Ansaldo Energia: Powering Factories with Intelligent Technology to Improve Product Performance

Power-generation leader Ansaldo Energia S.p.A. manages complex projects around the world. But suboptimal, siloed processes were limiting operational visibility – making project planning and delivery more difficult. To address these issues, the company is rolling out SAP S/4HANA®. At the same time, it is enabling predictive asset service with SAP’s Business Technology Platform – resulting in a dual digital transformation that will help Ansaldo streamline manufacturing and improve its offering.
Executive overview

Objectives

Solution

Results

Future plans

Embarking on a Smart Factory Transformation with SAP® Solutions and Services

Before: Challenges and Opportunities

• Optimize, integrate, and standardize global processes
• Increase supply chain and inventory efficiency and visibility
• Create situational awareness on health and performance of plant equipment and field assets

Why SAP

• Digital core to connect manufacturing, supply chains, and warehouse management
• Business Technology Platform for integration of field-sensor data flows with back-end systems and extended, IoT-enabled business processes
• Expertise of the SAP Innovation Services organization and experts covering the SAP® Services and Support offerings

After: Value-Driven Results

• Greater process integration across lines of business and group companies
• 40% more suppliers expected to digitally share quality control data
• 80% less time and effort to onboard new customers in the services portal
• Simplified and streamlined supply chain and warehouse management
• Product performance insight related to manufacturing to improve quality and customer service
• Expected substantial increase in services revenues

“Success lies in technology, people skills, adoption, and cooperation with partners. With SAP, we defined the vision and the path, built key capabilities, and brought early value through quick wins.”
Luca Manuelli, Chief Digital Officer, Ansaldo Energia S.p.A.

75%
Reduction in paper-based quality controls

5%–8%
Drop expected in the cost of equipment maintenance

Ansaldo Energia S.p.A.
Genoa, Italy
www.ansaldonegia.com

Industry
Cross-industry

Products and Services
Turbines, generators, power plant construction, and related services

Employees
4,086

Revenue
€1.17 billion

Featured Solutions and services
SAP S/4HANA®, Business Technology Platform, SAP Cloud Platform, SAP Internet of Things solution, SAP Edge Services, SAP Predictive Maintenance and Service solution, and SAP Innovation Services

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Unifying a **Global Power Generation Network**

Our future depends on efficient, sustainable power. As a leading player in international power generation, Ansaldo Energia S.p.A. offers innovative, flexible solutions and services for everything from power equipment to plant construction and maintenance.

With complex projects running around the globe, delivering on time and within budget is a challenge – requiring full planning and production visibility. But many of Ansaldo Energia’s processes are siloed, impacting performance. Limited visibility means slow reconciliation. And the company lacks integrated warehouse management.

To **unify and standardize manufacturing processes**, Ansaldo Energia needed a single, central, digital core for all global operations. Supply chains had to be more efficient to quickly secure materials and resources and react to planning changes. Warehouse management also had to be simpler and more transparent. And leadership needed enterprise-wide visibility to support better decision-making.

Ansaldo Energia also wanted to digitalize plant maintenance and offer premium maintenance services to customers through IoT technology. This would give engineers insight into product performance as it relates to customer equipment and give services sales managers opportunities to increase revenue and customer trust.

By combining these two initiatives, Ansaldo Energia is taking a smart-factory digital-innovation approach that will connect and streamline supply chain management, warehouse management, and machine repair and maintenance.
Two Projects with One Future-Focused, Smart-Factory, Intelligent-Enterprise Solution

Already a user of the SAP® ERP application, Ansaldo Energia worked with experts from SAP Services and Support on a road map for rolling out SAP S/4HANA® across global operations – trusting SAP to have a clear understanding of its processes, as well as a forward-looking vision for future process and technology evolution.

Now live in Switzerland and the United States, SAP S/4HANA will serve as the single, central, digital core for optimizing and standardizing production processes, including those running on the soon-to-be implemented SAP Extended Warehouse Management application.

During the initial SAP S/4HANA deployment, the SAP Innovation Services organization was also setting up an IoT environment leveraging solutions from SAP’s Business Technology Platform, such as SAP Edge Services and the SAP Internet of Things solution for interfacing and acquiring data from various industrial field gateways. This output data is now transmitted to the SAP Predictive Maintenance and Service solution using SAP Cloud Platform, another key component of SAP’s Business Technology Platform – enabling root cause analysis of product issues to see if the cause lies in manufacturing equipment and processes. Further, field data from operating turbines at customer sites is processed in SAP Cloud Platform and SAP Predictive Maintenance and Service, thus enabling premium predictive-based services.

As both projects progress, Ansaldo Energia is getting expert-guided implementation and integration support following the SAP Activate methodology. Dedicated customer care specialists safeguard the projects through discovery, planning, and deployment.
Connecting Group Companies, Lines of Business, and Manufacturing Equipment

As SAP S/4HANA rollouts continue, Ansaldo Energia is seeing the benefits of consolidating ERP systems on one platform. Already, it has a single process template that can be applied globally. Supply chain and warehouse management processes will soon be digitalized, helping integrate operations company-wide. For example, a single materials resource plan will make it possible to gather all requirements for a project and see all available stock – improving the ability to deliver on time and in full.

As plant maintenance and customer services are further optimized using SAP’s Business Technology Platform, Ansaldo Energia is transforming IoT sensor data into business outcomes. It expects to see a 5% to 8% drop in the cost of its own equipment maintenance, as well as less downtime. Quality control requires less paper, and 40% more suppliers are expected to be able to share that data digitally – helping ensure parts are always in stock. Having more service options also makes it easier to onboard new customers through the services portal, which will bring a substantial increase in related revenue.

By connecting machines with back-end systems, Ansaldo Energia has monitoring data in real time – enabling situational awareness and cross-component analysis that will improve asset performance and availability. By performing this type of root cause analysis, Ansaldo Energia can better understand why customers are experiencing issues with products, and it will be able to offer more proactive maintenance solutions and resolve those issues in production going forward.
Power the Future Through **Intelligent Enterprise Transformation**

Ansaldo Energia will continue rolling out SAP S/4HANA – unifying, standardizing, and improving cross-operational processes along the way. It will also expand its IoT environment beyond smart plants and toward smart products with SAP’s Business Technology Platform through the integration of SAP Edge Services, SAP Internet of Things, and SAP Cloud Platform, with SAP S/4HANA functioning as the core enabler. Ultimately, all data will be processed at maximum speed and linked to manufacturing and quality information to achieve full visibility along the entire asset lifecycle.

The next step in the current predictive maintenance project will cover an as-is analysis of maintenance processes to identify and prioritize improvement areas across process workflows. The goal is to create an **integrated system** to calculate overall equipment efficiency, to activate **smart maintenance processes** using telemetry data and predictive algorithms, and to provide a **single user experience** for control-room and maintenance operators.

Not only will this improve the customer experience, but it will open the door to new service models and revenue streams. The final goal is to build up a common repository where master, transactional, and operational data related to the entire lifecycle of a product gets collected and processed by intelligent technologies.

With SAP Services and Support and SAP Innovation Services as its partners and SAP technology at its core, Ansaldo Energia can operate as an intelligent enterprise – giving it the ability to **transform the future of power generation** for its customers.
SAP Software Architecture at Ansaldo Energia

Ansaldo Energia is evolving a hybrid SAP solution architecture based on SAP’s Business Technology Platform that combines apps and cloud-based and on-premise solutions. SAP S/4HANA connects back-end systems for manufacturing, product lifecycle management, and warehousing, while SAP Internet of Things and SAP Edge Services enable predictive plant maintenance and service. The ultimate goal is to improve production planning and product quality.

Figure: SAP Solution Architecture at Ansaldo Energia S.p.A.