



CASE STUDY

Octave Attune EAM helps ESS power world-changing scientific research and streamline its operations

Key facts:

Company: European Spallation Source – ESS

Website: <https://ess.eu>

Industry: Public sector, Research

Head offices: Lund, Sweden; Copenhagen, Denmark

Octave products used: Attune EAM (*HxGN EAM*)

Key benefits:

- Tailored configurability
- Seamless integration
- Streamlined maintenance
- Compliance assurance

The European Spallation Source (ESS) is a multidisciplinary research facility that will harness the most powerful neutron source. The consortium is run by 13 countries, including the institution's host nations, Sweden and Denmark.

In Lund, Sweden, the ESS facility houses an accelerator that emits protons into a 650-meter-long tunnel. At the other end of the tunnel, a four-ton tungsten target wheel, cooled with helium emits neutrons. These neutrons are directed to various neutron instruments, allowing researchers to conduct a wide range of experiments and studies.

When construction is completed, up to 3,000 researchers per year from participating countries will engage in projects at ESS, spanning fields such as physics, life sciences, energy and environmental technology.

A one-of-a-kind facility comes with unique asset management challenges

This one-of-a-kind greenfield site presents many significant challenges, including great complexity, high uptime requirements and the incorporation of highly advanced technology from multiple countries and suppliers.

In 2017, the initial feasibility study outlined the importance of implementing an Enterprise Asset Management (EAM)



system to address these challenges and optimize maintenance operations. "ESS is a large and intricate facility that involves complex asset tracking, coordination of work orders, permit management, compliance requirements and regulations. We needed a system that could help us address these challenges and be flexible enough to be configured according to our unique needs," explains Ola Nanzell, Manager for Asset and Maintenance Management at ESS.

Challenges

- A unique greenfield research facility that houses highly complex equipment
- Demanding uptime requirements aiming for only two scheduled downtime instances annually, with near full availability otherwise
- Installation and integration of equipment manufactured by various in-kind partners across member countries, alongside the required documentation
- Asset and documentation management, management of work orders, and permits

"The use of Attune EAM at ESS has grown rapidly since its initial implementation in 2018, and we plan to keep expanding the range of activities it manages. Today, we are very autonomous in imagining and implementing new features, while retaining Octave's support as a backup if there is something we need help with. It works very well."

Ola Nanzell
Manager for Asset and Maintenance Management, ESS



A flexible asset management solution for leading research institutions

After evaluating multiple vendors, ESS selected Attune EAM.

A deciding factor was Octave's experience with leading research institutions and the unique challenges they face: "we will work closely with research facilities in Europe, including CERN in Switzerland, who had a long and positive experience with Attune EAM," says Ola Nanzell.

The implementation phase began in 2018.

Today, ESS relies on Attune EAM in several areas, including asset management, warehouse management, work orders, permits and deviations. In the future, it could also be used by resident scientists to manage samples for their work.

Attune EAM helps ESS manage complexity with ease

The success of Attune EAM can be attributed to its remarkable flexibility and seamless integration with various solutions and data sources. This aspect has been pivotal for ESS, a non-profit organization that relies on "in-kind" contributions from member countries. As a result, the organization receives equipment from diverse partners and suppliers that require

installation and integration. Attune EAM's adaptability has also allowed ESS to consolidate and utilize accompanying data and documentation in a single place.

Attune EAM already plays a vital role as the foundation for coordinating and executing maintenance activities while striving for minimal downtime.

Ola Nanzell, expressing the vision, notes, "We plan one to two downtimes a year for maintenance. Beyond that, the plant should be fully operational at all times." Managing maintenance tasks within the complexity of the facility requires strategic prioritization. Exploring technologies like AI, enabled by sensors, is already underway to enhance decision-making based on real-time data.

And, in a facility as intricate as ESS, a powerful EAM platform is also critical to ensure compliance. Sweden's Nuclear Fuel and Waste Management (SKB) was first founded by the Swedish nuclear industry, which imposes strict requirements and procedures for the future decommissioning and final disposal of the target wheel. Historical data, managed by Attune EAM for component traceability, underpins some of these procedures. Similarly, regulations in areas like pressure equipment directives necessitate annual third-party inspections streamlined through Attune EAM.



A rapidly expanding set of uses and functionalities

Attune EAM also supports ESS's goal to maintain as few IT systems as possible. The research institution already plans to leverage the platform for additional uses, including incorporating electrical work permits and permits for work in areas with radioactive radiation - the so-called radwork permits. These will also be linked to the dosimeter system, which measures how much radiation employees have been exposed to.

"The use of Attune EAM has grown rapidly since its implementation in 2018. We are still in the construction phase, where we need support for installation and training while managing activities that are already underway. This range of activities will grow considerably in the next few years," notes Ola Nanzell.

Ola Nanzell also notes that Octave's support has been instrumental in helping ESS use Attune EAM's full capabilities: "Among other things, Octave helped us get started by putting us in contact with other

companies in Sweden that were already using Attune EAM. Today, we are autonomous in imagining and implementing new features while retaining Octave's support as a backup if there is something we need help with. It works very well."

Key results

- A highly configurable platform that fits ESS's distinctive asset management requirements
- Parallel execution of the facility's design project and the implementation of Attune EAM to ensure a smooth to operations
- Continuous introduction of new uses and integrations, including asset management, warehouse management, work orders, permits and deviations
- A fundamental building block in ESS's plan to minimize the number of IT systems

About Octave

Octave is a leader in enterprise software, turning data into decisive action and intelligence into your edge. Our software solves for and simplifies complexity, from the design and build to operations and protection of people, property and assets – for any scope, at any scale. For decades, we've partnered with customers to sharpen performance, elevate efficiency and amplify results. From factory floors to entire cities, our solutions are tuned to scale up what's possible from day one onward.

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