

# SAP LEONARDO SOLUTION INTELLIGENT CLIMATE

AI for a better environment

## Application Overview

All industrial spaces with HVAC systems implemented or enterprises that need to manage smart buildings and spaces can improve their energy efficiency and save costs.

Intelligent Climate is end-to-end solution based on SAP Leonardo to manage HVAC systems. The system is being piloted at Accenture facilities in La Finca (Madrid). The rollout plan includes buildings in Madrid, Bilbao and Barcelona.

AI (artificial intelligence) and Internet of Things (IoT) services combined with SAP Leonardo adjust comfort conditions automatically through Model Predictive Control (MPC). The data used involves data captured from indoor units, external environment, forecasted conditions, human influence and comfort levels.

## Solution

The HVAC subsystems are controlled using Rule-Based Controllers (RBC), based on inferential logic like “if-then-else.” MPC algorithms are used to achieve an effective method to improve building energy efficiency.

The end-user environment is responsive, PC enabled, mobile enabled and includes the cloud environment through SAP Cloud Platform.



Function: Operational Efficiency | Process: Facilities Management | Industry: Cross-Industry

## Business Value

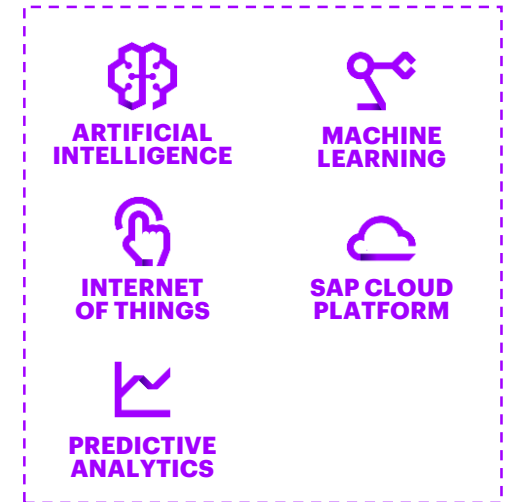
- Enables a smart and remote HVAC control system anytime, anywhere.
- Performs real-time monitoring of smart buildings.
- Autonomous automatic mode, machine-learning controlled.
- Optimizes energy to reduce electricity expenses and costs.
- Provides personnel comfort.
- Connects devices with people and processes.
- Makes the management of HVAC systems both fast and simple for the maintenance team and supervisors through user-friendly intuitive interfaces.
- Project energy consumption savings between 5%-20% and ROIs in less than one year depending on the hardware physical installation.

## Features

- Hardware integration with BACnet industrial protocol.
- Real-time data ingestion through the Internet of Things 4.0 service at SAP Cloud Platform.
- HANA data model and storage.
- End-user interface built using the SAP Fiori framework with MQTT (Message Queuing Telemetry Transport) integration to remote command-back indoor units.
- Two modes: manual or automatic.
- Simulation feature is also available to run estimations and what-if analyses for cost reduction and energy optimization.
- Heat map showing temperature distribution for area in control.
- SaaS oriented.

## Technologies in Use

- SAP Leonardo IoT Services
- SAP Cloud Platform
- SAP Leonardo Predictive Analytics
- SAP Leonardo Machine Learning



to watch the video.