OTEA REMOTE EXPERT SYSTEM
CASCADE FUNDING PROJECT

ECOMANAGEMENT TECHNOLOGY

Anxo Feijóo Lorenzo
General Manager

ABOUT US

We create time saving and telemanagement solutions compatible with all systems, always from the collaboration.
Our Philosophy is based on being available for our clients, offering flexibility and creative solutions.

WE ARE A MULTIDISCIPLINARY TEAM

Engineers in: telecommunications, industrial and computer. Mathematician, top technician in industrial cooling and in electrotechnical installations.

SINCE 2010

Solution design in control, implementation of software solutions, generating algorithms to translate data into information, monitoring and tracking installations, renewable energies and energy efficiency projects…

WE BELONG A HOLDING GROUP

Formed by more than 25 companies, which has been since 1983 undertaking engineering projects, conditioning, maintenance and construction.

This project has received funding from the European Union Seventh Framework Programme under grant agreement No 609029 and from the European European Union's Horizon 2020 research and innovation programme under grant agreement No 680481.

CREATING TIME FOR OUR CLIENTS

OTEA is a **integrated system** (hardware, software, services) **for supervision and remote control of installations.**

HVAC, lighting, multisite, energy efficiency and efficient maintenance plus enhanced comfort.

OTEA

OTEA is an experienced, reliable and safe solution present in the market for almost 10 years.

Compatible with many hardware and machines on the market: open system.

OTEA manages HVAC and lighting wherever you are, just with one click.

Established
+50
COUNTRIES

Translated
+8
LANGUAGES

Managing
+3800
CONNECTED SITES

Controlling
+50K
MACHINES

Installed in
+600
CITIES

Monitoring
+1 Mill.
VARIABLES

Computing
+3 Bill.
DATA

This project has received funding from the European Union Seventh Framework Programme under grant agreement No 609029 and from the European European Union's Horizon 2020 research and innovation programme under grant agreement No 680481.

GLOBAL ARCHITECHURE OF THE SOLUTION

Local control

Control and automation for installations using local hardware (PLCs and HMIs)

Centrallization of existing PLCs and SCADAs

Directed to:
Retailers, final clients and facility managers.

OTEA platform

Monitoring and controlling real time installations from any device directly on the Internet.

Reporting: charts and energy analysis.

Artificial Intelligence to improve the behavior of installations.

Directed to:
Management, directors, facility managers and ESCOs.

Other services

OTEA Center 365 days/24h.

Energy and F.M. consulting.

Certifications **LEED, BREEAM, EVO IPMVP, ISO 50.001.**

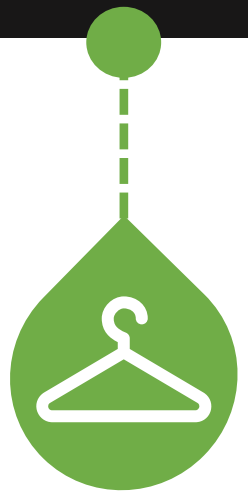
Directed to:
Directors, facility managers and ESCOs.

This project has received funding from the European Union Seventh Framework Programme under grant agreement No 609029 and from the European European Union's Horizon 2020 research and innovation programme under grant agreement No 680481.

SOLUTIONS

OTEA Retail

Centralized system of telemanagment for multi-sites companies. Minimizes the resources for facility management and increases the comfort for clients and staff.



OTEA Smart City

Integration of OTEA into GIS system and transparency platforms. Energy management systems, smart buildings, street lighting and optimizing waiste collection.

OTEA Infrastructure

Tools to control, monitorizing, autonomous rules of behaviour of industrial procedures, water treatment plants, Smart grids and large infrastructures.

OTEA Industry

Automatized Solutions (monitoring and controlling) made for projects Industry 4.0. Centralizing SCADAs and autonomous systems to overview productive processes.

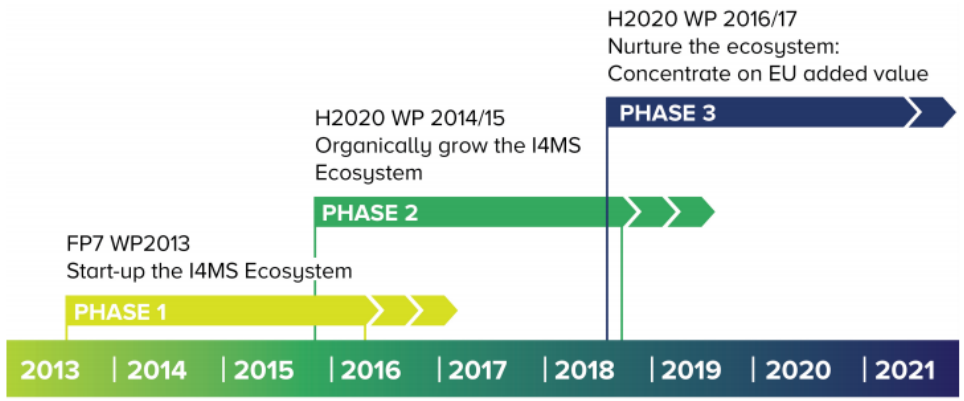
OTEA Center

Surveillance and remote management during 24 h/365 days per year, from installations which are connected to the technological Solutions of ECOMT.

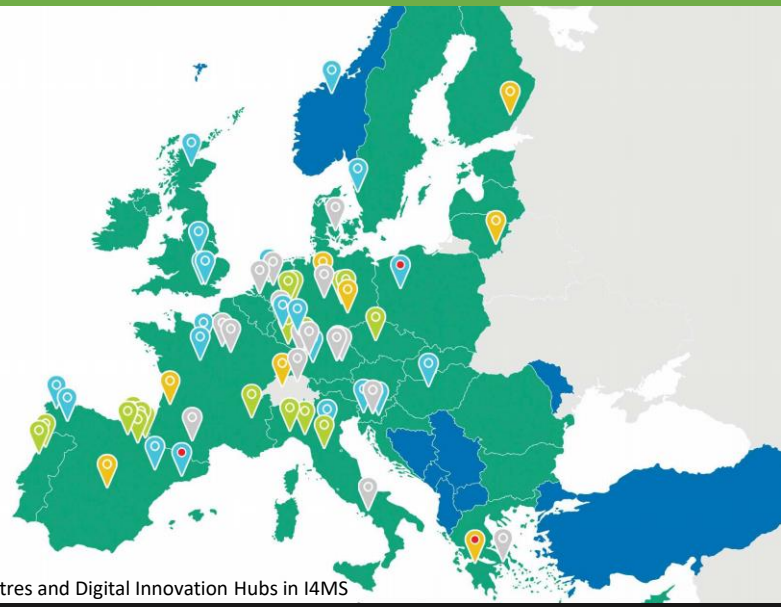
This project has received funding from the European Union Seventh Framework Programme under grant agreement No 609029 and from the European European Union's Horizon 2020 research and innovation programme under grant agreement No 680481.

THE FORTISSIMO PROJECT…

Improvement of the remote expert system based on software OTEA



OTEAres



Competence Centres and Digital Innovation Hubs in I4MS

… is a collaborative project that enables **European SMEs** to be more competitive globally through the use of simulation services running on a **High Performance Computing** cloud infrastructure.

… is coordinated by the **University of Edinburgh** and involves more than **100 partners** including Manufacturing Companies, Application Developers, Domain Experts, IT Solution Providers and HPC Cloud Service Providers from 14 countries.

… is **funded by the European Commission** within the 7th Framework Programme and Horizon 2020 and is part of the **I4MS Initiative**.

ecomt

FORTISSIMO

This project has received funding from the European Union Seventh Framework Programme under grant agreement No 609029 and from the European European Union's Horizon 2020 research and innovation programme under grant agreement No 680481.

ORGANISATIONS INVOLVED

OTEAres

EcoMT (End User), Spain, is an ICT company that develops and integrates remote control and monitoring of facilities.

CESGA (HPC Expert), Spain, is the centre for computing, high performance communications systems and advanced services.

GOMPUTE (HPC Provider), Sweden, a leading simulation and HPC solution provider.

ITMATI (Application Expert), Spain, is a Technological Institute for Industrial Mathematics that provides advanced solutions for businesses.

This project has received funding from the European Union Seventh Framework Programme under grant agreement No 609029 and from the European European Union's Horizon 2020 research and innovation programme under grant agreement No 680481.

DIFFERENT IOT ELEMENTS THAT WE CONNECT

We offer great versatility, being able to control a great variety of elements through our system

NAUST MARINE
SOLUTIONS FOR FISHING VESSELS

OBJECTIVES OF THE SYSTEM

Ensure the exploitation of the productive unit.

Minimize the risk of stopping.

Efficient preventive maintenance mechanism.

Use of information for future improvement and optimization of designs as well as maintenance plans.

Energy optimization.

Provide information to the owner to know what is happening on the ship.

Introduce a simple, reliable technology that does not introduce dependencies

BORGWARNER
SUPPLIER OF COMPONENTS AND PARTS FOR THE AUTOMOTIVE INDUSTRY

INDUSTRIAL INSTALLATION

NIVEL 1
ACS system and heating of ships

System lighting ships

…

NIVEL 2
HMI + Remote Control Tablet (HMI remote)

PLC extractors

IOTs capture data from the furnace

…

NIVEL 3
OTEA
Remote Management Software

GÖDENIGMA
BLOCKCHAIN

Solutions based on Blockchain technology for Supply Chain Finance (SCF) and IoT.

YOU WANT?

Link an event to a Smart Contract

RESULT
Reset of an alarm

The Event Is Collected in the Blockchain, Encrypted and Unalterable

This project has received funding from the European Union Seventh Framework Programme under grant agreement No 609029 and from the European European Union's Horizon 2020 research and innovation programme under grant agreement No 680481.

DIFFERENT IOT ELEMENTS THAT WE CONNECT

We offer great versatility, being able to control a great variety of elements through our system

MOIO

INDIRECT MEASUREMENT OF VOLUME IN BODEGA BEER DEPOSITS

OBJECTIVES OF THE SYSTEM

Constantly know the volume of cellar beer inside each tank without direct contact with the product.

Monitor the operating values of the tank system (temperatures, pressure ...)

Predict consumption patterns. Use this data to predict and optimize the logistics of filling the tanks.

Early detection of faults to optimize the solution of incidents.

Remote control (on / off, ...)

TUTATIS NZE

CIES ISLAND

IoT SMART GRID ARCHITECTURE

NIVEL 1: Data Capture
Capture data from equipment on the islands using sensors and meters

NIVEL 2: Cloud
Hosting sensorization data and control in the cloud

NIVEL 3: Benefits obtained
Optimization of demand through real-time control

Coupling of generation and consumption

Better storage management

Reduction of CO_2 footprint

MARKARIAN

HOME AUTOMATION

SERVICES

Lighting control

Control: climatización / acs, renewable generation
Swimming pools.
Irrigation
Radiating floor

Remote management
Alarm
Events

Tactile control panel

Multi-equipment and multi-brand integration

This project has received funding from the European Union Seventh Framework Programme under grant agreement No 609029 and from the European European Union's Horizon 2020 research and innovation programme under grant agreement No 680481.

THE CHALLENGE

EU objectives

Heating and cooling account for a half of the EU's energy demand. In order to fulfil its climate and energy goals, this sector must significantly reduce its energy consumption.

Before this experiment,

a deterministic system with brute force conditions was applied to detect comfort anomalies.

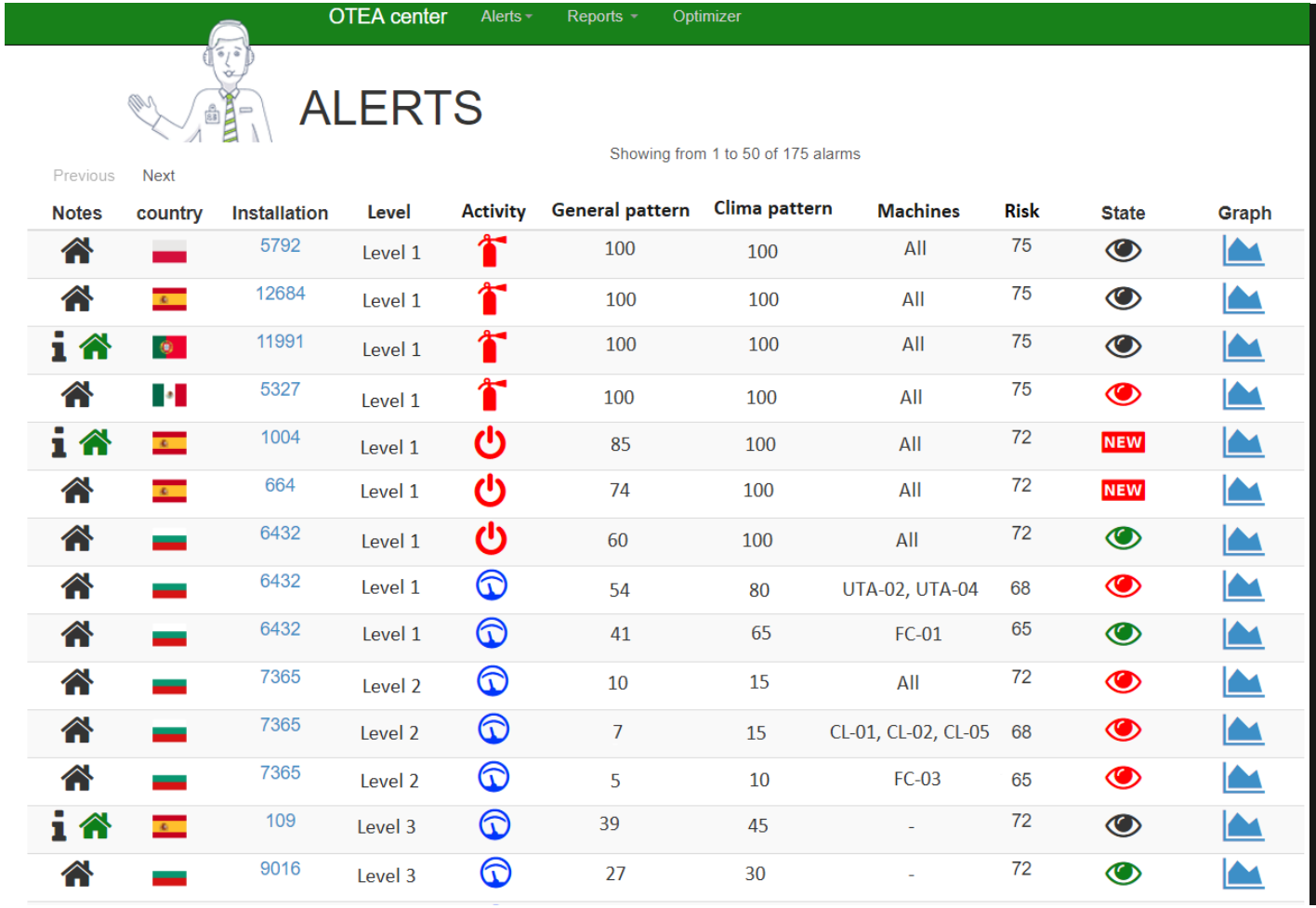
New system

The challenge of this experiment was to replace the brute force solution with a superior ML model. Like the brute force model the ML model is numerically intensive and needs the use of HPC.

This project has received funding from the European Union Seventh Framework Programme under grant agreement No 609029 and from the European European Union's Horizon 2020 research and innovation programme under grant agreement No 680481.

THE SOLUTION

OTEAres' intention is to address maintenance management by using ML and statistical techniques, to create mathematical models through the analysis and processing of data from hundreds of devices and field sensors.



Notes	country	Installation	Level	Activity	General pattern	Clima pattern	Machines	Risk	State	Graph
		5792	Level 1		100	100	All	75		
		12684	Level 1		100	100	All	75		
		11991	Level 1		100	100	All	75		
		5327	Level 1		100	100	All	75		
		1004	Level 1		85	100	All	72	NEW	
		664	Level 1		74	100	All	72	NEW	
		6432	Level 1		60	100	All	72		
		6432	Level 1		54	80	UTA-02, UTA-04	68		
		6432	Level 1		41	65	FC-01	65		
		7365	Level 2		10	15	All	72		
		7365	Level 2		7	15	CL-01, CL-02, CL-05	68		
		7365	Level 2		5	10	FC-03	65		
		109	Level 3		39	45	-	72		
		9016	Level 3		27	30	-	72		

1. This enables the anticipation of failures and the scheduling of predictive maintenance.
2. These lead to the optimization of processes, the minimization of downtime and costs and the more efficient use of energy.
3. HPC infrastructures offer the required capabilities to support these services and to provide scalable resources when required.

ECOMT ECOMANAGEMENT TECHNOLOGY

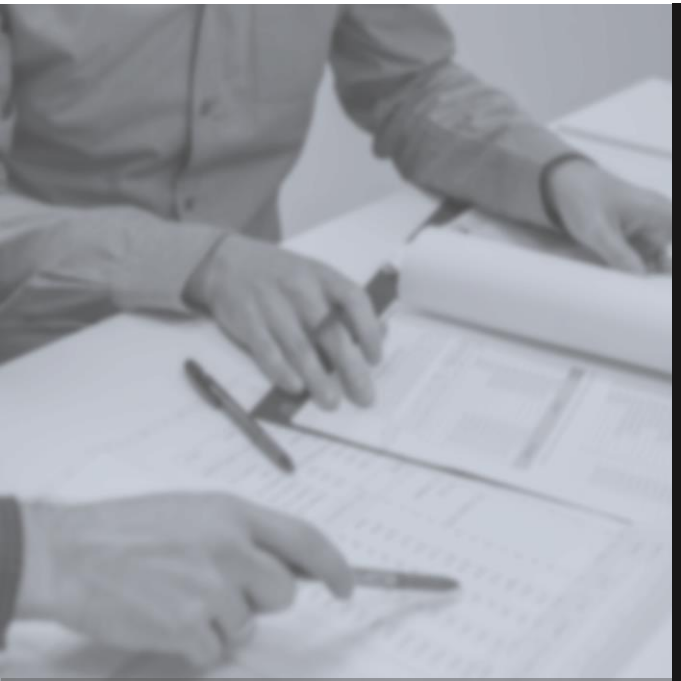
FORTISSIMO

This project has received funding from the European Union Seventh Framework Programme under grant agreement No 609029 and from the European European Union's Horizon 2020 research and innovation programme under grant agreement No 680481.

BUSSINESS IMPACT

Would be immediate using **ML algorithms** and **HPC** which is essential for real-time operations.

OTEAres enables decision support in **real time** offering a 24/7 service.



Direct consequence

1. ECOMT customers can boast a Corporate Social Responsibility Plan and improve their trade image.
2. More than 20% of the incidents registered could be corrected remotely without the need for a technician.
3. ECOMT expects to double the number of controlled facilities in the short term.
4. A reduction of 30% in preventive maintenance visits and a reduction of 20% in corrective maintenance.
5. Predictive maintenance will prolong the life of customers' HVAC machines and reduce the number that need to be replaced.
6. Knowledge about the use of Big Data techniques and the utility of predictive models.

This project has received funding from the European Union Seventh Framework Programme under grant agreement No 609029 and from the European European Union's Horizon 2020 research and innovation programme under grant agreement No 680481.

BENEFITS

Saving up to **7%** on your **electricity bills** due to the use of the surveillance system.

Implementation of **control panels** in facilities not yet monitored.

It is estimated that **connected installations** without control will begin to be managed.

For one of the bigger customers, energy savings would amount to

€ 1M

per year with an average electricity price of 0.13€/kWh.

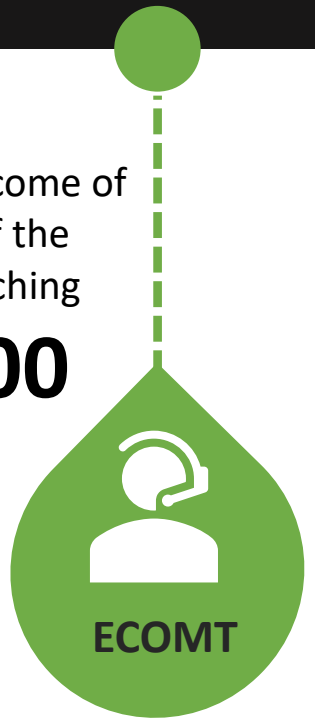
€ 15M

of revenue in the long term

Double the annual income of the department of the control center, reaching

€ 600,000

per year



This project has received funding from the European Union Seventh Framework Programme under grant agreement No 609029 and from the European European Union's Horizon 2020 research and innovation programme under grant agreement No 680481.

OUR ECOSYSTEM

OVER 1 MILLION VARIABLES UNDER CONTROL

ecomt ECOMANAGEMENT TECHNOLOGY

FORTISSIMO

This project has received funding from the European Union Seventh Framework Programme under grant agreement No 609029 and from the European European Union's Horizon 2020 research and innovation programme under grant agreement No 680481.