



WHITE PAPER

The business value of integrated operations and maintenance with Octave

Connecting asset intelligence to operational
performance across the industrial lifecycle



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Executive summary

Octave delivers integrated solutions across operations and maintenance that improve asset reliability, sharpen execution discipline, enhance operating visibility and control-system resilience across the asset lifecycle. Enterprise asset management (EAM) establishes the execution backbone for work, materials and asset records, while asset performance management (APM) capabilities improve maintenance prioritization through risk, condition and predictive insight. Complementary operations management capabilities then extend value into field execution, operator rounds, shift communication and formal change workflows, creating a tighter link between daily operating practice and maintenance response.

The bottom line is that value is not created by software categories alone. It comes from closing long-standing gaps between planning, prediction, execution and operational control. That integrated model supports lower reactive maintenance exposure, better coordination between operations and maintenance, stronger procedural consistency and more defensible management of safety, compliance and operating risk. For executive stakeholders, the result is a clearer path from digital investment to measurable business outcomes such as uptime improvement, lower maintenance cost volatility, more stable production and better risk governance.



Strategic analysis

Strategic overview

At the enterprise level, Octave's relevance is clear: unifying fragmented operational data and decision-making across maintenance planning, reliability analysis, field execution and operational control. EAM capabilities provide governance over assets, work, spare parts and cost visibility, while APM capabilities build the protective strategy that gives the organization deliberate visibility into the risks its critical assets carry and a structured way to contain them. Operations management capabilities add discipline to shift logs, rounds and management of change, helping move information from the field into structured action before minor issues become production or reliability events.

Strategic value drivers

Octave's value realization is anchored in high-impact strategies aligned to the priorities of managing assets throughout the operations and maintenance lifecycle. The following drivers represent the strongest levers for measurable improvement:

- Drive reliability improvements through better asset insight and maintenance execution. Octave's asset management capabilities are designed to assess condition, predict failures, optimize strategies, extend asset lifecycles and improve productivity, directly supporting lower unplanned downtime and higher schedule compliance. This matters strategically because most organizations still lose value in the handoff between identifying risk and executing the right work at the right time.
- Drive operational discipline through digitalized field workflows. Capabilities associated with operations management, such as logbooks, rounds and structured change workflows, strengthen shift handover quality, improve issue escalation and create more consistent execution across crews and sites. In practical terms, this reduces information loss, makes abnormal conditions more visible and supports faster coordination between production, maintenance and reliability teams.
- Drive risk reduction through traceability, procedural control and governance. Asset records, work history, change management, condition monitoring and control-system oversight all contribute to a stronger compliance posture and more defensible risk management for safety-critical and production-critical assets. For executive leaders, these capabilities help translate digital investments into measurable business outcomes by improving audit readiness, increasing operational resilience and reducing exposure to high-consequence failures.
- Drive productivity through integration. Octave unifies EAM and APM to close the gaps between planning, prediction and execution. This integration is strategically significant because organizations usually realize the greatest return when work management, reliability analytics and operations workflows are connected rather than implemented as isolated point solutions.

Value realized across operations and maintenance

Across operations, value is realized through greater visibility into asset conditions, clearer shift communication, consistent field execution and control of operational changes. These capabilities help operations teams maintain stable production, recognize developing issues earlier and operate within approved procedures and defined operating boundaries. The practical effects are reduced avoidable disruptions, fewer surprises at shift transition points and stronger alignment between day-to-day operating decisions and production targets.

Across maintenance, value is realized through improved planning, stronger prioritization and better use of asset data to target the highest-value interventions. Enterprise asset management capabilities support work management, inventory visibility and lifecycle records, while asset performance management capabilities help maintenance teams move from reactive activity toward a deliberate, risk-informed protective strategy for critical assets. This combination improves labor efficiency, supports better spare-parts readiness and reduces the cost and variability associated with emergency work.

The highest-value outcome emerges where operations and maintenance intersect. Field observations from rounds and shift logs can surface early warning signs, reliability analytics can translate those signals into maintenance priorities and asset management workflows can drive timely execution with documented history and governance. In this closed-loop model, organizations gain more than better tools – they gain a coordinated operating system for plant performance.

Path to value realization

Value realization is a journey, not a single deployment event. EAM and APM are strongest when implemented together. EAM establishes trusted asset records, work processes, maintenance history and governance workflows so planning and execution operate from a common system of record. APM builds in parallel, giving the organization deliberate visibility to the risks its critical assets carry and a protective strategy to contain them — each capability sharpens the other from the start.

Once the execution and strategy backbone are in place, visibility and prioritization come next. Operator, shift log discipline, condition data and structured management-of-change workflows all feed that strategy, confirming protections are in place and surfacing exceptions as new threats emerge. This is where early value shows up: hidden work is exposed, response delays shrink and the asset and operational issues that need attention become visible.

The third stage is closed-loop optimization. At this level, planning, prediction, execution and operational feedback become connected, allowing maintenance recommendations, field observations and operating constraints to reinforce one another in near real time. At this stage, value becomes systemic. Asset reliability, cost control, workforce productivity and risk management improve together because operations and maintenance are managed as a coordinated system rather than disconnected functions.

Asset lifecycle and work management

Octave solutions deliver value at every stage of the asset lifecycle – from daily operations to long-term protection. The table below summarizes the primary focus and key value delivered within each phase.



Key value benefits for asset lifecycle and work management

Value driver	Operations value	Maintenance value	Risk and compliance value
Asset lifecycle visibility	Single source of truth for equipment status and availability, improving coordination with production scheduling.	Complete history of failures, repairs and costs supports better asset strategy and replacement decisions.	Traceable records for audits and demonstrating due diligence on critical assets.
Work planning and scheduling	Less disruption to production through better alignment of planned work with operating windows.	Higher ratio of planned vs. reactive work, improved labor utilization and fewer schedule breaks.	Documented permits, approvals and isolation steps integrated into work orders.
Inventory and materials optimization	Better parts availability reduces impact of maintenance on production schedules.	Optimized stock levels reduce stockouts and carrying costs while supporting timely repairs.	Controlled, auditable spare parts and materials handling aligned with safety and quality standards.
Budget, cost and project controls	Visibility into maintenance cost impact on OEE and throughout.	Budget tracking across work, projects and materials to support long-term investment planning.	Clear financial traceability for regulatory, ESG or internal governance.

Asset performance and reliability

Octave's asset performance and reliability capabilities give organizations deliberate visibility to the worst-case credible scenarios facing their most critical assets, the failure modes and degradation mechanisms they're exposed to and a structured protective strategy to contain that risk. Condition monitoring, predictive analytics and reliability engineering insight are deployed in service of that strategy, not as a starting point: they confirm the strategy is working and surface exceptions when new threats emerge. A single operational view keeps the strategy visible and accountable, so maintenance investment stays focused on the risks that matter most to production, safety and business performance. Each cycle compounds the organization's reliability intelligence, sharpening the strategy and the data discipline that sustains it.



Key value benefits for asset performance and reliability

Value driver	Operations value	Maintenance value	Risk and compliance value
Risk-based maintenance	Focuses attention on the assets that pose the greatest impact to production if they fail.	Aligns strategies to credible failure risks, optimizing maintenance mix and spending.	Prioritizes critical safety and environmental assets in line with risk tolerances.
Protective strategy monitoring	Confirms the protective strategy is holding, stabilizing production before issues escalate.	Surfaces exceptions against defined thresholds, focusing effort on real threats instead of the calendar.	Provides evidence the worst-case scenarios are being actively contained, not just watched.
Asset twin and benchmarking	Benchmarked performance helps operations understand where assets limit throughput.	Pre-built strategies and libraries accelerate the adoption of reliability best practices.	Documented risk, criticality and condition models support safety cases and risk registers.
Closed loop with maintenance system	Automated recommendations feed directly into work orders, reducing manual coordination.	Analytics-driven work requests improve the quality of work scopes and planning.	Demonstrable link from risk identification to executed mitigation activities.

Operations management

Octave's operations management capabilities provide the operational discipline needed to execute work consistently, communicate effectively across shifts and respond quickly to changing plant conditions. By digitalizing shift handovers, operator rounds, task management and management-of-change workflows, Octave creates a structured framework for capturing, sharing and acting on critical operational information. This improves visibility into plant performance, reduces information loss between teams and strengthens coordination among operations, maintenance and reliability functions. The result: stable production, faster issue resolution, stronger procedural compliance and reduced operational risk through improved governance and accountability.



Key value benefits for operations management

Value driver	Operations value	Maintenance value	Risk and compliance value
Digital shift log and handover	Structured handovers reduce miscommunication between shifts and departments.	Clear visibility into operational issues that may drive maintenance demand.	Permanent, auditable record of operations decisions and events for investigations.
Operator rounds and routine duties	Consistent data capture on field conditions supports early issue detection.	High-quality observation data feeds asset performance and maintenance analytics.	Standardized checks support regulatory, safety and environmental requirements.
Operations task and deviation management	Better coordination of operating tasks around maintenance activities.	Ability to align operational deviations with equipment issues and failure modes.	Structured capture of deviations and follow-up actions supports MOC and incident management.
Management of change (MOC)	Controlled process for changes to operating modes, equipment or procedures.	Ensures maintenance-driven changes (mods, repairs) are assessed and approved.	Demonstrable compliance with process safety and change management standards.

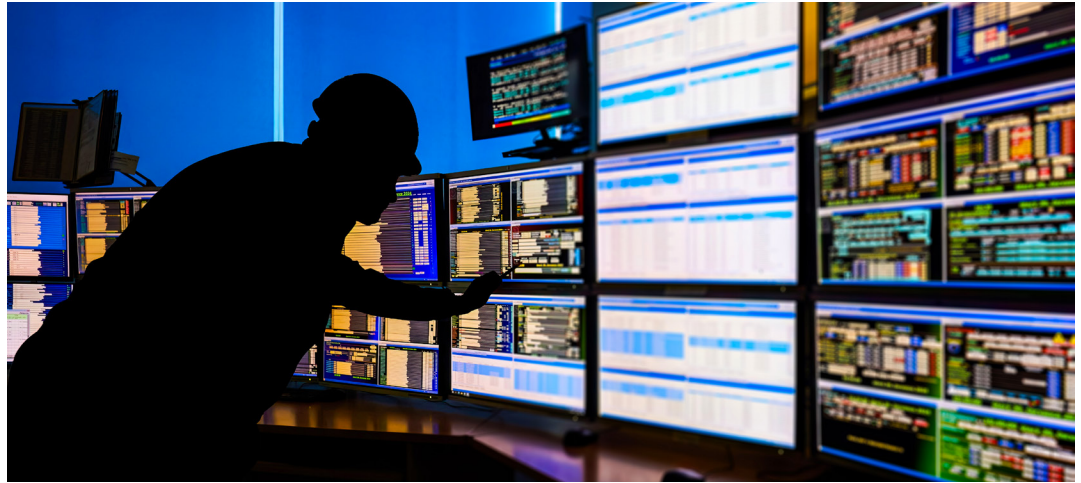


Procedures, digital SOPs, training

Octave's procedures, digital SOPs and training capabilities establish a standardized operating framework that improves workforce consistency, competency and execution quality across the organization. Digital procedures, embedded guidance, structured checklists and competency management, ensure that critical tasks are performed safely and consistently regardless of shift, location or experience level. Integrating procedures directly into daily operations and maintenance activities reduces variability, minimizes human error and accelerates workforce onboarding and knowledge transfer. The result: improved operational performance, stronger compliance with regulatory and safety requirements and a capable workforce equipped to execute work with confidence and precision.

Key value benefits for procedures, digital SOPs and training

Value driver	Operations value	Maintenance value	Risk and compliance value
Standardized digital procedures	Consistent execution of operating tasks across shifts and sites.	Clear, up-to-date maintenance procedures reduce variability and rework.	Version control and approvals for procedures support compliance requirements.
Embedded guidance and checklists	Operators receive step-by-step guidance for complex or infrequent tasks.	Technicians follow structured checklists linked to asset strategies and work orders.	Reduced risk of procedural violations and human error during critical tasks.
Training and competency tracking	Faster onboarding and upskilling of operators using live procedures as training content.	Maintenance teams can be certified on specific procedures and asset types.	Evidence of competency for audits, inspections and internal governance.



Automation asset management and security

Octave's automation asset management and cybersecurity capabilities help organizations maintain the reliability, availability and integrity of the control systems that support safe and efficient operations. By providing visibility into automation assets, configuration management, cybersecurity posture and change control processes, Octave enables organizations to proactively manage risks associated with industrial control systems and operational technology environments. These capabilities reduce the likelihood of unplanned disruptions caused by unauthorized changes, cyber threats or aging automation infrastructure while improving lifecycle planning and governance. The result: a resilient automation environment that supports operational continuity, strengthens compliance with cybersecurity and functional safety requirements and protects critical production assets from evolving risks.

Key value benefits for asset management and security

Value driver	Operations value	Maintenance value	Risk and compliance value
Visibility of automation assets	Operators understand the state of the automation layers that support production.	Better planning for upgrades, patches and lifecycle interventions on control assets.	Up-to-date inventory of control and network assets supports security standards.
Change and configuration control	Reduced risk of unapproved changes disrupting plant operation.	Structured review, test and approval of control logic changes.	Traceable change history to meet cybersecurity and functional safety expectations.
Security posture monitoring	Fewer unplanned outages caused by malware or unauthorized access.	More predictable maintenance windows for patching and remediation.	Evidence of monitoring and incident handling for cyber-related regulations.

Control system performance and integrity

Octave's control system performance and safety monitoring capabilities enable organizations to maintain stable, predictable and optimized operating conditions across their facilities. By combining boundary and safety system monitoring, alarm performance management and operational performance analytics, Octave provides the visibility needed to identify deviations early and sustain operations within defined performance and safety limits. These capabilities create a connected view of operations linking operating practices, control-system performance and asset health. Better context allows teams to make informed decisions that improve production stability and equipment performance. The result: enhanced operational reliability, improved process safety, reduced equipment stress and greater confidence that critical production systems are operating as intended.



Key value benefits for control system performance and integrity

Value driver	Operations value	Maintenance value	Risk and compliance value
Stable, optimized operating conditions	More consistent production rates, quality and energy performance.	Reduced stress on equipment extends asset life and reduces corrective work.	Operating within defined boundaries supports safety and environmental limits.
Alarm and IPL performance	Reduced alarm flooding and better operator response.	Insight into nuisance alarms that may indicate underlying equipment issues.	Demonstrable performance of protective layers and alarms for process safety.
Integration with performance analytics	Clear linkage between operating practices, control behavior and asset health.	Joint optimization of maintenance tactics and control strategies.	End-to-end traceability from risk identification to plant state and control measures.

Conclusion

Octave solutions work together to connect asset reliability, maintenance execution, operational workflows, workforce competency, automation integrity and plant performance. By linking predictive asset insights with structured work execution, digital procedures, operator activities and secure control-system governance, organizations can reduce unplanned downtime, improve production stability and strengthen risk management across the facility. Connected information and coordinated workflows create a continuous feedback loop where operational observations, asset intelligence and maintenance activities reinforce one another to improve decision-making and execution. The result: higher asset availability, improved workforce productivity, stronger compliance and cybersecurity posture and more resilient operations that deliver measurable improvements in safety, reliability and financial performance – at any scale.

About Tom Goff

Tom Goff is an executive industry consultant with Octave with more than 30 years of experience across multiple industries (oil and gas, chemical and nuclear) in engineering, construction, project management, information/data management and process improvement. At Octave, Tom leads consulting initiatives with customers in their digital transformation journey. He has a BS and MBA from Capella University, is a certified PMP and LSS Black Belt and a veteran of the US Army.

About Octave

Octave provides enterprise software that helps organizations design, build, operate and protect critical industrial and infrastructure assets. Octave supports decisions across the full asset lifecycle where performance, safety and reliability matter and failure is not an option. Octave connects engineering, operational and safety workflows, enabling customers to convert complex operational data into decisions that improve performance, resilience and incident response across real-world environments. Octave has more than 7,000 employees in 45 countries. Learn more at octave.com and follow us on [LinkedIn](#).

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