
Almaviva
real-time innovation
SEM
Smart Energy Management
SEM Full IoT
The future of Energy Management is with us now

SEM
Smart Energy Management

The best investment in energy efficiency? Knowing your consumption.
SEM Smart Energy Management® offers more: visibility, control, automation.
All in one single system.

SEM Smart Energy Management® is AlmavivA's proprietary Internet of Things platform for rationalizing energy consumption, by the building/plant system within a process of continuous improvement, integrating information flows from extremely diversified sources.

The result of a partnership with technological partners and national research institutions, SEM Smart Energy Management® has been designed to rationalize energy consumption in complex public and private organizations and enterprises, but can be adapted to the needs of small and medium enterprises and Smart City/Smart Home projects.

SEM Smart Energy Management® consists of an information system that integrates, matches and analyses corporate energy use data from utility bills, measuring instruments, ERP solutions, Real Estate and Facility Management platforms and Building Automation systems. It provides support to businesses and organizations in EPC contract management processes, project reporting for TEE, energy and environmental certification (ISO 50001/14001).

The building data, received from various different sources, can be viewed by plant or sub-plant and the utility and POD/PDR data are geo-localized on dynamic maps to represent consumption on a geographical scale, and can be aggregated at various levels.
The plant datasheets are associated with their technical characteristics, diagrams, photographs, with tracking of routine/extraordinary maintenance, and the related proprietary or external platform documents are managed and archived directly through the SEM Smart Energy Management®.

The reports produced can be organized according to different multiple profiles, in order to produce levels of information integration for each one, automating their production and transfer based on the required procedures and frequency.

SEM Smart Energy Management® has already been adopted by important Transportation, Utility & Services, Manufacturing, Large Retail and Government players for optimizing consumption management and effectively investing in energy efficiency, with the real-time monitoring of the behavior of thousands of sites.

Available as either Platform-as-a-Service, offering a suite a tailored services without the need for costly infrastructure and complex management systems, or on-premise, for companies needing to maintain an in-house control over data and applications.

DATA VIEWER

For an integrated, graphical and numerical view of the plant structure information at each site.

Based on the historical and summary data relating to all the monitored quantities, it can make available a range of analysis tools for comparing and matching performance over time, up to real time".

All the values can be represented through complex and other multidimensional graphs (carpet plots), which are dynamic and can be transformed into equivalent tables. The displayed information and processed outputs can be exported in various formats, as either images or values, to be used in other applications.

The processed quantities are indiscriminately collected by either the metering systems or other information systems (e.g., BMS, administrative systems, etc.), or manually entered (meter readings). It is also possible to enter parameters and formulas that can be used to calculate the indicators, threshold values and benchmarks. The latter can then be used to automatically generate multichannel alerts and reports for reporting anomalies and sent to the respective decision-makers.

BUILDING ENERGY MANAGEMENT SYSTEM

SEM Smart Energy Management® can easily and cost-effectively collect the operating data of a large number of buildings, process and interpret them, transforming them into crucial information for optimizing consumption. It monitors the quantities in real time and sends alarms when certain conditional threshold values are exceeded. It can switch on and off any third-party apparatuses and devices installed in the building, based on time schedules or **predictive and adaptive** algorithms. It integrates the various information flows produced by the measuring instruments, file imports, utility bills or manual entries, providing the cost parameters for each energy carrier, and converts the values of each monitored line into their economic value.

BUSINESS INTELLIGENCE

Based on a Business Intelligence platform, which integrates the corporate organization, the suite of consumption data relating to the monitored plants, the data coming from the ERP administrative systems and the budget information, SEM Smart Energy Management® analyses not just the information from each plant, but also builds an integrated analysis model of all the corporate plants, realizing specialized information navigation dashboards for the single issues and specific reporting capable of summarizing the periodical performance of the plants, represent plant or general KPIs, by aggregate, diagnose deviations between the parameters and threshold values set or dynamically calculated.

The collected data represent the events that have taken place: aggregated and historicized in the system's database, they provide an analysis of the specific anomalies and information based on the deviations from the benchmark, threshold or average values generated automatically.

Based on the generated reporting, resulting from the analysis of enormous quantities of data from the most diversified sources, SEM Smart Energy Management® automatically sends to the decision-makers only significant information, for which prompt actions should be undertaken according to the right level of priority.

ENHANCED ARCHITECTURE

SEM Smart Energy Management® is an **adaptive**, **multi-device**, **multilingual and multiplatform Web** solution, optimized for use by mobile devices, designed to collect real-time data from smart meters and compatible devices (**Full IoT**).

The enhanced architecture of SEM Smart Energy Management® is a "one-click deployable" **platform that is modular, scalable, reliable, open, flexible and easily integrable with Facility Management and ERP platforms**, as well as non-invasive and compatible with most industrial standards and IoT protocols, available as a Platform-as-a-Service by AlmavivA HyperCED® a highly virtualized technological environment.

The multi-dimensional approach of SEM Smart Energy Management® helps analyze the influencing factors for rationalizing energy consumption and mining knowledge from data analyzed according to the following dimensions:

> **vertical**, by breaking up the energy phenomena relating to each site, compared to the most significant uses and related influencing factors;

> **horizontal**, by aggregating the data from a multitude of geographically distributed sites and different sources, allowing the creation of uniform clusters useful for their comparison;

> **organizational**, in complex enterprises, in which it is necessary to aggregate and analyze consumption and costs according to each organization's proprietary models (BU, Division, etc.) and different views (production, administrative, etc.).

Through interaction with the measuring instruments, SEM Smart Energy Management® can collect field data and make it part of its architecture, thus extending what today has become a new cross-industry and consumer standard (IoT), in which the objects interface through the Internet and common standards and the data from different instruments, with different objectives, can be used simultaneously.

SEM
Smart Energy Management

SEM Smart Energy Management®, a proprietary platform by AlmavivA, reliable, integrable, scalable, flexible, minimally invasive, hardware independent, is capable of interfacing with the most widespread Facility & Asset Management applications and information systems.

It is multilingual - Italian, English, French, German, Spanish and Portuguese - and multiplatform, being accessible from PC, tablet and smartphone.

SEM Smart Energy Management® is based on AlmavivA huge experience in Cloud for Enterprise, which enables businesses and public administration bodies to access a world of services and applications tailored to their needs. AlmavivA private Cloud - HyperCED - can also transform the IT infrastructure into an on-demand service for real-time provisioning, capable of managing any level of complexity, through a unique mix of scalability, certified technology and statistical saturation models of the processing resources.
SEM Smart Energy Management® is also available, as a standard or custom service, in OEM to businesses wishing to integrate the platform among their proprietary services offered to third parties.

GIOTTO
AlmavivA Universal Platform for Enterprise

SEM Smart Energy Management® is the first vertical Energy Management Application of AlmavivA Universal Platform for Enterprise called GIOTTO®. Springing from a decade-long experience of EAI architecture, from the use of Open Source technologies, the management of critical infrastructure and the development of IoT solutions on various national markets and research projects, GIOTTO® is the AlmavivA platform that provides **tools for the development of evolved, integrated, secure and highly scalable applications**, for the best possible exploitation of the potential of the Internet of Things. The solutions and services developed within GIOTTO® acquire and process the data generated by sensors, Web-connected devices, information systems and Web/social platforms, making them available to the end users of other platforms and devices.

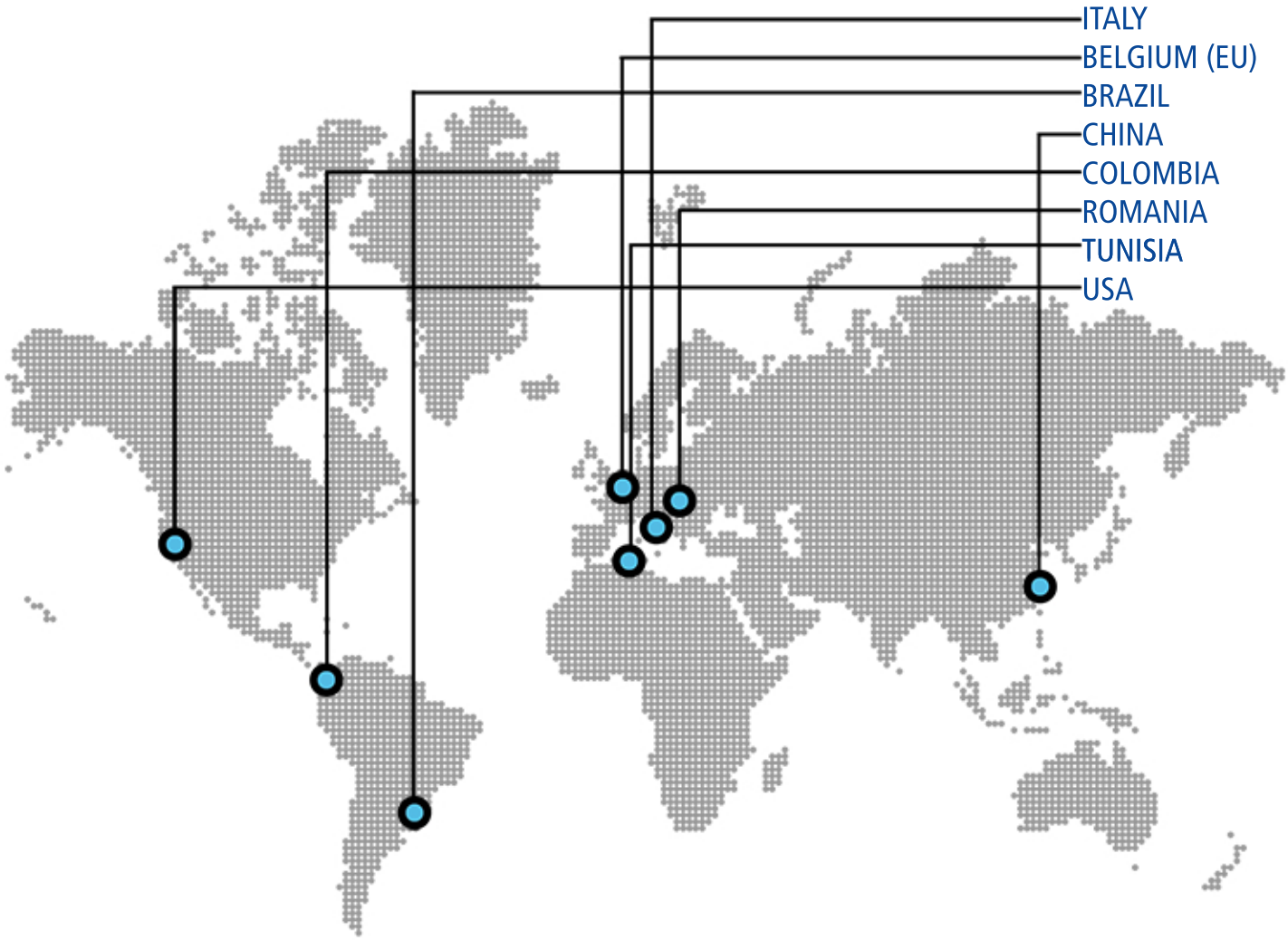
AlmavivA means technology innovation.
Solid skills, unique expertise, continuous improvement and deep knowledge on the different industries, public and private sectos, make of AlmavivA a leading Group within Information & Communication Technology at a national level.

Our mission: the development of technological solutions enabling the enhancement of operation processes and complex systems of both Enterprises and Gov. Bodies, to continuously improve service levels in a constantly evolving Marketplace.

45,000
employees in 2018

62
offices

8
Countries



www.almaviva.it
sem@almaviva.it

Printed in March 2019