### **COMPANY RELATED USE CASES**



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## MASQUELEARNING



#### **Description**

MasqueLearning walks towards a new paradigm in knowledge management; a horizon in which projects and people align to achieve a better version of the world. Through innovation, creativity and transparency, we co-create transformative experiences that facilitate connection, motivation and commitment using the game as a lever for change. We design tools for HR or People Management: employer branding strategies, onboarding processes, training plans and skills development, motivation campaigns, job satisfaction and business culture. Facilitation of workshops and events

#### Offering

Empowerment of people through promotion of talent, improvement of engagement and positive social impact.

#### CONTACT

- masquelearning.com
- in <u>MQLPlay</u>
- <u>
   @masquelearning</u>





## **NEXUS GEOGRAPHICS**



#### **Description**

We are a company specialized in GIS, Location Intelligence and Mobility, with a team of 50 experts. Our purpose is to help organizations to incorporate geographic technology in their IT, to being able to integrate, view, analyse, share, communicate the data related with their activities on apps, web apps and operational dashboards with maps. We generate 10 millions maps everyday, for more than 1.000 clients. We've been working for two decades, since 1997, in Girona, Barcelona and Madrid, mainly on a national scale but also at the international level. We have alliances with the main brands of geographical technology and information worldwide.

#### Offering

Smart maps, smart mobility and geographical knowledge.

#### CONTACT

- Nexusgeographics.com
- in Nexusgeographics
- 灯 @nexusgeographic
- ☑ info@nexusgeographics.com







## **NUVATHINGS**



#### **Description**

Nuvathings is a company focused on developing solutions for the internet of things, providing a business model based on certified boards and cloud, which are licensed to those willing to have a fast solution in the market. Our solutions, comprise, the NUVA cloud platform, ready to manage as many objects as you want to connect. Also the Cirrus-4T IOT certified boards which are able to put to cloud many devices such, security systems, home automation, gas, fire, detectors, water leakage, smart farming sensors, with complete data logging and online control and configuration.

#### Offering

Internet of things integral solutions, including software and hardware.

#### CONTACT

nuvathings.com

im <u>Nuvathings</u>







# orain

#### **Description**

Orain is an IoT network of self-service machines that enables human-machine communication through AI based chat and BI platform. Born as a response to vending market needs for mobile payments, customer service automation and geolocated marketing, Orain became a one stop shop of IoT social payments, including smart fridges, office coffee service's, self-service laundries, parkings, appliances and others. Some of top features of Orain dashboard for machine operators are business manager, campaigns, promotions, automatic invoicing and issue response while users can interact with machines through an app and enjoy cashless payments and a seamless, personalised and more human experience.

#### Offering

Global network of self service machines

#### CONTACT

- Orain.io
- ໍ່ເກີ <u>Orain</u>
- 灯 @We\_Orain





# PARKUNLOAD

#### Description

PARKUNLOAD® is the most advanced digital platform to regulate, control and monitor loading zones and other restricted parking areas, based on IoT devices and mobile applications. Integrating an app to give information for the drivers, municipality and traffic officers.

#### Offering

CONTACT

Parking management digital platform.



#### **COMPANY RELATED USE CASES**





#### 

Parkunload.com Parkunload @ParkUnload

## SAALG GEOMECHANICS



#### **Description**

SAALG Geomechanics specializes in real-time analysis of ground monitoring data to minimize risk of civil engineering and large building projects in urban areas. We have developed "Daarwin", a risk management platform that combines predictive models and monitoring data for all the life-cycle of the infrastructure (design-construction-maintenance).

#### Offering

CONTACT

Saalg

îm

IJ

saalg.com

Real-time infrastructure risk management solutions

#### **COMPANY RELATED USE CASES**





@SaalgGeomech

## SAMCLA



#### **Description**

Samcla was founded in September 2002 and since mid-2007 it has been leading the sector of tele management of water for irrigation of public and private green areas. Right now, more than 150 municipalities in 7 different countries enjoy the SAMCLA Tele management System for their green areas. Many of them remotely manage all their irrigation points and control their water meters and possible leaks, their ornamental fountains and even their lighting on a daily basis.

#### Offering

Water Control and Waste Monitoring Tele management Systems.



#### **COMPANY RELATED USE CASES**





## CONTACT

samcla.com

in <u>Samcla</u>

@Samcla\_Smart
 @Samcla\_Smart



#### Description

Smart street lighting and city technologies. We integrate, install, manage and maintain all kind of assets in a public space. Specialized in Smart Lighting, Smart Energy, Smart City solutions and Management of operations.

#### Offering

CONTACT

in <u>SECE</u>

sece.com

Smart lighting and smart city technology solutions.



#### **COMPANY RELATED USE CASES**





#### HOME < COMPANIES

## **SENSITIVE DATA**



#### **Description**

Sensitive Data is a solution provider company, which services include, 4D data analytics for any topic, custom data solutions and IoT solutions. The value added of their services includes the access visualization from anywhere, even from your phone or tablet.

#### Offering

Automated Analytics & Data Visualization using IoT, Industry 4.0, Big Data & IA tools for Energy Efficiency, Buildings, Smartcities, & Industrial sectors.



#### **COMPANY RELATED USE CASES**





#### CONTACT

- sensitivedata.es
- Sensitive Data
- @SensitiveDataES

## SENSING AND CONTROL SYSTEMS



#### **Description**

Sensing & Control offers IoT solutions to organizations in different sectors including telecom, energy providers, healthcare, construction, government and management, hardware and appliance manufacturers, retailers, insurance companies and Smart Cities. Our platform is a complete IoT end-to-end solution that easily integrates with existing communication network, monitoring tool or control systems. It connects to any device including sensors, actuators, appliances, meters, wearables, smartphones, smart home and building devices (thermostats, lights, energy plugs, air conditioning, heaters, etc.), cameras, locks, etc.

#### Offering

IoT end-to-end solutions.

#### CONTACT

SensingControl.com

- Sensing & Control Systems S.L.
- Mail Control



#### **COMPANY RELATED USE CASES**



HOME < COMPANIES

## SHARIFY



#### **Description**

Sharify is the first platform to incorporate the time dimension on the map around the world. The startup launched in 2017 with the aim to connect cities with citizens. is a real-time map that connects Smart Cities with their citizens, turning Maps into an open-sourced real-time atlas where people in the city can discover and share easily and fast what is happening right now and right here. Being the live map of Smart Cities, it allows locals, expats and tourists to discover and share social, musical or sports plans.

#### Offering

Digital real-time map connecting citizens, companies and municipalities.

#### CONTACT

- sharifyapp.com
- in Sharifyapp
- 🖤 @SharifyApp



#### **COMPANY RELATED USE CASES**



#### HOME < COMPANIES

## SHOTL



#### **Description**

Shotl is new-mobility start-up, which offers a mobility platform that empowers transport operators to supply on-demand bus services by matching multiple passengers headed in the same direction with a moving vehicle. The solution has been conceived to supplant inefficient bus lines or to improve existing shared transport services in business parks and corporations.

#### Offering

Shotl platform consists in three powerful applications working seamlessly together:

- User and Driver App (Android and iOS)
- Management module (web tool)

Powerful backend algorithms are able to match users in shared vehicles as per their origins and destinations.

#### CONTACT

- shotl.com
- in <u>Shotl</u>
- Marideshotl







## SIARQ ADVANCED SOLAR DESIGN



#### **Description**

SIARQ is a design and engineering company, specialized in clean energy urban furniture solutions forming part of the smart infrastructure which supports the IoT (Internet of Things) in urban environments. SIARQ also runs SHOC, the Solar HUB Open Collaboration Program, an innovation project to co-create, prototype and build relevant IoT solutions for the urban environment which involves all the players in the smart urban furniture ecosystem.

#### Offering

Solar urban infrastructure solutions.

### CONTACT

siarq.com

in <u>SIARQ</u>

灯 @SIARQdesign







## SINAPSE ENERGIA



#### **Description**

Sinapse Energia was founded with the purpose of offering energy efficiency solutions based on street lighting tele management. The Company designs, develops and manufactures its own electronic equipment with high innovative content. We use wireless sensor technology and software solutions to act both in real time and through programming, to provide intelligence infrastructure. The innovative technology allows to have total control of the facilities. Over the years, the evolution of technology and the efforts in R&D has been expanding the range of solutions to offer connectivity and sensor systems throughout the IoT.

#### Offering

Energy efficiency solutions based on smart street lighting through tele management.

#### CONTACT

- sinapseenergia.com
- in SinapseEnergia
- <u>
   @SinapseEnergia</u>





## **SOCIAL WIBOX**



#### Description

SocialwiBox is a social marketing intelligence tool that helps you win and retain customers, combining the power of Wifi, Big Data and Social Networks.

#### Offering

Wi-Fi connectivity solutions and device tracking systems.



#### **COMPANY RELATED USE CASES**



#### HOME < COMPANIES

## CONTACT

- socialwibox.com
- in Social WiFi S.L
- <u>
  @SocialWiBox</u>



#### Description

SocialCar is a mobility platform offering Peer to Peer car rental, carsharing and ridehailing services in Spain. Its integral solution even offers buying and selling your car in the same platform. We take care of both long distance and urban mobility needs of all our users.

#### Offering

Car sharing mobility platform.

### CONTACT

socialcar.com

im <u>SocialCar</u>

<u>
 @SocialCarCom</u>









#### Description

Somintec is an integral solution provider for parking's in smart cities. We have developed an app that makes it easy for users to pay their way around parkings, know in which places it is forbidden to park and shows you the free spaces, so that cars can find parking faster and with a higher rotation, knowing that through the app, municipalities can also supervise about parking timings and charge fees.

#### Offering

On Street parking solutions.

### CONTACT

somintec.com

in Somintec SL







## SOTAVIA



#### **Description**

Sotavia checks the condition of pavements with a new automatic defect detection device using in-house technology. How we do it? Data gathering system based on a vehicle equipped with a device that collects and analyses three-dimensional images of the pavement surface. When we do it? street scanning takes place at night and at the usual speed for driving on urban roads. Our system is quick and does not affect traffic in any way.

#### Offering

Automatic pavement condition detection systems.

#### CONTACT

sotavia.com

- im Sotavia Technologies
- 3 @SotaviaTech



#### **COMPANY RELATED USE CASES**



HOME < COMPANIES

## **SUBMER**



#### **Description**

Submer is a cleantech company that designs, builds and installs highly efficient and sustainable Liquid Immersion Cooling (LIC) solutions such for HPC, hyperscaler, datacenters, Edge, AI, deep learning and blockchain applications.

#### Offering

CONTACT

in M submer.com

@submertech

HPC Immersion Cooled for advanced AI cybersecurity.



#### **COMPANY RELATED USE CASES**





#### HOME < COMPANIES

**Submer Immersion Cooling** 

## THINGHTIA.CLOUD



#### Description

Thingtia.cloud is a spin-off company of Opentrends which provides a sensor and actuator platform that collects, monitors, analyses and broadcasts the information. It avoids vertical solutions and makes data sharing easier, while reducing specific technology, product and supplier's dependency. The company provides an entry point into the IoT world through a bottom-up approach.

#### Offering

IoT Platform and management.

#### **COMPANY RELATED USE CASES**





## CONTACT

thingtia.cloud

in <u>Thingtia</u>

## **UNIVERSAL CUSTOMER**



#### **Description**

Universal Customer founded in 2014 by six partners (from Barcelona, Madrid, Reus, Geneve) this company has been positioned at the hotel or tourism markets whose services are based on providing tools that offer a successful shopping experience for sellers and customers to interact easily and with confidence without knowing each other's language.

#### Offering

Customized communication tools.

#### CONTACT

- universalcustomer.com
- in Universal Customer
- Univcustomer









#### Description

Urban Resilience is a European organization fostering sustainable energy management. The main projects Urban Resilience is working on at the moment are public ultra fast electric charging, automatic car park & charge, taxi docking, convenience stores for electric charging stations and energy storage units. In addition, the company is been catalogues as Enabler of Citizen Engagement on Energy Challenges by the Citizens Focus Cluster in 2015, apart from taking part as a member of all sex action clusters of the EIP-SCC

#### Offering

Fast charging stations for E-Vehicles.

#### CONTACT

- urbanresilience.eu
- in Jordi Sala Porta
- <u>
   @ResilienceUrban
   </u>







## URBIOTICA



#### Description

Urbiotica was established in 2008 with a very clear foundational vision: technology based on wireless sensor networks will transform how we manage our cities.

We lead the revolution of the Internet of Things applied to Smart Cities. The Smart Parking & Noise Monitoring projects implemented in more than 20 countries position us as the leading technology company in the development of smart solutions based on sensor systems, designed to manage urban space more efficiently and sustainably.



#### Offering

Wireless sensor systems.

#### CONTACT

- urbiotica.com/en/
- in Urbiotica
- Market Construction (Construction) (











#### **Description**

Vadecity is a Startup based in Barcelona specialized in smart bikes solutions. Vadecity has designed a new form of mobility for the city, adding safe system parking, intelligent and sustainable solution for citizens, at the same time encourages the use of bicycles and contributes to the good organization of mobility and sustainability within the city.

#### Offering

Smart parking for bicycles all around the city.

### CONTACT

- Vadecity.com
- in Vadecity
- 2 @Vadecity







## VANAPEDAL

# VONAPEDAL

#### Description

VANAPEDAL is a company launched in 2011 in Barcelona which services focused always on bike sustainable mobility. From bike last mile mobility service, passing through bike mechanical assistance on the road to users, till delivery services using bikes. In this manner, Vanapedal contributes working with many mobility operators, in the achievement of a sustainable model of distribution using last mile mobility.

#### Offering

Bike services (mechanical assistance, mobility and delivery).



#### **COMPANY RELATED USE CASES**





## CONTACT

vanapedal.eu

灯 @vanapedal



#### Description

WATTABIT provides innovative energy management software for multi-site assets, by digitalizing data from multiple devices, enables users to visualize energy consumption and costs of all assets in one single place. Due to real time energy consumption, managers can make decisions with more accurate and up to date information.

#### Offering

Energy management software integral systems.

#### CONTACT

wattabit.com

in <u>Wattabit</u>

灯 @Wattabit







## WAVECONTROL



#### **Description**

Wave Control, founded in 1997, is an engineering company specializing in electromagnetic field measurements in the areas of radio frequency safety and electromagnetic compatibility. Wave Control offers tools for the radio frequency governance of cities. A network of sensors that continuously monitors people's exposure to electromagnetic fields from telecommunication infrastructure, power lines, etc. The results can be easily shared with the population, contributing with a better transparency and communication tool for any local government.

#### Offering

Wireless/Cellular telecommunications monitoring networks.



#### COMPANY RELATED USE CASES

![](_page_68_Figure_8.jpeg)

![](_page_68_Picture_9.jpeg)

## CONTACT

- wavecontrol.com/
- in Wavecontrol
- Carteria Control RF

# **4. SUSTAINABLE DEVELOPMENT GOALS**

EXPLORE SMART CITY USE CASES THAT IMPACT EACH OF THE UNITED NATIONS SUSTAINABLE DEVELOPMENT GOALS

![](_page_69_Figure_2.jpeg)

![](_page_69_Picture_4.jpeg)

## **Smart City and SDGs (I)**

Urban environment Â Mobility Environment

12 CONSUM RESPONSABLES	15 temestre	

LED lighting systems in Smart Cities are an example of the promotion of clean energy (7). These cities also have green spaces that bring biodiversity to the cities and incorporate intelligent systems (for example with intelligent grids) (15). In addition, both reconstructing and the new building in the smart cities model, is based on sustainability and energy efficiency - green buildings (11). With regard to urban equipment, innovative products created with recycled and innovative materials (12.9) are counted.

![](_page_70_Picture_5.jpeg)

The implementation of technologies and innovation in Smart Cities has a direct involvement with the promotion of sustainable urban mobility (11), for example through alternative models of transport such as electric and shared vehicles, the use of sustainable energy in transport and the promotion of bicycles and personal mobility vehicles (7,13). Smart parking solutions are also an example of the reduction of the environmental impact, as they reduce the time of circulation and emissions of vehicles in the city. Also emphasize eco-logistics solutions of urban distribution of merchandise last mile (9).

![](_page_70_Picture_7.jpeg)

For Smart Cities, reducing the environmental impact is paramount, thus promoting intelligent management of waste, water and energy, for example through sensorization, Artificial Inteligence and big data (13,7,6) . These technologies, among others, also allow a better monitoring of the environmental quality of water, air, acoustics, lighting in cities (15,14). On the other hand, the urban networks of heat and cold like Districlima in Barcelona are an example of circular economic initiatives reusing products and materials, minimizing waste and maximizing the value of resources (12).

Source: Informe Smart Cities 2019 - ACCIÓ

![](_page_70_Picture_11.jpeg)

## **Smart City and SDGs (II)**

Quality of life

Security & resilience

**N** 

![](_page_71_Picture_3.jpeg)

The improvement of quality of life is the main objective for Smart Cities, this includes the end of poverty and hunger (1,2), as well as innovative strategies to improve health and well-being (for example with wearables and interactive health systems with the patient). Education is also key, especially aimed at reducing the digital divide (4) and the search for reducing inequalities, for example with women's empowerment initiatives and encouraging ICT vocations among students (5,10).

Smart Government

![](_page_71_Picture_6.jpeg)

Through the creation of networks and communities of Smart Cities at the local, European and international levels, the development of resilient and sustainable cities is disseminated, and peaceful and inclusive as just societies are promoted (11,16,17). Smart government strategies also promote innovation both in administration and industry through new financing models and public-private partnerships (8). Data government is also key in a time of information where digital rights and privacy are becoming fundamental issues (9).

![](_page_71_Picture_8.jpeg)

Smart Cities promote the use of technologies and R & D in the area of security, especially in solutions of cybersecurity, adaptable, robust, scalable and reliable applications that help to mitigate the negative implications associated with cyber attacks and the possible invasion of privacy (11, 16). In addition, the use of intelligent systems, especially through IoT (for example early warning systems), is fundamental, which allow foresight and management of natural disasters (13, 9).

Source: Informe Smart Cities 2019 - ACCIÓ

![](_page_71_Picture_11.jpeg)

Generalitat de Catalunya Government of Catalonia
# **GOAL 1: NO POVERTY**

The decline of global extreme poverty continues but has slowed. The deceleration indicates that the world is not on track to achieve the target of less than 3 per cent of the world living in extreme poverty by 2030. People who continue to live in extreme poverty face entrenched deprivation deep, often by violent conflicts exacerbated and vulnerability to disasters. Strong social protection systems and government spending on key services often help those left behind get back on their feet and escape poverty, but these services need to be brought to scale



- POVERTY REDUCTION
- SOCIAL PROTECTION
- INCLUSION
- PEOPLE'S RESILIENCE

Vulnerability prediction



7

# **GOAL 2: ZERO HUNGER**

Hunger is on the rise again globally and undernutrition continues to affect millions of children. Public investment in agriculture globally is declining, small scale food producers and family farmers require much greater support and increased investment in infrastructure and technology for sustainable agriculture is urgently needed. 2 ZERO HUNGER

- AGRICULTURAL
  PRODUCTIVITY
- NEW PRODUCTION SYSTEMS
- RESOURCES ACCESS





# **GOAL 3: GOOD HEALTH AND WELL-BEING**

Major progress has been made in improving the health of millions of people, increasing life expectancy, reducing maternal and child mortality and fighting against leading communicable diseases. However, progress has stalled or is not happening fast enough inregard to addressing major diseases, such as malaria and tuberculosis, while at least half the global population does not have access to essential health services and many of those who do suffer undue financial hardship, potentially pushing them into extreme poverty



- HEALTH ACCESS AND COVERAGE
- INFORMATION AND EDUCATION
- SOCIAL INCLUSION















# **GOAL 4: QUALITY EDUCATION**

Despite the considerable progress on education access and participation over the past years, 262 million children and youth aged 6 to 17 were still out of school in 2017, and more than half of children and adolescents are not meeting minimum proficiency standards in reading and mathematics. Rapid technological changes present opportunities and challenges, but the learning environment, the capacities of teachers and the quality of education have not kept pace. Refocused efforts are needed to improve learning outcomes for the full life cycle.



- EDUCATION ACCESS AND QUALITY
- GENDER EQUALITY
- EDUCATION
  DEVELOPMENT
- CULTURAL DIVERSITY

Painting Stories



# **GOAL 5: GENDER EQUALITY**

While some indicators of gender equality are progressing, such as a significant decline in the prevalence of female genital mutilation and early marriage, the overall numbers continue to be high. Moreover, insufficient progress on structural issues at the root of gender inequality, such as legal discrimination, unfair social norms and attitudes, decision-making on sexual and reproductive issues and low levels of political participation, are undermining the ability to achieve Sustainable Development Goal 5.



- END DISCRIMINATION
- EQUAL OPPORTUNITIES
- APPROPRIATE EQUALITY
  POLICIES
- VISIBILITY

SDGs

# GOAL 6: CLEAN WATER AND SANITATION

Despite progress, billions of people still lack safe water, sanitation and handwashing facilities. Data suggests that achieving universal access to even basic sanitation service by 2030 would require doubling the current annual rate of progress. More efficient use and management of water are critical to addressing the growing demand for water, threats to water security and the increasing frequency and severity of droughts and floods resulting from climate change. As of the time of writing, most countries are unlikely to reach full implementation of integrated water resources management by 2030. 6 CLEAN WATER AND SANITATION

- WATER POLLUTION
- NEW WATER
  MANAGEMENT SYSTEMS
- WATER REUSE
- WATER QUALITY







Satellite insights for

urban planning and city



HOME

Solar Urban Hub

# **GOAL 7: AFFORDABLE AND CLEAN ENERGY**

Access to electricity in the poorest countries has begun to accelerate, energy efficiency continues to improve and renewable energy is making gains in electricity sector. Despite this progress, some 800 million people remain without electricity while access to clean cooking fuels and technologies needs dedicated attention. In addition. if Sustainable Development Goals 7, 13 and related Goals are to be met, much higher levels of ambition are required with regard to renewable energy, including transportation and heating.

HOME

SDGs

**ENERGÍA ASEQUIBLE Y NO CONTAMINANTE** 

- **RENEWABLE ENERGY** •
- ENERGY EFFICIENCY •
- NON-POLLUTING **TECHNOLOGIES**
- MOBILITY DEMAND .



**Distric Heating and** 



IoT systems in public

lighting facilities



Energy Management System

Satellite insights for urban planning and city monitoring



**Charging stations** 





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Generalitat de Catalunya Government of Catalonia

# GOAL 8: DECENT WORK AND ECONOMIC GROWTH

Inclusive and sustainable economic growth can drive progress and generate the means to implement the Sustainable Development Goals. Globally, labour productivity has increased and unemployment is back to pre-financial crisis levels. However, the global economy is growing at a slower rate. More progress is needed to increase employment opportunities, particularly for young people, reduce informal employment and the gender pay gap and promote safe and secure working environments to create decent work for all.

WELL THE



- SUSTAINABLE ECONOMIC GROWTH
- SAFE WORKPLACES
- QUALITY PROFESSIONS
- PROMOTE AID-FOR-TRADE

Catalonia o Trade & Investment

Smart City Strategy

and Action Plan



Smart parking to promote

local commerce

# **GOAL 9: INDUSTRY, INNOVATION AND INFRAESTRUCTURE (I)**

Aspects of the prevailing global economic environment have not been conducive to rapid progress on Sustainable Development Goal 9. While financing for economic infrastructure has increased in developing countries and impressive progress has been made in mobile connectivity, countries that are lagging behind, such as least developed countries, face serious challenges in doubling the manufacturing industry's share of GDP by 2030, and investment in scientific research and innovation remains below the global average.

INDUSTRY, INNOVATION AND INFRASTRUCTURE H)

- EFFICENT TRANSPORTATION SERVICES
- MANUFACTORING . INDUSTRIES EMISSIONS
- **RESEARCH IN INVESTMENT**
- TELECOM ACCESS



Smart City and Smart

**Region strategies** 



5G Barcelona

Blockchain electronic

voting platform



Citizens as a sensor for

disaster response





a source and







Satellite insights for

Catalonia o Trade & Investment

Generalitat de Catalunya Government of Catalonia



# **GOAL 9: INDUSTRY, INNOVATION AND INFRAESTRUCTURE (II)**

Aspects of the prevailing global economic environment have not been conducive to rapid progress on Sustainable Development Goal 9. While financing for economic infrastructure has increased in developing countries and impressive progress has been made in mobile connectivity, countries that are lagging behind, such as least developed countries, face serious challenges in doubling the manufacturing industry's share of GDP by 2030, and investment in scientific research and innovation remains below the global average.

INDUSTRY, INNOVATION AND INFRASTRUCTURE H)

- EFFICENT TRANSPORTATION SERVICES
- MANUFACTORING INDUSTRIES EMISSIONS
- **RESEARCH IN INVESTMENT**
- TELECOM ACCESS



Smart Stadium 360°





The value of travel time for the citizen





Automatic service for

monitoring the



Youth Artificial Intelligence Chatbots



Port Forward **Geotechnical risk** 



thermomete

The antisocial

Catalonia o Trade & Investment



HOME

# **GOAL 10: REDUCED INEQUALITIES**

Inequality within and among nations continues to be a significant concern despite progress in and efforts at narrowing disparities of opportunity, income and power. Income inequality continues to rise in many parts of the world, even as the bottom 40 per cent of the population in many countries has experienced positive growth rates. Greater emphasis will need to be placed on reducing inequalities in income as well as those based on other factors. Additional efforts are needed to increase zerotariff access for exports from least developed countries and developing countries, and assistance to least developed countries and small island developing States.



- EFFICIENT
  TRANSPORTATION SERVICES
- MANUFACTORING
  INDUSTRIES EMISSIONS
- RESEARCH IN INVESTMENT
- TELECOM ACCESS

Adapted transport

system for disable people

Vulnerability prediction



# GOAL 11: SUSTAINABLE CITIES AND COMMUNITIES (I)

Substantial progress has been made in reducing the proportion of the global urban population living in slums, though more than 1 billion people continue to live in such situations. Urgent action is needed to reverse the current situation, which sees the vast majority of urban residents breathing poor-quality air and having limited access to transport and open public spaces. With the areas occupied by cities growing faster than their populations, there are profound repercussions for sustainability.

HOME

SDGs



- WASTE COLLECTION
- OPEN PUBLIC SPACES
- AIR POLLUTION



# GOAL 11: SUSTAINABLE CITIES AND COMMUNITIES (II)

Substantial progress has been made in reducing the proportion of the global urban population living in slums, though more than 1 billion people continue to live in such situations. Urgent action is needed to reverse the current situation, which sees the vast majority of urban residents breathing poor-quality air and having limited access to transport and open public spaces. With the areas occupied by cities growing faster than their populations, there are profound repercussions for sustainability.

HOME

SDGs



- PUBLIC TRANSPORT ACCESS
- URBAN GROWTH MANAGEMENT
- WASTE COLLECTION
- OPEN PUBLIC SPACES
- URBAN POLICIES



# GOAL 11: SUSTAINABLE CITIES AND COMMUNITIES (III)

Substantial progress has been made in reducing the proportion of the global urban population living in slums, though more than 1 billion people continue to live in such situations. Urgent action is needed to reverse the current situation, which sees the vast majority of urban residents breathing poor-quality air and having limited access to transport and open public spaces. With the areas occupied by cities growing faster than their populations, there are profound repercussions for sustainability.

HOME

SDGs

11 SUSTAINABLE CITIES

- PUBLIC TRANSPORT ACCESS
- URBAN GROWTH MANAGEMENT
- WASTE COLLECTION
- OPEN PUBLIC SPACES
- URBAN POLICIES



City assets platform

# **GOAL 12: RESPONSIBLE CONSUMPTION AND PRODUCTION**

Worldwide material consumption has expanded rapidly, as has material footprint per capita, seriously jeopardizing the achievement of Sustainable Development Goal 12 and the Goals more broadly. Urgent action is needed to ensure that current material needs do not lead to the overextraction of resources or to the degradation of environmental resources, and should include policies that improve resource efficiency, reduce waste and mainstream sustainability practices across all sectors of the economy.

**12** RESPONSIBLE CONSUMPTION AND PRODUCTION

- **RESOURCE EFFIENCY** •
- **MATERIAL FOOTPRINT** •
- SUSTAINABLE CONSUMPTION AND **PRODUCTION PATTERNS**



Submer Immersion

**Reverse vending** 

machines



**Tourism Engagement** 





Energy management system







Music limiter for city





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HOME

SDGs

Mobility as a Service;

shared mobility

# **GOAL 13: CLIMATE ACTION**

With rising greenhouse gas emissions, climate change is occurring at rates much faster than anticipated and its effects are clearly felt worldwide. While there are positive steps in terms of the climate finance flows and the development of nationally determined contributions, far more ambitious plans and accelerated action are needed on mitigation and adaptation. Access to finance and strengthened capacities need to be scaled up at a much faster rate, particularly for least developed countries and small island developing States.



- **RESOURCE EFFIENCY** •
- MATERIAL FOOTPRINT •

 SUSTAINABLE CONSUMPTION AND **PRODUCTION PATTERNS** 



Smart City Strategy

and Action Plan

**Radio Frequency** Monitoring System

Suba

Submer Immersion

Cooling









cities

City assets platform



Smart Guidance for

**Telemanagent and** 





**Corporate Parking** 





Mobility simulator in

real time

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HOME

# **GOAL 14: LIFE BELOW WATER**

The expansion of protected areas for marine biodiversity and existing policies and treaties that encourage responsible use of ocean resources are still insufficient to combat the adverse effects of overfishing, growing ocean acidification due to climate change and worsening coastal eutrophication. As billions of people depend on oceans for their livelihood and food source and on the transboundary nature of oceans, increased efforts and interventions are needed to conserve and sustainably use ocean resources at all levels.

SDGs



- REPONSIBLE OCEAN USE RESOURCES
- SUSTAINABLE FISHERIES
  DEVELOPMENT
- MARINE BIODIVERISTY
  PROTECTION

Port Forward



# **GOAL 15: LIFE ON LAND**

There are some encouraging global trends in terrestrial ecosystems protecting and biodiversity. Forest loss is slowing down, more key biodiversity areas are protected and more financial assistance is flowing towards biodiversity protection. Yet, the 2020 targets of Sustainable Development Goal 15 are unlikely be met, land degradation continues, to biodiversity loss is occurring at an alarming rate, and invasive species and the illicit poaching and trafficking of wildlife continue to thwart efforts to protect and restore vital ecosystems and species.

SDGs

HOME



- HEALTHY MOUNTAIN ECOSYSTEM
- BIODIVERSITY PROTECTION
- SPECIES EXTINCTION
- LAND USE PRODUCTIVITY
- NATURE RESILIENCE





The antisocial

# **GOAL 16: PEACE, JUSTICE AND STRONG INSTITUTIONS**

Advances in ending violence, promoting the rule of law, strengthening institutions and increasing access to justice are uneven and continue to deprive millions of their security, rights and opportunities and undermine the delivery of public services and broader economic development. Attacks on civil society are also holding back development progress. Renewed efforts are essential to move towards the achievement of Sustainable Development Goal 16.



- **CIBERSEGURITY AND DATA** PROTECTION
- TRANSPARENCY POLICIES •
- **CITIZENS PARTICIPATION**
- DIGITAL ADMINISTRATION .













Sharify real-time



SDGs

HOME

# **GOAL 17: PARTNERSHIPS FOR THE** GOALS

Progress on some means of implementation targets is moving rapidly: personal remittances are at an all-time high, an increasing proportion of the global population has access to the Internet and the Technology Bank for the Least Developed Countries has been established. Yet, significant challenges remain: ODA is declining, private investment flows are not well aligned with sustainable development, there continues to be a significant digital divide and there are ongoing trade tensions. Enhanced international cooperation is needed to ensure that sufficient means of implementation exist to provide countries the opportunity to achieve the Sustainable Development Goals.



- PUBLIC-PRIVATE PARTNESHIPS
- SHARE KNOWLEDGE WITH FOREIGN INSTITUTIONS
- SUSTAINABLE POLICIES DEVELOPMENT







Geotechnical risk







Catalonia o Trade & Investment



SDGs

# **EXPLORE SMART CITY USE CASES**



Generalitat de Catalunya Government of Catalonia

An open government is one that promotes better access to government data, both in terms of transparency and open data, provides better services though e-administration and enables citizen participation for a successful development of public policies.

Smart governance includes leveraging regulation to improve the functioning of the city and the municipal corporation as well as developing innovative policies to drive urban transformation.

For a more efficient and effective public management, city councils aim to foster an environment of intrapreneurship in all the organizational layers to monitor the city's progress.

HOME

- SMART GOVERNANCE
- OPEN GOVERNMENT
- EGOVERNMENT
- EADMINISTRATION
- CITIZEN PARTICIPATION
- CITIZEN ENGAGEMENT
- TRANSPARENCY
- PUBLIC MANAGEMENT
- POLICYMAKING
- PROGRESS MONITORING



# **Citizen Engagement Solution**

# Personalised and context sensitive information to citizens and visitors

Zupthen, Neatherlands.

### **The Challenge**

- ✓ Reduce the impact of urban works in citizens mobility around the city.
- ✓ Redirect visitors to areas of less affluence.

### Solution

Upgrade the existing city app with the integration of an analytics and marketing automation platform that leverages AI, geolocation, IoT sensors and other contextual information to deliver personalized experiences based on the user profile, time and context. It provides citizens with location-aware notifications to minimize urban work inconveniences by guiding traffic properly as well information about events and activities within the city.

### **Benefits**

- ✓ Minimise the inconvenience of urban works
- ✓ Citizen awareness of events going on in their community.
- ✓ Increase in citizen satisfaction, meeting and networking in different points of the city. + INFO



**Partner** 





Client

66% of users chose to enable location-aware communications

**42 minutes average visit duration** in points of interest

Notifications were opened **2.6x times more** than standard push notifications





# **Tourism Engagement Solution** Smart Government

Benidorm, Spain.

#### The Challenge

✓ Provide useful information to tourists without connectivity.

#### Solution

Integration of an analytics and marketing automation platform to the existing Visit Benidorm app and installation of sensors in strategic points of the city. This enabled tourists to receive relevant information, according to their profiles and current location, about culture, beaches, events, restaurants, and hotels. Taking into account that many tourists do not have interned on their smartphones during their visit, the app was designed to work offline. In addition, the solution enables the city to learn more about visitors profile such as countries of origin, OS, device types, languages, frequently visited locations and most visited locations.

#### **Benefits**

✓ Substantial Tourism increase Benidorm in Municipality. + INFO



Partner



Client





83% of users chose to enable locationaware communications

4 average daily sessions per user

80% of users engaged with the app during the campaign





# **Smart City and Smart Region strategies**

# **Smart Government**

Medium-size cities in Argentina (specially Corrientes, Neuquén, Río Cuarto, Salta y San Juan).

### The Challenge

✓ To define the 'R+D+i Agenda for Argentina 2035.

### Solution

This consultancy project included a diagnosis of 30 Argentinian medium-sized cities in terms of Smart City development, an assessment of the research and innovation capabilities of the Argentinian public system for the Smart City deployment and a prospective study detailing recommendations on future scenarios and data governance at the city levels. Anteverti's Smart City/Region conceptual model envisages a holistic and integrated system where challenges and solutions are interconnected. It is based on three perspectives –functional, technological and relational– and can be tailored to the specificities of each municipality and/or regional government.

### **Benefits**

✓ To provide strategic planning and roadmaps addressing the challenges of cities/regions with smart approaches and accompanying them through the adaptation process that these changes entail. <u>+ INFO</u>



**30** medium-sized Argentinian **cities involved** 

More than 50 actions proposed





# **Citizen engagement and promotion with municipal bodies** Smart Government

Logroño, Spain.

#### The Challenge

✓ Increase the participation of citizens in the process of municipal budgeting.

#### Solution

Civiciti provided the Logroño City Council with a centralized platform for the reception of the citizen proposals, voting and a forum to discuss the ideas as a tool to engage and promote the participatory budget process. To make easier the evaluation and discussion, Civiciti divided the proposals in different categories such as: Culture and Sport, Environment, Urban Mobility, Social Services, Urban Planning and Other Categories, making the process more understandable. In this journey was essential to offer both online and offline options to engage and collect more proposals.

### **Benefits**

- ✓ More effective and transparent process when voting through citizen ballots.
- ✓ Paperless procedures applied for more sustainable working methods. + INFO



**35% increase** in civic participation

High rate of governmental approval because of the iniciative

**702 new ideas** collected **for implementing** in the municipality









# **Smart City Strategy and Action Plan**

### **Smart Government**

Macau SAR, China.

### **The Challenge**

- ✓ Need for a a long-term vision for the city and a holistic transformational plan.
- ✓ Integrate the interests of all city stakeholders.

### Solution

Definition of the strategy to promote the city's transformation, addressing issues related to economic diversification, social welfare, ICT infrastructures and international positioning. It incorporated a participatory process of all the city stakeholders: Government areas, public companies, private sector, universities and citizens. The tailor-made Action Plan identified key drivers and success factors as well as KPIs to monitor the social, environmental and economic impacts of the strategy.

### **Benefits**

- ✓ Engagement of city stakeholders in the strategy.
- ✓ Feasible and realistic roadmap towards city transformation.

+ INFO

Macau City Transformation It must integrate all areas: City transformation an OPPORTUNITY, A long term vision: what mobility, social services, has to be done FOR do we want Macau to to transform and gaming industry, education, the citizens and WITH become in the next improve the city tourism... 10 years them a city-wide project that In an open. includes all stakeholders Technology is an enabler, NOT the participatory and and interests inclusive way goal

**20 Smart City Programs** covering all the areas of city transformation

#### Short term recommendations and quick wins balanced with a long-term strategy

More than **40 stakeholders involved** in the definition of the strategy



Catalonia o Trade & Investment



# Impact analysis of the Catalonia Smart Strategy to the SDGs

# **Smart Government**

Government of Catalonia.

### **The Challenge**

- ✓ Analyse impact and alignment of the objectives from the Strategy towards the achievement of the SDGs.
- ✓ Define KPIs to measure SDG achievement.
- $\checkmark\,$  Identify and prioritise actions to attain SDGs.

### Solution

In a first phase, DOXAIS conducted an exhaustive analysis of the strategy's objectives and matched them with the goals and sub-goals of the SDGs. As a second step, it identified which projects developed under the strategy contributed to each of the sub-goals identified. Finally, a set of KPIs adapted to the Smart Catalonia strategy was developed to ensure a homogeneous and sustainable monitoring of the strategy, fully aligned with the SDGs.

### **Benefits**

- ✓ Real data on SDG alignment and impact.
- ✓ Insights on how to better focus the strategy to increase impact and achievement of the SDGs. + INFO



Energy (80%) and Sustainable Cities (70%), are the most covered SDGs by Catalonia's Strategy

The most transversal program is Life &Land

# Partner





**smartCAT**ALONIA





# **Blockchain electronic voting platform**

### **Smart Government**

Mollerussa, Spain.

#### **The Challenge**

✓ Through a transparent and secure eVoting scheme, acquire a higher percentage of civic participation.

#### **Solution**

Mollerussa Municipality used eKratos for civic consultation about building and street improvement processes, thanks to this platform, that integrates electronic on-site voting with a verified remote voting through any smart device, the participation was incredibly higher.

### **Benefits**

- ✓ Transparent and friendly manner of voting.
- ✓ The platform works on Blockchain technology which holds accountability of the process to any citizen.



Client

Partner



Ajuntament de Mollerussa Improved upon 300% the participation index for their civic consultation ballots

## **SDGs impact**



+ INFO



# **"MISI"** Youth Artificial Intelligence Chatbot

+ INFO

# **Smart Government**

Reus, Spain.

### The Challenge

✓ Involving youth citizens in municipal topics, specially the youth.

#### **Solution**

In Reus municipality, in collaboration with the department of Youth, it is created a specialized chatbot, using the communication stream, young people frequent. Using the Telegram App, the young people may get informed about all they interests regarding events in town but also other personal concerns. (happenings, hobbies, doubts about drugs, sex, etc). Through pressing the voice recognition button, using Artificial Intelligences the system translates and interacts with the user.

### **Benefits**

- ✓ Direct communication channel with an important group of the population.
- ✓ Youth involvement in municipal topics.



**39** average **interactions** per user

11635 interactions per month

80% of accuracy solving doubts in real-time





# **The Antisocial Thermometer**

### **Smart Government**

Barcelona, Spain.

### **The Challenge**

✓ Know how people are reacting and evaluating the municipal and central governments in realtime.

#### **Solution**

The Antisocial Thermometer is a technological platform that helps with political decisions when dealing with the antisocial behavior though the use of a parameter that states which is de antisocial behavior of a certain population. This is improving governance using data from the city while putting people in the center. The Antisocial Thermometer is powered by both Open Data and Google API.

### **Benefits**

- ✓ With the information in hand, it is easier to react quickly to societies reaction to any public policy.
- ✓ Real-time access to societies mood and feelings.



Effective algorithm which can be scalable to any population size

Uses a parameter that detects the antisocial behavior

### **SDGs** impact



+ INFO



# 2. ICT

Telecommunication networks and IT platforms are the basic infrastructure upon which the smart city services can be provided. At the same time, it is key to ensure universal access to digital channels and connectivity.

The use of an urban platform to integrate, manage and analyse all the data comprised in the city ecosystem enables better decision making as well as the development of new services for citizens and the local economy.

For this is key to develop a transversal platform that breaks the siloed divisions of city management and enables coordination and collaboration between the different areas and all the resources available in the city.

- TELECOM NETWORKS
- URBAN PLATFORM
- IT PLATFORM
- **CITY OS**
- DATA INTEGRATION
- UNIVERSAL ACCESS TO ICT
- CONNECTIVITY



# Alarm transmitters

Barcelona, Spain.

### **The Challenge**

✓ Provide a higher level of security for alarm communication.

#### **Solution**

Nuvasafe CIRRUS alarm transmitters are transmission alarm systems (ATS) with integrated LORA radio transceiver, which form a mesh network between devices. LORA offers the highest level of communication safety when added to traditional LAN and GPRS links Devices offers also a lower power consumption than the standard market communicators, 20 mA in front of 100mA, The network they form also leverage services for smart cities and IOT solutions.

### **Benefits**

- ✓ One unique platform to manage all security systems. It integrates all IoT solutions in one (Security, fire and social alarms).
- ✓ Higher security in alarm communications guaranteed.
- ✓ Less power consumption.

<u>+ INFO</u>



The devices operate at lower power than current solutions, 20mA consumption compared to 100mA



 Catalonia o Trade & Investment



# **Geographical information system for city councils**

+ INFO

Barcelona, Spain.

### **The Challenge**

✓ Convert data into useful information for decision making of municipalities

### Solution

City Councils have big amounts of data, which can be transformed into useful information, into tools for Smarter Cities. ENMAPA is a set of applications for internal use and internet applications addressed to citizens, to improve, efficiency and transparency. It This platform is based on GIS that directly integrates maps with municipal databases such as population census, record management or public safety. The GIS platform which transform the City Council information into useful knowledge and tools for transforming the city Smarter. This solution is addressed to improve efficiency and transparency.

### **Benefits**

- ✓ Cost-efficient solution to transform big data into useful information for the municipality.
- ✓ Automatization of information gathering.

enmapa ○/台田土( Capas artografia base Clients Partner

**nexus**geographics

enmapa pexuspengraphic cercalia

AYUNTAMIENTO

DE GUADALAJARA

CABILDO DE LANZAROTE

Used in **70** municipalities

Has 40 city layers per areas

Allows maintaining management: construction licenses, private roads, containers, activities, terraces

# **SDGs** impact



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ajuntament D'elvissa

AJUNTAMENT DE

Ajuntament de Santa Coloma de Gramenet



# Submer Immersion Cooling

Barcelona, Spain.

### **The Challenge**

✓ Obtain a cost-efficient cooling system for hightech processors and computers.

### **Solution**

Submer's advanced immersion cooling systems utilize an environmentally safe, dielectric cooling fluid that completely surrounds the computing hardware to deliver cooling power one-thousand times more efficient than air.

### **Benefits**

- ✓ Eco friendly and energy saving.
- $\checkmark\,$  Save space, time and building costs.
- ✓ Technology compatible with any hardware, and really easy to implement.



🥏 submer

**2crsi** 

Save over 95% of cooling total costs

No hotspots, noise or hazardous particles

80% reduction in hardware failure rates

## **SDGs** impact



+ INFO





**MAIRBUS** 



# Public voice and digital services in beaches and cities

+ INFO

Barcelona, Spain.

### **The Challenge**

- ✓ Obtain data from by-passers in different points of the city.
- ✓ Broadcast information for emergency warnings.

### **Solution**

The solution is a new concept of urban furniture that, in addition to providing an IP Voice system, provides valuable information to citizens about risks, emergencies and prevention, offers Wi-Fi connectivity, lighting, and incorporates different sensors that monitor humidity, temperature , solar radiation, wind direction and speed. This information can then be integrated into the city platform, allowing data analysis and generation of content to be broadcasted. It is powered with solar energy, so it can be installed without network connexion.

### **Benefits**

- ✓ Provide connectivity to citizens in open areas.
- ✓ Prevent incidents due to broadcasting warnings.





Increase citizen safety in public areas

Measures humidity, temperature , solar radiation, wind direction and speed

New digital services for citizens

**750-1000 announcements** per year




# City platform

Alcobendas Municipality (Madrid).

#### **The Challenge**

- ✓ Manage all municipal services in one smart platform.
- ✓ City platform integration to city existing tools.

#### Solution

Platform that provides a powerful interface, which can easily be connected to other platforms. In Alcobendas many data collected from rain gauges, lighting control panels and from 4 air quality stations are already connected their sensor to the platform, converting it into a standard within the ecosystem of IoT. Integrating these data allows to control many thousands of sensors at the same time and improving the performance and incidents with a very fast response time.

#### **Benefits**

- ✓ Easy integration to city existing systems.
- ✓ Centralized integral control of city assets.
- ✓ Software identifies and compares energy consumptions from all assets, for energy savings purposes.

#### + INFO



#### 4 air quality stations integrated

Holistic vision of city functionalities

#### **SDGs** impact





# Software for smart city applications

Modena, Italy; Florence, Italy.

#### **The Challenge**

✓ To provide a unified software environment capable of developing and executing smart city applications.

#### Solution

BSC is leading the development of a novel software architecture solution capable of deploying advanced smart city applications based on data-analytics and Al for the Modena Automotive Smart Area (MASA) and the Tramway Network of Florence. These applications process and fuse the data collected from different sensors located in the city and connected vehicles, and generate in real-time, a map of the actual traffic conditions of the city at any point in time. The software architecture incorporates an innovative orchestration mechanism for an efficient distribution of the intensive computation functionalities across the edge and cloud computing devices available by the city and the connected vehicles.

#### **Benefits**

- ✓ Development of smart cities applications independently.
- ✓ Guaranteed execution time of applications<sup>t</sup>. INFO



Interaction between the city and the public and private vehicles

Enhanced sensing capabilities of connected vehicles

**Conceive** a safer and **smarter urban mobility** environment

#### Partner



#### **SDGs** impact



Catalonia o Trade & Investment



# 5G Barcelona

Barcelona, Spain.

#### **The Challenge**

- ✓ Increase of data transmission speeds.
- ✓ Convert Barcelona in a leading international 5G technology hub.

#### Solution

5G Barcelona is a public-private initiative working to transform the metropolitan area of Barcelona into an open and neutral city-wide lab for the validation and adoption of 5G technologies and applications in a real-life environment. I2cat is the CTO of the alliance. It is leading several activities in coordination with the rest of the founding members, including set up and technological coordination of Open Labs, deployment of 5G field trials, and knowledge transfer through workshops.

#### **Benefits**

- ✓ Boost capacity by between 1-4 times over current networks.
- ✓ Low latency, almost real-time data transmission.
- ✓ Massive connectivity of IoT devices.

<u>+ INFO</u>



**5G** will be **1000 times faster** than current 4G network

#### 6 pilot test already deployed

# Partners Image: Strain Strai

#### **SDGs** impact



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# WIFI connectivity solutions

Taiwan.

#### **The Challenge**

✓ Obtain visitors/users data for further exploring commercial campaigns.

#### **Solution**

In the Municipality of Taiwan is planned to install a captive portal and wifi sensors in the main arteries of the city with the aim to improve the visitor's experience as well as to obtain relevant information to adapt its infrastructure (tourist office, local transport, signage, parking, security). On the other hand, this data segment the type of communication to increase the number of visitors and achieve more impact of the city brand on social networks.

#### **Benefits**

✓ More personalized information of citizens and tourist to explore and offer specific solutions and services.



FREE Wi Fi

#### 90K users

Boost **400%** municipality's social networks engagement

Annually 6.000 fulfilled surveys

Increase within 6-39% events affluence

#### **SDGs impact**



#### <u>+ INFO</u>

Partner



#### 5G City ICT

Barcelona, Spain.

#### The Challenge

✓ Recent developments in cloud technologies calls for the extension of cloud architectures all the way to the edge of the network.

#### Solution

5GCity aims to design, develop, deploy and demonstrate, in operational conditions, a distributed cloud and radio platform for municipalities and infrastructure owners acting as 5G neutral hosts. This Consortium with a demonstration in three different cities (Barcelona, Bristol and Lucca), advance the state of the art to solve the main open research challenges in the 5G services. The 5GCity platform will embody a hierarchical architecture embedding network, compute and storage resources distributed across Small Cells and deployed at various technical spaces throughout the city, seeking to turn the expected transversal impact of 5G technologies into reality.

#### **Benefits**

- ✓ Enables a cloud-like 5G infrastructure.
- $\checkmark$  The ability to leverage the proximity to data + INFO sources.



#### Live pilot trials in 3 cities

#### 6 pilot tests already deployed









#### **USE CASES**

# **3. URBAN TRANSFORMATION**

Public space is where urban life takes place. Streets, parks, squares... it is important these areas are functional, inviting and accessible to all in order to promote the development of activities and enable citizens to socialize within a naturalized atmosphere.

Furthermore, a smart city needs to remodel its urban infrastructure to incorporate smart components such as energy efficiency criteria, connectivity, utilities, and mobility.

With the main goal of improving city sustainability and accessibility of the built environment, the city promotes the transformation of public friendly spaces as well as the private spaces, buildings and facilities that conform the city.

- PUBLIC SPACE
- URBAN INFRASTRUCTURE
- CONNECTED URBAN FURNITURE
- AIR QUALITY
- GREEN AREAS
- GREEN INFRASTRUCTURE
- BUILT ENVIRONMENT

Connected Markets: Real time analytics in markets Music limiter for city festivals Automatic service for monitoring the condition of pavements





Satellite insights for urban planning and city monitoring



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HOME DOXA Innova & Smart

#### **Connected Markets: Real time analytics in markets** Urban Transformation

Barcelona, Spain.

#### **The Challenge**

✓ Acquire quality real-time data of visitors to markets.

#### **Solution**

Through the installation of sensors and integration of bigdata software, the solution measures and analyses the behaviour of visitors in and around Sant Antoni market (Barcelona) according to the hours and days of the week for each of the areas of the market. The project is providing quantitative data of the movement and behaviour since 2016, when the market reform finished.

#### **Benefits**

- ✓ Up-to-date real-time data that is not affected by answering a poll or obsolete through seasonality.
- ✓ Effective commercial and security decision making by utilizing data that is verified.



**Partners** 



**HIPRO**COM

Client



The dwell time of pedestrian's streets is 50% higher

Fridays and Saturdays are the **highest affluence days** which allows them to better **forecast the resources needed** 

Tuesdays are the less busy days in the fresh market

#### **SDGs** impact



+ <u>INFO</u>



#### Music limiter for city festivals Urban Transformation

Barcelona, Spain.

#### **The Challenge**

✓ Control the loudness of urban festivals.

#### **Solution**

The LF010 solution measures the existing sound level in the music and the sound level transmitted to a neighboring house, opposite façade or a point outside thanks to the sound insultation ( by 1/3 octave). The LF010 uses the measured levels to control the overall music level (without equalizing) so that the programmed emission and reception limits are not exceeded in the three day/evening/nighttime zones. The LF010 performs this control using different Attack and Release modes to adapt its performance to live concerts with great dynamics as well as to dance music club sessions.

#### **Benefits**

✓ Neighbors in Barcelona where able to celebrate their festivity without affecting other citizens with uncontrolled noise.



CESVA

Key point solution to have the noise pollution under control during events

Noise complains are kept under minimum when using music limiters

#### **SDGs impact**



+ INFO

Ajuntament de Barcelona



# Automatic service for monitoring the condition of pavements

#### **Urban Transformation**

Barcelona, Spain.

#### The Challenge

✓ Cost efficient street condition management.

#### Solution

Sotavia offered the municipality of Barcelona an automatic service for monitoring the condition of pavements. The solution consists on a vehicle that captures three-dimensional images of the pavement, a server that processes them and detects the defects. Results can be analysed afterwards in web server on a city map. This system saves costs with respect to current damage detection systems based on operator observations

#### **Benefits**

- ✓ City council maintains an up-to-date map on the street conditions, so allow to maintenance works to act faster in the detection of damaged pavements.
- ✓ Less accidents concerning pavement conditions. + INFO



Partner

sotavia

Efficient pavement management ensure citizens security

The automatic detection system is not invasive to the citv activitv

#### **SDGs** impact



Ajuntament de Barcelona



#### **Noise sensor** Urban Transformation

Terrassa, Spain.

#### **The Challenge**

✓ Improvement of the acoustic quality of public spaces.

#### **Solution**

Sensors have been used to acquire noise data from buses with the aim to control the noise caused by the fleet of heavy-duty public vehicles.

The average sound intensity of the noise generated by the buses passing by the sensors is calculated along the 120 seconds of pass (from 60 s before to 60 s after). The noise impact is used for future purchase of renewable fleet.

#### **Benefits**

✓ Noise from the bus fleet have been parameterized.



More than **150** sensors have been **deployed** also in Barcelona

Noise abatement actions are evaluated immediately

**SDGs impact** 





+ INFO



# Satellite insights for urban planning and city monitoring

#### **Urban Transformation**

Catalonia, China, Argentina, India.

#### **The Challenge**

✓ Support city planning, monitoring and intelligence with accurate and weekly information of the territory.

#### Solution

The Satellite analytics solution provides the first vertically integrated geospatial analytics system driving real outcomes with satellite computer vision insights. The solution is providing weekly remap at 1-meter resolution to offer affordable geospatial insights for daily decision making in a broad range of industrial, environmental and government applications. Artificial Intelligence monitors economic activity and high-frequency changes, including the health and development of the built and natural environment and the extraction, production, distribution and consumption of goods.

#### **Benefits**

✓ Support to urban planning to manage infrastructure, constructions, natural resources, enforce regulations, optimize logistics, track business activities, etc.

<u>+ INFO</u>

Partner

MOMENTUR



Client



# The solution offers data based in:

**Urban Planning:** Built-up Areas, Landscape, Population, Land Use, Land Cover

#### Transport, Infrastructure, Energy: Solar, Wind, Hydro, Electricity, Power Plants & Refineries, light density

**Disaster & response:** Flooding, Fires, Infrastructure

#### Ecological footprint: Air Pollution & Quality, Green Areas / Forest, Clean water,

biodiversity Energy potential and capacity

#### **SDGs** impact



#### **USE CASES**

# **4. ENVIRONMENT**

Cities consume about 75% of global primary energy and emit between 50 to 60% of the world's total greenhouse gases.

Therefore, transitioning to green sources in cities is paramount as well as evolving towards scenarios of energy self-sufficiency will increase cities' resiliency in front of supply cuts.

A holistic approach to the water cycle management together with real time information and intelligent automation can enable a better use of water, reducing losses and consumption as well as ensuring the quality of the water.

Reducing the amount of waste generated, promoting recycling and revaluation of waste will help cities achieve a more sustainable waste cycle.

- ENERGY EFFICIENCY
- ENERGY SELF-SUFFICIENCY
- SMART GRIDS
- SMART LIGHTING
- WASTE MANAGEMENT
- RECYCLING
- CIRCULAR ECONOMY
- WATER CYCLE



# Air Quality Sensors

Barcelona, Spain.

#### The Challenge

✓ Improve urban air quality.

#### **Solution**

AllWize's solution consists of compact air quality stations to be installed across the city as well as a suite of advanced cloud models to map as accurately as possible the state of air quality across areas of concern. The same sensors can also help to validate the effect of a pollution reduction mechanism once it's deployed to know whether a specific measure has had the expected impact on air quality.

#### **Benefits**

- ✓ Have instant access to monitor air quality in different sites of the city.
- ✓ Ability of preventing pollution peaks.



Pilot test in process to be implemented in more cities

Gases measured are: NO<sub>2</sub>, No, CO, SO<sub>2</sub>, H<sub>2</sub>S and O<sub>3</sub> and PM<sub>1</sub>, PM<sub>2,5</sub> and PM<sub>10</sub> as suspended particles



#### <u>+ INFO</u>



### **Distric Heating and Cooling Network**

#### **Environment**

Barcelona, Spain.

#### The Challenge

- ✓ Reduce CO2 emissions
- ✓ Reduction of global consumption of water and chemical products.

#### **Solution**

The solution is composed by two heat and cold generating plants and a network of underground tubes that distribute hot/cold water across the district to heat or refrigerate the buildings. The production plant located in the Forum area uses steam coming from an urban waste-to-energy plant and refrigerates the equipment with sea water. The second production plant, located in the 22@ district, has an advanced ice storage system that allows producing energy in periods of low demand storing it until it's needed, in periods of higher demand.

#### **Benefits**

- ✓ Improvement of Reduction of energy system dependence
- ✓ Decrease of global electrical consumption



Partner



Client

Ajuntament de Barcelona Institut de Cultura Districlima provides 109 buildings with a 19,5km long network

73% reduction of fossil fuel consumption

22965 TN of CO2 saved (2018)

#### **SDGs** impact



+ <u>INFO</u>



# Grow Green

#### Environment

Valencia, Spain.

#### **The Challenge**

✓ Maintain cities the most sustainable and eco friendly as possible

#### **Solution**

Grow Green is a project financed by the Horizon 2020 European program with the aims to create climate-friendly, healthy and habitable cities by investing in solutions based on nature. In Valencia is launched a pilot test of a treatment and regeneration system of gray water though a combination of technologies: phytoremediation in a vertical garden and desalination and disinfection. Therefore the solution acts as a barrier of solar radiation, so residual water can be used at the same time as way of protecting from solar radiation.

#### **Benefits**

- ✓ Grey water recycle.
- ✓ Economic savings on energy and water consumption.
- ✓ House isolation contribution.

+ INFO



Partner



managing technologies



This project has received funding from the European Union's Horizon 2020 research and innovation programme under grant agreement No 730283.



Treatment and reuse of 50-150L of grey water per day

Irrigate up to a total of 10-20 m2 of green areas

Reduce stress by heat and improve connectivity between the green spaces of the city

#### **SDGs impact**



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# **Urban GreenUp**

#### Environment

Valladolid, Spain.

#### The Challenge

✓ Sustainable electricity production.

#### Solution

Urban GreenUp is a project financed by the European Horizon 2020 which develops an electro wetland, which is an innovative hybrid technology between an artificial humid zone and a bio electrochemical system. It consists of a natural system for the treatment of wastewater that, in addition, allows to generate electrical energy from the degradation of the organic matter. This electricity generated by the system will be stored and subsequently used to monitor some of the parameters that contribute to the effects of heat on urban areas (humidity, temperature, etc.).

#### **Benefits**

Tourism increase in Bendorm ✓ Substantial Municipality which boosts all retail industry in the area.

+ INFO



managing technologies

This project has received funding from the European Union's Horizon 2020 research and innovation programme under grant agreement No 730426.

Urban renaturalization and sustainable water management

**Reduction** of temperatures at 5 °C during summer

In average it avoids the emission of almost 200 tons of CO<sub>2</sub> equivalent

#### **SDGs** impact



HOME BACK Catalonia o Trade & Investment

Valladolid



# Radio Frequency Monitoring System

Sitges (Barcelona), Spain.

#### **The Challenge**

✓ Manage and control telecom radiations in cities.

#### Solution

The solution provides a network of RF monitoring stations (24/365). These monitoring stations can warn the city manager in charge, in case the exposure levels exceed the defined thresholds programmed into the system. The monitoring stations do not require network connexion since they are solar powered, and data is transmitted wirelessly. Citizens can check the measured levels in real time through a public website. If levels comply with maximum limits permitted, citizens can feel safer and the city can continue to expand the telecom infrastructure.

#### **Benefits**

- ✓ Provide the population reliable information on human exposure.
- ✓ Provide useful information to deploy well distributed new infrastructure according to BTS radiation.



**100% compliance** of authorised **emission** levels

**Decrease** of the public **concern** on **BTS radiation** 

**Replicated** as a citywide project **in Bilbao** 

Facilitates the deployment of necessary telecommunication infrastructure

#### **SDGs** impact



+ <u>INFO</u>

Safety, Quality, Service

AMB Årea Metropolitana de Barcelona

Ajuntament

de Barcelona

Generalitat de Catalunya



#### City assets platform Environment

Marrakech, Morocco.

#### **The Challenge**

- ✓ Reduce energy consumption of city assets.
- ✓ Remote control and management of assets.

#### **Solution**

W-City is an innovative management software for city assets such as street lighting, buildings and a wide range of IoT devices. The cloud-based platform enables users to control devices, optimize energy and maintenance costs from one single place.

#### **Benefits**

- ✓ Savings on lower energy consumption.
- ✓ Fraud detection and prevention.
- ✓ Establish control assets management.
- ✓ Savings on maintenance costs: detection of faulty lamps in real time.
- ✓ Decrease complaints and response time.



Savings of 60,3% in energy consumption

80% increase in detection of fraudulent use of spaces





+ <u>INFO</u>





# IoT systems in public lighting facilities

#### Environment

Provincial Agency of Energy Diputación de Granada, Spain.

#### **The Challenge**

✓ Improve the public lighting in the municipality, for a sustainable telemanaged system that could save energy on the long run.

#### Solution

Promoted by Interreg EU Regional Development Fund and in collaboration with the Provincial Agency of Energy of Granada, Sinapse Energia installed a point-to-point telemanagement system and sensorization development. The project consisted to change luminaries to a led technology with a temperature color less than 3000°Kv incorporating a point-to-point remote management system including smart sensors (PM, Temp and Humidity) for total management.

#### **Benefits**

- ✓ Telemanagement of lighting by sectors of the municipality.
- ✓ Energy savings because of led technology and lighting management.

+ <u>INFO</u>



Interreg

Mediterranean

ESMARTCITY

Energy savings up to 50% a day

**CO<sub>2</sub> emissions** have been **reduced** 

Temperature and PM<sub>2.5</sub> PM<sub>10</sub> Control

#### **SDGs** impact



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Agencia Provincial de la

Diputación

de Granada

Energía de Granada



# **Smart Street lighting**

#### **Environment**

Tarragona, Spain.

#### **The Challenge**

- ✓ Efficient public lighting management system.
- ✓ Increase street visibility.

#### **Solution**

The solution was installed into 21 existing lighting cabinets, from that moment, we had full visibility of each light point managed as integral system. Through the lighting platform, allows to control and obtain in real time the information an electrical and energy data of all light points. That allows to interact with the assets in the street remotely.

#### **Benefits**

- $\checkmark\,$  More control and real time information.
- ✓ Guarantee optimal lighting levels to improve people safety.
- ✓ Energy savings,



Client

TARRAGONA



20% reduction of CO<sub>2</sub> emissions

Reduce maintenance costs by real time management planning

#### **SDGs** impact



+ INFO

Partner

ESECE



### Telemanagent and irrigation water system

#### Environment

Bilbao, Spain.

#### The Challenge

✓ Manage municipal irrigation systems in an efficient way.

#### Solution

The solution is based on managing the entire network of irrigation in the municipality of Bilbao, controllers and water meters in the municipality, to achieve significant savings in water consumption in maintenance work and during its flow. Samcla software uses different irrigation volumes for variating climate days, so in a rainy day, you can manage not to water plants if it is not necessary, in between many other management functions.

#### **Benefits**

- ✓ Realize in real-time when leaks are happening.
- ✓ All the irrigation system is telemanaged worldwide, from any computer, smartphone or tablet.



40% in water savings for the municipality

90% in saving irrigation tasks

100% leaks detection

#### **SDGs** impact



+ INFO

Partner

SAMCL SMART SYSTEMS



# **Smart Energy Management in buildings**

#### Environment

Warsaw, Poland.

#### **The Challenge**

✓ Maintain all the organizations expenses and assets under the radar, and with real-time information to manage accordingly.

#### Solution

enControl solution was deployed in public buildings in Warsaw with the aim to improve their energy performance. Trough an app, allows to manage centrally as many services and locations as it is needed. With enControl it is manage the energy usage in climate systems and lighting was kept under control keeping the users comfort as well as allows to keep the building safe having the visibility into the main operational activities.

#### **Benefits**

 Reduce energy consumption in public buildings by having timely and accurate data.



# 17% of energy use reduction

133 out of 190 buildings solution installed showed energy savings

Installed in 39 public buildings: museums, schools..

#### **SDGs** impact





### **Environmental sensors on microdistribution vehicles**

#### **Environment**

Barcelona, Spain.

#### **The Challenge**

- ✓ Reduce pollution and improve air quality.
- ✓ Measure the impact and benefits of using electric tricycles for the microdistribution of goods within the city in a cost-effective manner.

#### **Solution**

An on-board sensor unit was installed in the electric vehicles used in the last-mile distribution of goods in order to track different parameters (temperature, humidity, pollution, location ...) while the tricycles are moving through the city. The information collected by the sensor units is transmitted to the of city platform. This data can then be used to determine the benefits of the last-mile distribution by tricycle though analysis of the variation of pollution in a specific area as well as any other smart city application or analysis.

#### **Benefits**

- Measure the environmental impact of implanting electrical microdistribution services.
- ✓ Optimize distribution routes.



# Real-time information

Optimize distribution routes

Collect data to complement the information from fix/sparse environmental stations

Partners







**SDGs** impact

+ INFO



### **Port Forward**

#### Environment

Mallorca, Spain.

#### The Challenge

✓ Lower ports contamination and assure an efficient and sustainable management.

#### Solution

PortForward is a project funded by the European framework program Horizon 2020 that began in 2018 and will end in 2021 including 12 partners. Leitat participates by providing a computer system that aims to improve security and reduce the environmental impact of the Balearic Port Authority, specifically, in the city of Palma de Mallorca. The information system aims, on the one hand, to better inform the city and the cruises that arrive there on possible effects of massification of people caused by the arrival of cruises and other events and, on the other hand, to limit the creation of black contamination points in the port and the city.

#### **Benefits**

 Improve the communication between the city and the port.

<u>+ INFO</u>





Union's Horizon 2020 research and innovation

programme under grant agreement No 730283.



Lower contamination in peak hours

Improve city safety by reducing massification effects

Improve information flow between harbor and city

#### **SDGs impact**





# **Energy Management System**

#### Environment

EU H2020 project.

#### **The Challenge**

✓ Reduce energy bill.

#### **Solution**

A cloud-based energy management system that controls batteries, EVs and other flexible assets to support the distribution grid and electricity market. CITCEA-UPC has developed the flexible management algorithms that are able to optimize the use of energy to reduce the electricity bill and to offer aggregated flexibility services to DSOs and BRPs. It can be applied to EV charging stations, households and other mid-size customers.

#### **Benefits**

- ✓ Lower energy bill for households and buildings.
- ✓ Aggregated flexible services for DSOs and BRPs.



Client



Tested in 5 pilots of different EU countries

Demonstrated savings of around 15% in the electricity bill

Algorithms implemented in a commercially available platform

#### **SDGs** impact



+ INFO

Partner



### **Reverse vending machines**

#### **Environment**

Barcelona, Spain.

#### **The Challenge**

✓ Reduce the amount of plastic and waste in cities.

#### Solution

Through two thousand reverse vending machines, scattered around Barcelona, Orain makes it easy and friendly to anyone to recycle glass or plastic. Orain solution, works like a regular vending machine, but instead of giving a product to a costumer, it receives plastic or glass from users. Due to its strategic positioning, an incredible amount of containers are received and recycled. Machines provide discount retribution to users depending on how much they recycle.

#### **Benefits**

- ✓ Create conscience about recycling in citizens.
- ✓ More recycling spots in the city so that residents find it easier and prompter to salvage containers.



Client

Partner



Ajuntament de Barcelona Provide **Barcelona** with **2K reverse vending** machines

These machines give balance to **16K users** who **recycle** plastics, glass and packaging

#### **SDGs** impact





#### Solar Urban Hub Environment

#### Zona Franca, Barcelona, Spain.

#### The Challenge

✓ Gather information from passerby people in a sustainable and efficient manner.

#### Solution

The Solar Urban HUB is a smart and sustainable urban streetlight solution that uses IoT technology to create connected infrastructures distributed through cities. Two Solar Urban Hubs were installed in industrial area of Barcelona (Zona Franca). The sensors inside the device measured the number of people passing through the entrance of the building. All the information was connected to the city system. The Solar Urban Hub provided enough light at the entrance of the building and the parking area even in winter times and its slick design did not alter the aesthetics of the corporate building.

#### **Benefits**

- ✓ Low cost to maintain.
- ✓ Gather important information anywhere, with a design that easily integrates wit + INFO environment.



Partner

SIARD

Client



100% reduction of fossil energy

25% reduction of time in managing the surveillance of buildings

**Data connected** to the City Platform

#### **SDGs** impact





#### **USE CASES**

# **5. SUSTAINABLE MOBILITY (I)**

Transportation accounts for 70% of pollution in cities. To counter this, cities worldwide need to deploy more sustainable and efficient models of mobility that reduce the environmental footprint and increase the quality of life within the city's urban area and that at the same time provide convenient and affordable mobility options for citizens and visitors.

Urban logistics have an increasing impact in cities making it necessary to find ways to transport goods in, out and within the city, with a minimum impact on the urban mobility and the environment.

HOME

- MOBILITY AS A SERVICE
- CONNECTED VEHICLE •
- **AUTONOMOUS VEHICLE**
- **GREEN MOBILITY** ٠



Smart Guidance for **Corporate Parking** 







Mobility management

platform



**Real time mobility** 

prediction



Adapted Transport

On street parking system



Mobility simulator in

real time

Parking guidance to reduce congestion

Mobility as a Service; shared mobility



Last mile delivery

The value of travel time for the citizen





Catalonia o Trade & Investment



#### **USE CASES**

# **5. SUSTAINABLE MOBILITY (II)**

Transportation accounts for 70% of pollution in cities. To counter this, cities worldwide need to deploy more sustainable and efficient models of mobility that reduce the environmental footprint and increase the quality of life within the city's urban area and that at the same time provide convenient and affordable mobility options for citizens and visitors.

Urban logistics have an increasing impact in cities making it necessary to find ways to transport goods in, out and within the city, with a minimum impact on the urban mobility and the environment.

- MOBILITY AS A SERVICE
- CONNECTED VEHICLE
- AUTONOMOUS VEHICLE
- GREEN MOBILITY



parking operations in your city

#### **On street parking system** Sustainable Mobility

Castelldefels, Spain.

#### **The Challenge**

✓ Decrease traffic around parking.

#### Solution

Parking solution implemented in Castelldefels where users can find parking easier by using the app that is connected to the municipality and shows the parking places around. At the same time it makes it easier for drivers to pay their parking time through the app and increases rotation of cars, as people know how much they have left and municipality officials too. Also, allow to the municipality, supervise parking ticket and fees, due to Plate control using Scooters or smartphones with OCR.

#### **Benefits**

- ✓ Easier payment method through the app.
- ✓ Higher rotation of vehicles in parking spaces.
- ✓ Easier to find free spots to park.
- ✓ Transversal Platform in real-time.





**300K parking tickets were sold** by the App

**4M vehicles registered** and bought the system

Car parking rotation increases by roughly 25%

#### **SDGs impact**



\_\_\_\_\_

+ INFO



### **Autonomous vehicle**

#### **Sustainable Mobility**

8 Catalan municipalities: Sant Cugat del Vallès, Terrassa, Sabadell, Girona, El Vendrell, Reus, Martorell and Vic.

#### **The Challenge**

✓ Autonomous mobility of citizens in a secure and sustainable manner.

#### **Solution**

Test bed of an autonomous bus which has traveled along several cities of Catalonia with the aim of checking the good acceptance of the autonomous bus among the citizens as well as engage them for the coming mobility projects. Easy mile has provided the technology which allows an autonomous vehicle to navigate safely without dedicated infrastructure in mixed traffic, equipped with a full range of sensors that collects data and allows to become a driverless electric vehicle.

#### **Benefits**

- ✓ Secure and more convenient transportation service for residents.
- ✓ Shared mobility services.



824km and 15.163 passengers traveled

12 people bus capacity

18km/h maximum speed



#### **SDGs** impact

7 AFFORDABLE AND	11 SUSTAINABLE CITIES
CLEAN ENERGY	AND COMMUNITIES
<b>``@</b> `	

<u>+ INFO</u>





#### Smart parking to promote local commerce **Sustainable Mobility**

Vic-en-Bigorre, France.

#### **The Challenge**

- ✓ Accessibility by car to the city centre shopping areas, with the competition of shopping malls, with extensive parking areas.
- ✓ Parking spaces in down-town shopping areas is usually limited.

#### Solution

The solution seeks to increase parking rotation for a more equitable use of the spots through a deployment of a full parking control solution. In total 114 sensors were installed in each of the parking spots. These sensors provide real time information about vehicles entering and leaving the area and the length of their stay, which allows parking management companies to ensure that drivers comply parking time limitations and automates the payment control system.

#### **Benefits**

- ✓ Increase of the satisfaction levels of the involved stakeholders.
- ✓ Stimulation of local commerce.



Client **SDGs** impact **9** INDUSTRY, INNOVATIO AND INFRASTRUCTUR urbio ica

30% increase in parking availability

Higher rotation: 20% increase in turnover

Catalonia o Trade & Investment



+ INFO

Partner

#### **Mobility management platform** Sustainable Mobility

Barcelona, Spain

#### The Challenge

✓ Better understand users of public/private transportation's behaviour.

#### Solution

Cigo developed the App MyTRAC, a transport service platform designed for users as well as public and private transport operators that improves the passenger experience by developing and applying advanced behavioral transport analytics and artificial intelligence algorithms.

The service will support enhanced interactions between passengers and a set of service providers during the trip (discounts, museums..). The pilot test, which has launched in Barcelona (also Athens, Lisbon and several areas in the Netherlands) will help to understand the impact tailored recommendations on real travelers' experience.

#### **Benefits**

- ✓ User-centric transportation.
- Real-time and historic data concerning behavioural analytics of passengers.



UPC

+ INFO

Pilot test launched in 4 cities

#### Exponential number of active users

#### **SDGs impact**



Catalonia o Trade & Investment

My-TRAC



#### Parking guidance to reduce congestion Sustainable Mobility

L'Escala (Catalonia), Spain.

#### **The Challenge**

✓ Traffic congestion in peak touristic seasons.

#### Solution

An integral service based on an accurate monitoring sensing system to provide guidance to drivers for an efficient use of the car within the town center. Wireless sensors were installed in 71 parking spots, as well as 6 traffic flow sensors to gather real time parking availability of different areas. Information to drivers is provided through 7 dynamic information signpost panels located in key points (entrances, main avenue, roundabouts) and real time guidance through a mobile app.

#### **Benefits**

- ✓ Improved the image of the municipality.
- ✓ Less time in the car spent looking for parking.



Client

20% reduction in CO2 emissions

**30% reduction** in **time** spent looking for parking

**30% reduction of traffic** at peak hours

#### SDGs impact



+ <u>INFO</u>

Partner

urbio ica

AJUNTAMENT DE L'ESCALA



#### Last mile delivery Sustainable Mobility

Barcelona, Spain.

#### **The Challenge**

- $\checkmark\,$  Noise and air pollution.
- ✓ Last mile mobility demand.

#### **Solution**

Solution promoted by Barcelona City Council with the aim to introduce a new sustainable mode of delivery. Through electric tricycles and the disposal of a micro-platform located in a strategic spot, vehicles can load and unload goods, ready to be distributed among the old town citizens. Every vehicle can do the same number of stops that a conventional van with the same efficiency but using clean energy.

#### **Benefits**

- ✓ The delivery service drivers can fulfil their duty faster.
- ✓ The city benefits of having a more fluid circulation of cars.



Client

amazon Fedex.

SEUROPASTRY.

**95% of energy saving** compared to electric vehicle

100% CO2 emissions reduced

Tricycles can carry up to 180 kg of load

#### **SDGs impact**



+ INFO

Partner

Vanapedal

Barcelona

Catalonia o Trade & Investment



#### Smart Guidance for Corporate Parking Sustainable Mobility

Vienna & Madrid.

#### **The Challenge**

✓ Parking for large corporations has become an issue, as workers can be trapped trying to park for long times.

#### **Solution**

The solution consists in monitoring 1282 parking spaces, the main entrances and exits of the parking lot through sensors. These sensors provide information on parking occupancy and availability. With this information, the system guides employees directly to the available spaces through more than 100 information panels installed throughout the parking.

#### **Benefits**

- ✓ Increase workers productivity.
- ✓ Workers arrive to the office on time and less stressed.





20% reduced time looking for parking spots

Decrease traffic congestion in the surroundings


## **On-demand bus** Sustainable Mobility

Barcelona, Spain.

#### The Challenge

✓ Inefficient public transportation.

✓ Many sub-urban areas with low mobility connections.

#### Solution

The solution has been deployed in 8 EU countries. Shotl platform, defined an area to operate and added some fixed stops to get on and off, where users can request the service in real time or periodically. Using this system, routes are planned in real time based on users' requests via App or hotline, reducing waiting times, as well as introducing a new mode to move along the area which also connects to conventional public transport.

#### **Benefits**

- ✓ -15% cut on operational costs.
- ✓ 3x to 5x increase of demand 6 weeks after launching.
- $\checkmark$  5x reduction of waiting time.
- ✓ 4x more flexibility.
- ✓ Bus frequency is increased by 60% to 80%.





+150K passengers already transported

#### 16 operations in 8 EU countries





## **Real time mobility prediction** Sustainable Mobility

Barcelona, Spain.

#### **The Challenge**

- ✓ Mobility congestion in urban areas.
- ✓ Give the best use to limited urban resources (parkings, electric cars charging points, shared vehicles, etc...).

#### **Solution**

SEER Predicting Mobility is a real-time forecasting model based on historical and real-time data using simulation models and Machine Learning techniques to predict the availability of limited resources such as the occupancy of the charging points of the city of Barcelona. Other prediction use cases are availability of parking slots, shared vehicles or multimodal inland transports.

#### **Benefits**

- ✓ Organize itineraries with forecasted traffic and parking information's to save time and gas.
- ✓ Prepare trips for electric cars taking into consideration EV charging stations without deviating from the fastest route.

+ <u>INFO</u>



80-90% accuracy for short- & longterm prediction

Forecast recalculation every 5 minutes

## Partner Client SDC Ajuntament de Barcelona B:SSM Barcelona





## **Mobility as a Service; Shared Mobility** Sustainable Mobility

Barcelona, Spain.

#### **The Challenge**

- ✓ Reduce air pollution.
- ✓ Free up urban space.

#### Solution

eCooltra provides a mobility solution where the citizen can move from point A to B using an electric scooter. With a fleet that covers the city, every citizen registered on their app can use the service, which is also the key to begin the ride. They also provide two helmets.

There is no need to park in a specific station, users must follow parking rules, as well as respect the city speed limits.

#### **Benefits**

- Provide an additional sustainable transportation to public transport.
- ✓ Convenient and sustainable mobility mode available anytime, anywhere.
- ✓ Collaborative solution.







Since 2016 eCooltra has saved 2.680Tn of emissions

Service 100% sustainable

1 million users

A fleet of more than 7.000 scooters





## Make the most of the value of travel time for the citizen

### Sustainable Mobility

France, Italy, Spain, Portugal, Slovakia, Belgium, Finland and Norway.

#### The Challenge

- ✓ Improve a citizen's use of time on their daily trips.
- ✓ Redesign the transport systems according to the user's travel experience and use of time.

#### Solution

Validation of a new conceptual framework for the estimation of VTT (Value of travel Time) at an individual level based on the value proposition of mobility through a European-wide data collection. The data has been gathered through the Woorti smartphone app to compile behavioural and mobility data across Europe, analysed by Eurecat.

#### **Benefits**

- ✓ Perform a cost-benefit analysis.
- ✓ Provide recommendations to the European Community, public authorities and transport operators on how to improve transport infrastructures in accordance to VTT.



**Funded by** 



European Union funding for Research & Innovatio

#### 3.000 users in Europe registered with more than 66,000 trips

In Catalonia, 450 users participated, validating 9,000 trips

#### **SDGs** impact



+ INFO

Partner

eurecat





## Adapted Transport System for disable people Sustainable Mobility

Vic (Catalonia), Spain.

#### **The Challenge**

- ✓ Improve the self-steem of disabled people in their daily trips.
- ✓ Social inclusion.

#### **Solution**

This innovative intelligent guidance system allows people living with disabilities or memory dysfunctions, to autonomously travel by regular public transport through a precise guidance provided by a Mobile App and a continuous monitoring of the user from a Web App hosted in the Cloud.

#### **Benefits**

- ✓ Inclusion of disable people into society, boosting their self esteem by traveling alone.
- ✓ Make the system safer for families by monitoring in real time the location of their loved one.



Partner





Client

Less budget necessary by replacing Paratransit with regular transport network

#### **SDGs impact**



+ INFO



## **On street parking system** Sustainable Mobility

Castelldefels, Spain.

#### **The Challenge**

✓ Decrease traffic around parking lots and increase parking rotation.

#### Solution

Parking solution implemented in Castelldefels where users can find parking easier by using the Somnitec app that is connected to the municipality and shows the parking places around. At the same time it makes it easier for drivers to pay their parking time through the app and increases rotation of cars, as people know how much they have left and municipality officials too. Also, allow to the municipality, supervise parking ticket and fees, due to Plate control using Scooters or smartphones with OCR.

#### **Benefits**

- ✓ Easier payment method through the app.
- ✓ Higher rotation of vehicles in parking spaces.
- ✓ Easier to find free spots to park.
- ✓ Transversal Platform in real-time.

+ INFO



SominTec

Somos Innovación v Tecnolog



**300K parking tickets** were **sold** by the App

4M vehicles registered by the system

Car parking rotation increased by roughly 25%





## Mobility simulator in real time

#### **Sustainable Mobility**

San Diego, California, USA.

#### **The Challenge**

✓ Improve traffic flow along the heavily congested Highways.

#### **The Solution**

The Integrated Corridor Management System (ICMS) is one of the first working examples of traffic management integrated with prediction. It aims to operate and manage individual transport systems as a unified corridor, 24/7, including the highway network, toll lanes, surrounding arterials and local public transport.

Aimsun Live is the predictive engine at the heart of the award-winning ICMS. It drives the decision support system for traffic operators, forecasting and simulating congestion and capacity imbalances in real time.

#### **Benefits**

✓ Predict congestion, stopping it before it happens.

+ INFO

- ✓ Optimize capacity.
- ✓ Reduce traffic jams at peak times.
- ✓ Make journey times more reliable.



Comprehensive and intelligent decision support systems





## Charging stations **Sustainable Mobility**

Barcelona, Spain.

#### **The Challenge**

✓ Introduce Electric Vehicles as a real substitute of traditional cars

#### Solution

basic network of +SUMOSU Stations propose stations that provide publicly accessible charging infrastructure for the whole e-mobility system of a city. Looking after the need of users ranging from e-taxis to city electric buses, car-sharing fleets and private users. Moreover, these stations have also been designed to become infrastructures to enable an efficient interaction with the grid, increase its safety and reliability and favor locally-based energy distribution and autonomy.

#### **Benefits**

✓ More Availability of charging stations to users so the transition from traditional vehicles to electric mobility is faster and easier.



50% reduction in current levels of emissions in the transport sector by 2030

30% increase in the use of clean transport by 2030

30% reduction of the occasional use of private cars by 2030

#### **SDGs** impact



+ INFO

Partner

Ajuntament de Barcelona



## Control and regulate parking operations in your city **Sustainable Mobility**

Vic, Spain.

#### **The Challenge**

✓ Control and regulate the parking operations on loading city zones.

#### Solution

The Parkunload platform, hosted in the cloud and with Internet of Things (IoT) technology, is the 360° solution to flexibly regulate and efficiently control the parking conditions in restricted parking areas. It aims to inform drivers about parking zone and interact with mobile applications as well as allows to communicate in real-time occupancy levels and register parking operations. Also allow the wardens efficiently control any vehicle's parking permissions and remaining parking time.

#### **Benefits**

- ✓ Better organization of loading and unloading hours for commercial vehicles.
- ✓ Parking rotation becomes much higher, and people are more conscious on the timings as parking times stay recorder in their devices

+ INFO





#### **Increase parking** availability

shared use of the parking zones with different user profiles

**Real-time parking** occupancy data





## **Smart parking for bicycles** Sustainable Mobility

Barcelona, Spain.

#### **The Challenge**

- ✓ Guarantee a bike security parking.
- $\checkmark$  Promote the use of bicycles.

#### **Solution**

Vadebike is a Parking rotation System for all types of bikes implemented in Barcelona. The system allows bikers to keep their helmet and bike with 3 security points in any of their parking locations deployed along the city. The user just has to identify himself on the website and proceed exclusively with their personal card. To prevent dropouts and carelessness, long-terms parking lots are not allowed. With this solution, bikers safety is guaranteed around the city.

#### **Benefits**

- ✓ Park safely, leaving your bike and helmet insured for as long as you stay parked.
- ✓ Easy to use with a membership card.





400 users and 28 smart bike parkings

Decrease the bicycle thefts and promote healthy living

Catalonia o Trade & Investment



+ INFO

## **Carsharing and ride hailing services** Sustainable Mobility

Barcelona, Spain.

#### **The Challenge**

- ✓ Renting cars when travelling for a reasonable price.
- ✓ Owning a car and wanting to rent it out to make extra money.

#### **Solution**

SocialCar is a app that provides an integrated mobility solution for people living in urban areas having access through p2p car rental, carsharing and urban ride hailing services, everything in one app. This solution allows any citizen to rent a car or offer their car to rent in which the owner can check driver's profile. SocialCar manages the rental for other users, keeping their car in their parking lot. The car owners gets an economic compensation. This way the efficiency of your assets is maximized as demand calls.

#### **Benefits**

- ✓ Users can share cars in a daily manner, contributing in less traffic in urban areas.
- ✓ People that do not own cars, can rent one for a reasonable price. + INFO



Partner





300k users optimizing their Mobility

Reduction of 20% private car ownership





## Citython Sustainable Mobility

Barcelona, Spain.

#### The Challenge

✓ Rethinking mobility in cities through innovative solutions in an inclusive way for all citizens.

#### **Solution**

A 3-day hackathon that takes place in Barcelona and brings together creative and inquisitive minds to solve mobility problems occurring in the historic centers of Barcelona. Young professionals from the fields of urbanism, computer and data sciences will be brought together in the same place for a fun and an intense session of co-creation, hacking and collaboration. The difference from a typical hackathon is that the Citython requires the analysis of data to understand a problem and reach a cooperative conclusion.

#### **Benefits**

- ✓ All stakeholders included in the solution.
- ✓ Extra-ordinary solutions. bv usina nonconventional approach to solving a common problem. + INFO



Start-ups created from bringing together several different stakeholders to the table

Instead of one solution for the problem, multiple innovative solutions are attained

#### Client Partner **SDGs** impact eit Urban Mobility inLab<sup>®</sup>FIB





## Virtual Mobility Lab Sustainable Mobility

Barcelona, Spain.

#### **The Challenge**

 $\checkmark$  Evaluate the impact of implementing anv mobility service in a region or city.

#### **Solution**

This Platform integrates multimodal transportation models aiming at assisting in the design and evaluation of impacts of new mobility concepts, either based on automotive technologies, ICT applications, or both, for scenarios evolving over time. The model integrates the offer of all modes of public transport as well as we the road by the private vehicle and the demand for update mobility. The solution supports decisions-makers in mobility policies, as well as transport operators or new companies that develop new mobility alternatives and want to evaluate them.

#### **Benefits**

- ✓ Cost/Benefit analysis prior to implementing any solution to the mobility network.
- ✓ Assistance in the design and implementation of new mobility solutions.

+ INFO



#### Problems are solved prior the implementation of new mobility service

Evaluation on sustainability of the mobility solution. including CO2 emissions.

#### Client Partner **SDGs** impact VOLKSWAGEN AKTIENGESELLSCHAFT FUTURE MOBILITY RESEARCH HUB inLab<sup>®</sup>FIB





#### **USE CASES**

# **6. RESILIENCE & SECURITY**

Cities worldwide face multiple risks related to climate change, terrorism, and other challenges. Urban resilience is the capacity of individuals, communities, institutions, businesses, and systems within a city to survive, adapt, and grow no matter what kinds of chronic stresses and acute shocks they experience.

It is important for cities to create a safe environment for its citizens by planning accordingly and promoting integrated initiatives such as transversal control rooms, to reduce crime, lessen risks of terrorist attacks, anticipating emergency situations and establishing protocols for disasters to ultimately protect people, urban spaces and economic activity.

- RESPONSE TO EMERGENCY SITUATIONS
- CITIZEN SAFETY
- RISK ANTICIPATION
- URBAN RESILIENCE
- CLIMATE CHANGE
  ADAPTATION

Citizens as a sensor for disaster response Digital methodology checklist for emergency







#### **RESILIENCE & SECURITY**

# Citizens as data input for better disaster response

### **Resiliency & Security**

Japan.

#### **The Challenge**

✓ Convert citizen data into useful information to treat any emergency with the most information possible.

#### **Solution**

Citibeats is an AI Text Analytics Platform, unique in identifying social insights and trends through machinelearning algorithms which transform a community's natural language data into valuable intelligence that empowers decision makers. In collaboration with NTT Data, Citibeats was configured with Nazuki, in order to analyse miles of comments from different data sources, giving the Ministry of Japan structured data that could be used in combination with the information they had on infrastructure to efficiently an quickly attend citizen's needs. This unique and valuable innovation platform, can understand multiple languages from locals and tourists and remove fake news in order to give the government accurate, actionable data.

#### **Benefits**

- ✓ Instant useful data creation, from citizens involved in the emergency.
- ✓ The people benefits from a more specifice resource to cover the regions affected.



Partner

citibeats

Client

**IAPANGOV** 

THE GOVERNMENT OF JAPAN

20% fast response time to natural disasters

#### Better Two-way Citizen and government communication engagement

More effective actions based on what citizens really need

### **SDGs** impact



Catalonia o Trade & Investment



#### **RESILIENCE & SECURITY**

## **Digital methodology checklist for emergency situations** Resiliency & Security

+ INFO

Santiago, Chile.

#### **The Challenge**

✓ Firefighters need to keep a strict facilities control in order to guarantee safety in any emergency. The control process should be quick and simple to lose as less time as possible.

#### **Solution**

The troop of the Santiago's Fire Department, in Chile, is working to respond to all kinds of emergencies that may arise in the city using Digital Checklist. This way this emergency situations, there is less human error in following stated procedures. Also for after the fire you can capture better quality data for further investigation and data analysis.

#### **Benefits**

- ✓ Reduction of time spent in fire incident by using more efficient digital procedure checklist.
- ✓ Paperless procedures applied for more sustainable working methods.



Client





**20% Reduction** of the **Time** spent in a fire **incident** 

Better data captured in the fire incident

**100% paperless methodology** for standard routine procedures

#### **SDGs** impact



Catalonia o Trade & Investment



## Geotechnical risk management Platform

#### **Resilience & Security**

Berlin, Germany.

#### The Challenge

✓ Control and reduce risk of infrastructure in the construction of Deustche Bahn (Train lines in Germany).

#### Solution

This solution was implemented in Berlin for the S-Bahn line 21 project, which connects the outside ring to the Central Station. It consists of a large excavation between diaphragm walls under phreatic level. In situ geotechnical instrumentation (inclinometers, piezometers and leveling) data is obtained and compared to numerical models simulating all construction phases and ground behaviour. Then, DAARWIN data analysis is performed, which shows that ground stiffness was four times higher than the value previously considered in design.

#### **Benefits**

✓ DAARWIN platform grants access to ground predictive models and monitoring data to each one of the stakeholders involved in the construction project.

+ INFO



**Excavation** analysis in less than 12 hours

Dramatically reduces emergency response time





#### **USE CASES**

# 7. QUALITY OF LIFE

Improving health and social services protects and enhances the well-being and quality of life of citizens. A smart city promotes the use of innovative systems, smart and connected medical devices to monitor and provide better diagnosis.

As inequality continues to grow cities can leverage social innovation cities to provide a better environment and more opportunities citizens, providing an enjoyable and prosperous place for all.

It is important to create a sense of belonging and acceptance, providing equal opportunities and treatment to citizens.

- SMART HEALTH
- SOCIAL SERVICES
- SOCIAL INNOVATION
- EQUALITY











## Immersive room experience Quality of life

Barcelona, Spain.

#### **The Challenge**

✓ Making indoor gym users, feel an outdoor experience or a relaxing view for the better practice of Yoga or Pilates lessons.

#### Solution

Virtual and Augmented Reality installed in a gym activity room a projection system where images are projected to experience a relaxing practice. This technology also includes an ultra-short distance perimeter projection system to prevent the generation of participants' shadows on the wall during the activity to improve the design of the immersive room

#### **Benefits**

- ✓ Innovative in fitness and better experience for the members of the centre.
- ✓ With just a click you can change the scene depending on the class approach; Mountains, sea-side, lakes, etc.





Increase of the users demand by offering a unique and different product

#### Better user experience through immersive technology

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+ <u>INFO</u>

## Painting Stories Quality of life

L'Hospitalet Municipality, Spain.

#### **The Challenge**

✓ Generate social inclusion of elder people with the youth in communities.

#### **Solution**

This gamified Social Innovation Project centralizes and preserves the memories of the elderly people of l'Hospitalet through the interpretation of the youngest children, using the channels and forms of expression that are most natural to them. Thus, each story goes through four phases: storytelling, interpretation (drawing, painting the story), editing publication the and blog on (www.pintandohistorias.org), in which the geolocated stories are stored. Today more than 30 stories have already been published in the neighborhoods of Pubilla Casas, Sant Josep or Santa Eulalia, and we continue.

#### **Benefits**

- ✓ Knowledge from elderly people is traspassed to youth generations.
- ✓ Elderly people maintain active.

+ INFO



Partner



Client



Ajuntament de L'Hospitalet

More than 50 seniors and 150 children participating in the project

**40 stories generated** and published





## Smart Allocation of Social Resources Quality of life

Catalonia, Spain.

#### **The Challenge**

- ✓ Municipalities offer subsidies in a reactive and subjective way, meaning that there is a lack of previous studies that validate whether the destination of resources is justified.
- ✓ There are many groups (elderly people in particular) that do not know they are eligible for aid.

#### **Solution**

It consists of an intelligent data aggregation solution for planning health and social services based on Microsoft Azure, Power BI and Cortana Intelligence technology. The solution correlates different data sources and identifies, for each territory, vulnerable populations (elder people) who need help, as well as the services they need. The predictive solution helps governments to plan their future budgets, allocating the necessary resources according to the population that needs them.

#### **Benefits**

✓ Budgets and resources justly aligned between the elderly people.







#### Correlates different data sources and identifies, for each territory, vulnerable populations who need help

Better and fairer allocation of municipal resources

#### **SDGs** impact



+ INFO

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## **Vulnerability prediction** Quality of life

Catalonia, Spain.

#### **The Challenge**

✓ The project is part of the general tendency in Europe to introduce the big data knowledge in the social services sector to better understand the foreseeable evolution of social needs and the vulnerability structure of each municipality or territory.

#### **Solution**

Big Data solution to identify in the territory vulnerable population in social exclusion risk, by analyzing data from multiple origins with predictive models to look for patterns and to predict future social needs that are too complex to identify manually.

#### **Benefits**

- ✓ Carry out a planning that is anticipated to the future needs of population.
- ✓ Allow the elaboration of public budgets by means of evidences; encourage the preventive approach of Social Services.
- ✓ Reduce the risk factors associated with the needs detected.
- ✓ Move towards the personalization of + Sb Gal Services.



Partner

MOMENTUN

Client





Improve efficiency of home social care and healthcare services

Implemented in 5 Catalan city councils

Decreased of emergencies and medical visits

Prolongation of home permanency of elderly people

#### **SDGs** impact





#### **USE CASES**

# 8. ECONOMIC DEVELOPMENT

The large number of interactions, ideas and opportunities flowing in urban areas create an ideal ecosystem for innovation and creativity. A smart city aims to become a platform for innovation that attracts talent, fosters entrepreneurship and drives economic growth.

To increase touristic competitiveness, cities aim to become smart tourist destinations: transform their relationship with visitors, leverage new communication channels, innovate in the offer and create a collaborative ecosystem. A rich offer of cultural, leisure and sport activities to engage citizens of all ages and backgrounds enables a diverse and healthy urban life.

As cities share many challenges cooperation and knowledge transfer among them benefits urban dwellers worldwide.

- TOURISM
- INNOVATION ECOSYSTEM
- PUBLIC-PRIVATE
  PARTNERSHIPS
- ENTREPRENEURSHIP
- CULTURE
- RELATIONS
- CITIES COOPERATION AND COMPETITION
- CITY BRANDING











## Smart Stadium 360°

#### **Economic development**

Barcelona, Spain.

#### **The Challenge**

- ✓ To increase and optimize stadium management levels of ICT solutions
- ✓ To increase the satisfaction of sport events attendees.

#### **Solution**

Based on a functional, technological and relational perspective, the project encompassed an assessment of the digitalization potential and maturity of Futbol Club Barcelona (FCB). The project defined a "Smart Stadium" model structured around several areas of action, proposing 50 initiatives and 200 services to be deployed. Based on FCB's Strategic Plan, a priorization was carried out to define the actions to be implemented.

The "Smart Stadium" model aims at optimizing the potential of sport clubs based on a 360° approach, allowing to identify the last technological disruptive trends that can boost club's leadership in the management of ICT solutions and improve the fans' experience.

+ INFO

#### **Benefits**

--✓ Improved fan engagement.

Homereased sustainability of new sport areas.





Catalonia o Trade & Investment 50 action initiatives proposed and 200 services to be implemented

> Generalitat de Catalunya Government of Catalonia

## Augmented reality for cultural appreciation of cities Economic development

Barcelona, Spain.

#### **The Challenge**

✓ Help visitors understand history from a visual point of view, for instance on how a monument was built centuries ago.

#### **Solution**

The solution consists on the visualization of 360° images in augmented reality on a smartphone, tablet or 3D glasses in different key touristic points during a visit within the city. It requires wifi connection in each of the visualization points to allow the visitor to download the necessary augmented reality content. Through augmented reality, the visitor can travel to the past and see how each of the spots was centuries ago, not only from the architectonic point of view, but they can also see a depiction of the daily life activity.

#### **Benefits**

- ✓ Friendly and understandable tool for historical facts
- ✓ Solution to exploit the historical, archaeological or natural city heritage in a sustainable way.



Partner

RELIVING HISTOR



Client

**250M downloads** of the app in 16 months from 3 app market stores

**36% increase in the number of visitors** to the monuments in 16 months

**4 view spots** and planned to introduce 2 more by 2020

#### **SDGs** impact



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 + INFO

## Sharify real-time mapping Economic development

Barcelona, Spain.

#### **The Challenge**

✓ Create a sense of community through citizen participation in civic activities.

#### **Solution**

Real-time mapping App where local business o governments can advise their events while citizens can freely share social plans by themselves. Users share any type of event in the app so other participant can attend. The app runs through open source data, gathers information from users and creates an interactive platform, where anyone can discover what is happening around them at anytime. Activities are categorised in: Culture, sport, social, music and city life.

#### **Benefits**

- ✓ Create a sense of community for citizens.
- ✓ Maintain citizens informed on events, queries or relevant information going on around them.



Partner







More than 1000 events monthly upload

App used in **more** than 30 cities

2500 daily activities displayed

#### **SDGs** impact



+ <u>INFO</u>



## Sustainability of local commerce **Economic development**

Barcelona, Ibiza, Tarragona.

#### The Challenge

 $\checkmark$  Increase sales and the benefit of local trade

#### Solution

Moneder is a loyalty and communication tool in 16 cities which helps to increase sales and the benefit of local commerce, integrating municipal services and rewarding customers with euros (or tokens) that can be used to pay their future purchases.

Municipalities can benefit from moneder plataform by improving their economy thanks to customer loyalty and the sustainability of local commerce. The municipal entity can choose a loyalty model adapted to its needs.

#### **Benefits**

- ✓ Helps to loyalty their customers through rewards and communication.
- ✓ Have a personalized customer service.



2500 users throughout 200 shops integrated

Moneder tool has recorded 26.000.000€ in sales, in 750.000 transactions (excluding Barcelona).

Partner meneder Ajuntament de Barcelona

#### Client









# **5. CATALONIA TRADE & INVESTMENT**

## **Catalan government's agency for business competitiveness**



**Best Southern European Region** 





## Catalonia Trade & Investment's success lies in offering a pro-business approach and tailor-made

The institution offers services for international companies considering Catalonia and Barcelona as an investment location in Europe. It also offers services for expansion or for new projects for already established firms in

It's multidisciplinary teams work in the fields of investment and international commerce, and technological

Source: EIC (DGI – ACCIÓ)

# **6. INTERNATIONAL PROJECTS AND OFFICES**





HOME