OCTAVE

EBOOK

The digital power plant of the future

Optimizing operations and enhancing resilience

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Introduction

The digital power plant of the future: Realizing operational excellence

Maximized operations. Complete, fully connected and instantly accessible operational data. Continuous opportunities to leverage descriptive, predictive and prescriptive analytics that drive effective decision-making in everything from evaluating alarm management to improving health, safety and environment (HSE) initiatives. Automation reduces manual effort, repetitive processes and human error. A journey based on operational excellence.

These are just some of the advantages of the digital power plant of the future.

Tomorrow's power plant will provide more reliability, resilience and sustainability through digital transformation (DX)[1]. Building a digital backbone, a thread that connects data across the organization, allows companies to respond to evolving customer expectations, tightening sustainability regulations, rising cyber threats and the ongoing need to optimize operations. Adopting solutions that enable DX and support the creation of a digital backbone are critical role to increasing reliability, strengthening resilience and remaining competitive.

[1] https://www.mckinsey.com/industries/electric-power-and-natural-gas/our-insights/the-digital-power-plant-of-the-future

A cohesive data ecosystem empowers continuous improvement

Continuous improvement is foundational to remain relevant and competitive in an increasingly digital and fast-paced world. Organizations must prioritize planning, organizing, leading and controlling strategies that drive improvement. Otherwise, businesses may not have the capacity to achieve success in the long term.

Driving continuous improvement starts with an efficient, complete and connected approach to managing data. By collecting data from across the organization and establishing a single source of truth, stakeholders gain a reliable foundation for decision making. A cohesive data ecosystem can reduce paperwork and repetitive tasks for operators while enabling plant leaders to develop intelligent strategies.

A cohesive data ecosystem that empowers stakeholders enables the advantages of the digital power plant of the future, from increased reliability and resilience to overall operational excellence.

With the right tools and workflows in place, teams can organize, manage and analyze data more effectively. This clarity allows professionals to focus on pressing issues, key metrics and specific opportunities that drive a continuous cycle of improvement.

By removing data silos, improving access and generating actionable insights, organizations strengthen productivity, operational security, cybersecurity and employee safety. Consistent access ensures every team can use trusted information to drive improvements within their areas of focus, from field operations to maintenance and reliability engineering.



The business case for DX

Gartner reports that companies that adjust their business model with a range of initiatives to support DX efforts typically progress 2.25 times faster than companies taking a more traditional approach[2].

Power and utility companies that delay DX limit their opportunities for advancement while more digitally capable competitors boost productivity, resilience and sustainable growth.

The big question: how does DX truly pay off for the power industry?

Investing in and implementing DX leads to:

- Substantially improved data management and utilization.
- More efficient digital processes spanning all teams and departments.
- Effective automation that supports enhanced productivity, accuracy, safety and helps decrease operating expenses

Power and utility companies that invest in a digital transformation journey gain improvements in multiple areas.

Safety

Across the span of 35 years, one of the main factors that contributed to more than 100 preventable industrial accidents and a total revenue loss of $151 billion was the lack of detailed and digitalized processes and procedures. However, the power plant of the future will leverage and connect data from across the operation to create a safer, smarter and more robust facility[3].

Reliability and resilience

Data-driven plants operate more reliably. Improved insight reduces outages and recovery costs while supporting lower insurance rates and access to government incentives.

Sustainability

Digital plants support optimization efforts to reduce emissions. Whether through implementation of predictive maintenance or usage of digital twins to proactively detect inefficiencies, prevent larger issues or swiftly implement upgrades, digital plans are estimated to be reducing CO_2 emissions globally by hundreds of millions of metric tons.[4]

[2] https://www.gartner.com/smarterwithgartner/speed-up-your-digital-business-transformation
[3] https://connect.hexagonppm.com/industrial-accidents-infographic?_ga=2.37163811.2072922969.1645475330-1030008951.1639088576
[4] https://hexmet.sharepoint.com/:p:/r/sites/Brafton-AmericasMarketing/_layouts/15/Doc.aspx?sourcedoc=%7BC78B3A7C-1589-462E-A81B-A625411D88FD%7D&file=Resiliency_ML-JE10.14.21.pptx&action=edit&mobileredirect=true&cid=9a257d51-a14e-49bb-a542-5dbcb2abffcc

Solutions that empower the digital power plant of the future

Octave provides digital solutions that lead to success in developing the digital plant of the future, including:



Octave Sequence Enterprise

Octave Sequence Enterprise project performance software (formerly EcoSys) combines project portfolio management, project controls and project management into a single, flexible solution. For the power industry, Sequence Enterprise helps optimize long-term capital planning, ensures the right projects are chosen and improves execution and cost performance across potentially thousands of simultaneous projects.



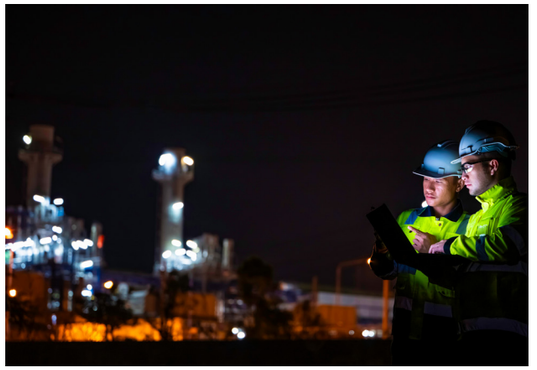
Octave InConcert

An engineering information management solution, Octave InConcert (formerly HxGN SDx2) is designed for DX by addressing this challenge in practical, cost-effective ways. That includes creating a digital twin, an incredibly accurate and complete real-time digital version of a physical power plant.



Octave Tempo Operations Management

Providing a comprehensive suite of web-based applications, Octave Tempo Operations Management (formerly j5 Operations Management Solutions) replaces the troublesome mix of paper, spreadsheets, databases and other scattered manual data collection methods with a structured, configurable and enterprisewide digital operations management system. The platform supports logbook recording, work instructions, inspection rounds, shift handover, incident management, safety procedures and more.



Octave Tempo Operating Procedures

Octave Tempo Operating Procedures (formerly AcceleratorKMS) expedites the digital transformation of paper-based, high-risk operational procedures and work processes while enabling organizations to easily manage, govern and distribute the up-to-date critical operational content field workers require to keep operations running optimally and learn faster.

Solutions that empower the digital power plant of the future (continued)



Octave Tempo Control System Effectiveness

Octave Tempo Control System Effectiveness platform (formerly PAS PlantState Integrity) includes solutions for alarm management, boundary management, control loop monitoring and tuning and managing independent protection layers (IPL) that work together to ensure safe, reliable and compliant industrial operations. Octave Cyber Integrity (formerly PAS Cyber Integrity) protects industrial control systems with comprehensive inventory, vulnerability, configuration, compliance, backup/ recovery and risk management across OT/ICS endpoints (Level 0 to 3.5).



Octave Attune EAM

Octave Attune EAM (formerly HxGN EAM) allows you to achieve greater visibility into assets for better capital spending decisions and extend asset lifecycles and improve productivity.



Octave Alto

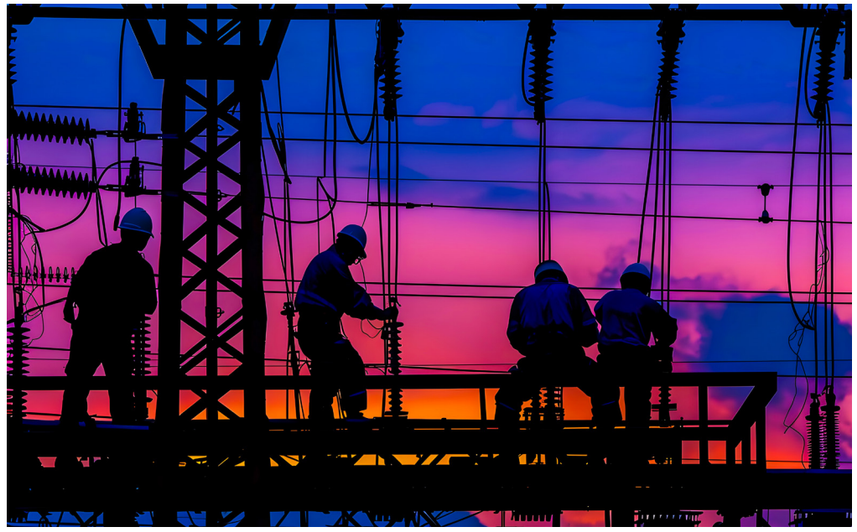
Octave Alto (formerly Luciad) provides developers with a platform for building situational awareness and real-time location intelligence solutions.

Empowering optimization with a digital twin

The digital power plant of the future is dependent on digital twins: virtual representations of a physical plant or process that offer past and current information as well as opportunities for a variety of descriptive, predictive and prescriptive analytics (including scenario modeling).

A digital backbone, which connects all relevant data from each digital twin and offers accessibility to the right employees at the right time, proves equally important.

An operational shift driven by these digital twins, and the digital backbone that connects them, is a key outcome of collaborative DX initiatives. Octave provides interoperable solutions throughout the asset lifecycle that can be built gradually to avoid adoption issues and encourage successful DX and a culture of continuous improvement.



The digital power plant of the future

A partner for your DX journey

The power and utility industries are highly regulated and DX efforts depend on advanced, reliable and intuitive solutions to drive positive results. For power companies, finding a dependable, knowledgeable and experienced partner is critical to success in a DX journey.

Octave brings deep operational and technological expertise to every engagement. We help organizations in the industry create and implement efficient, automated and secure work environments that turn continuous improvement from a concept into a reality.

Learn more about our successes with Technip Energies, a leading project, engineering and technology company and Calpine Corporation, the nation's largest generator of electricity from natural gas and geothermal sources.

Realizing optimized operations and enhanced resilience

To learn more, contact our experts today to accelerate your digital transformation journey into the power operator of tomorrow.

Companies in the power and utility industry don't have time to waste when it comes to DX. The advantages that come with enhanced reliability, resilience and continuous improvement, as well as the industry's steady shift toward implementing DX, make such efforts critical.

In an increasingly complex, regulated and competitive future, successful transformation can mean the difference between failure and success.

You can create a more effective plant that enables the use of information and analysis to improve safety, security and operational efficiency while also lowering a variety of expenses. Octave has the solutions, experts and strategy to help you build a culture of continuous improvement from the unlocked potential of your data.

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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