

A day in the life: Adopting a holistic approach for operations control and visibility

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Executive summary:

Digital technology has improved industrial operations in countless ways. Older, outmoded forms of data-driven technologies, however, have resulted in data silos and data lakes, leaving useful data largely inaccessible and the insights that data might support unattained. New technologies focus on the connected user experience, improving visibility and collaboration within and amongst teams. Enterprises should adopt a holistic approach to digital solutions that centers on the connected user to improve operational visibility, resilience, and collaboration. This white paper considers the unique perspectives of edge, supervisory, and enterprise users to demonstrate the different tools and strategies advanced operations control software entails.

Complex challenges in a changing market

The global industrial landscape has experienced a technological groundswell in just a few short decades. As computational tools emerged and replaced older, analog methods of work, companies in every sector began to adopt more efficient digital tools. Data-driven technologies continued to advance. Cloud-based digital solutions, machine learning (ML) and artificial intelligence (AI) technologies, and expanded automation software portfolios have created many demonstrable benefits for enterprises, adding much-needed efficiency and visibility to operations, enabling more collaborative workflows, and allowing operators to fine-tune assets and implement more advanced maintenance techniques like predictive analytics, among others. However, by contrast, newer digital solutions brought the shortcomings of older, more outmoded forms of industrial technology into stark relief.

51% of organizations have difficulty accessing and integrating actionable, useful data.

At the outset of industry's embrace of big data, many companies worked to collect as much information as they could on every aspect of their business, including physical plant assets, worker effectiveness and efficiency, and enterprise operations. Given the necessity of specialization, disparate teams within a company compiled and analyzed their own data. Historical data points ballooned at a nearly incomprehensible scale. Much of this data quickly became inaccessible to stakeholders across an enterprise because it was locked up in isolated databases or data silos.

According to IDC research, 51% of organizations have difficulty accessing and integrating actionable, useful data.

Instead of implementing isolated HMIs (human-machine interfaces) or perpetuating manual data exchanges amongst teams, organizations can now rely on a suite of sophisticated software tools that interconnect to deliver a common digital thread across multiple user environments. Industry continues to adopt better digital tools, embracing the Industrial Internet of Things (IIoT), cloud-based solutions, and Industry 4.0 standards. New digital tools have begun to focus more explicitly on improving the secure, free flow of information within an enterprise, enhancing collaboration and addressing the needs of the connected worker.

Organizations can effectively manage real-time operations from powerful HMI and SCADA (supervisory control and data acquisition) applications. Data is fed to historical archives, such as historians or operations information management, for aggregation and preservation. These records can be shared with analytics tools, whether on-premises or in the cloud, to discover hidden insights and provide predictive awareness. Teams can collaborate across sites and share operational knowledge with new members to optimize human performance. And greater visibility can be achieved through the structured implementation of multiple data threads, which converge to provide a single-pane-of-glass view of the enterprise.

Often, different operations teams require different approaches to using the same tools. This white paper details those tools and strategies, as unique challenges arise in their daily activities.

Experience AVEVA Operations Control

Explore our Day in the Life example demonstrations, where we follow three different users of AVEVA Operations Control as they perform routine work and resolve the challenges they encounter throughout their day.

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Gain full visibility and operational awareness

Whether you're a frontline worker, a control room supervisor, or an executive, greater operational visibility will always make your job easier. Having access to comprehensive knowledge and insight is the most effective way to empower decisions that drive agility, efficiency, and sustainability. You can accomplish this through a mix of cloud and on-premises software that best balances the features and capabilities your specific role requires.

Often, teams closest to the process must act independently, using validated and sometimes crowdsourced data, to drive optimization at pace and scale, even while mobile. The quantity and quality of data required at this level is large and unrefined. Edge-centric control and visualization technologies that promote situational awareness cut through the noise and focus attention on what needs to be done. Real-time, trustworthy data can then inform critical decisions that frequently impact production and safety. The automatic exchange of data and the detailed display of metrics on all equipment facilitate the transition between shifts and ensure security, in that only authenticated users can make permitted changes and access the data environment.

Control room supervisors who oversee daily operations and global directors who ensure supply chain performance have a different perspective. They aren't always on-site, so they need tools that enable mobile information sharing and promote collaboration. A concise hierarchy of data that both summarizes operations and offers drill-down investigation shapes the supervisory

experience. Users at this level do not always require vast raw data feeds and primarily benefit from an aggregated view. This grants more operational awareness across several lines, cells, trains, or equipment, allowing for production balancing and a broader coordination of activities. However, when an issue arises, the ability to navigate deeply into the process and propose corrective actions is also a valuable capability that allows supervisory-level users to aid edge-based personnel in performance assessments.

At the enterprise level, users benefit from an increasingly diverse set of information. Here, convergence is key in assembling data and information from a variety of sources. Whether that means correlating weather impacts on power generation, driving asset optimization between facilities, or load-balancing production in the face of variable supply chains, enterprise-level users need a wide array of easily accessible information. While this quantity of data can be enormous, the information stakeholders use to make decisions is streamlined, thanks to data aggregation and enrichment. In all likelihood, users at this level will use several critical points of information to make decisions rather than a constant stream of process values. Accordingly, reducing noise is not as necessary and more emphasis is placed on imagery that promotes context and reference. Regardless of a user's role, the tools they use to visualize what they need to see each day must follow common standards and be aligned to drive trust and encourage parallel decisions throughout the chain.



Collaboration and knowledge sharing

A solid, holistic approach to operations control demands that users can access role-relevant and data-driven software tools and easily connect with peers to improve collaboration and knowledge-sharing. Whether in physical proximity or communicating from another country, connectivity between operational groups benefits the organization. This can take the form of chat, video, and news feed posting systems that allow for the exchange of personal queries, conversations, and requests for assistance from others. A mechanism to highlight, preserve, and call out process conditions or events for other shifts or managers to acknowledge ensures seamless information handover.

Knowledgebase applications that retain hard-earned insights from years of experience help mitigate the effects of worker turnover and retirement. These tools use video and written documentation to train others and provide a central repository that users can consult for resolutions and best practices. They also promote skills development and team resiliency by ensuring redundancy in training amongst teams.

As industry continues to operate across geographies, time zones, and physical restrictions, leveraging tools that promote communication and easy sharing of information for expedient resolutions, crowdsourced insights, and overall workforce resiliency will sharpen enterprises' competitive edge.

A common digital thread

A holistic operations control strategy also demands the secure, continuous flow of data and information between systems and users – a common digital thread. A truly connected worker has unrestricted and constant access to the information and resources they need at any given time to resolve any situation. That's where the concept of the digital thread comes into play. In practice, a common digital thread ensures that teams have the right tools to deliver the right information at the right time.

For example, an operator is alerted that a critical piece of equipment is about to fail and has the time to analyze trends to determine the cause. A dashboard created by a manager is easily shared with his team to monitor energy intensity. Performance data captured at the process level is digitally historized and aggregated, improving strategic decision-making at the enterprise level. Troubleshooting materials written by an experienced technician are viewed by a trainee in another country.

To ensure that all teams are acting on the best data and information available, operations must be centralized into an integrated environment – a complementary set of software tools designed to work together that are accessible, reliable, and pervasive both horizontally between teams and shifts and vertically from edge to enterprise.

A holistic approach to operations control

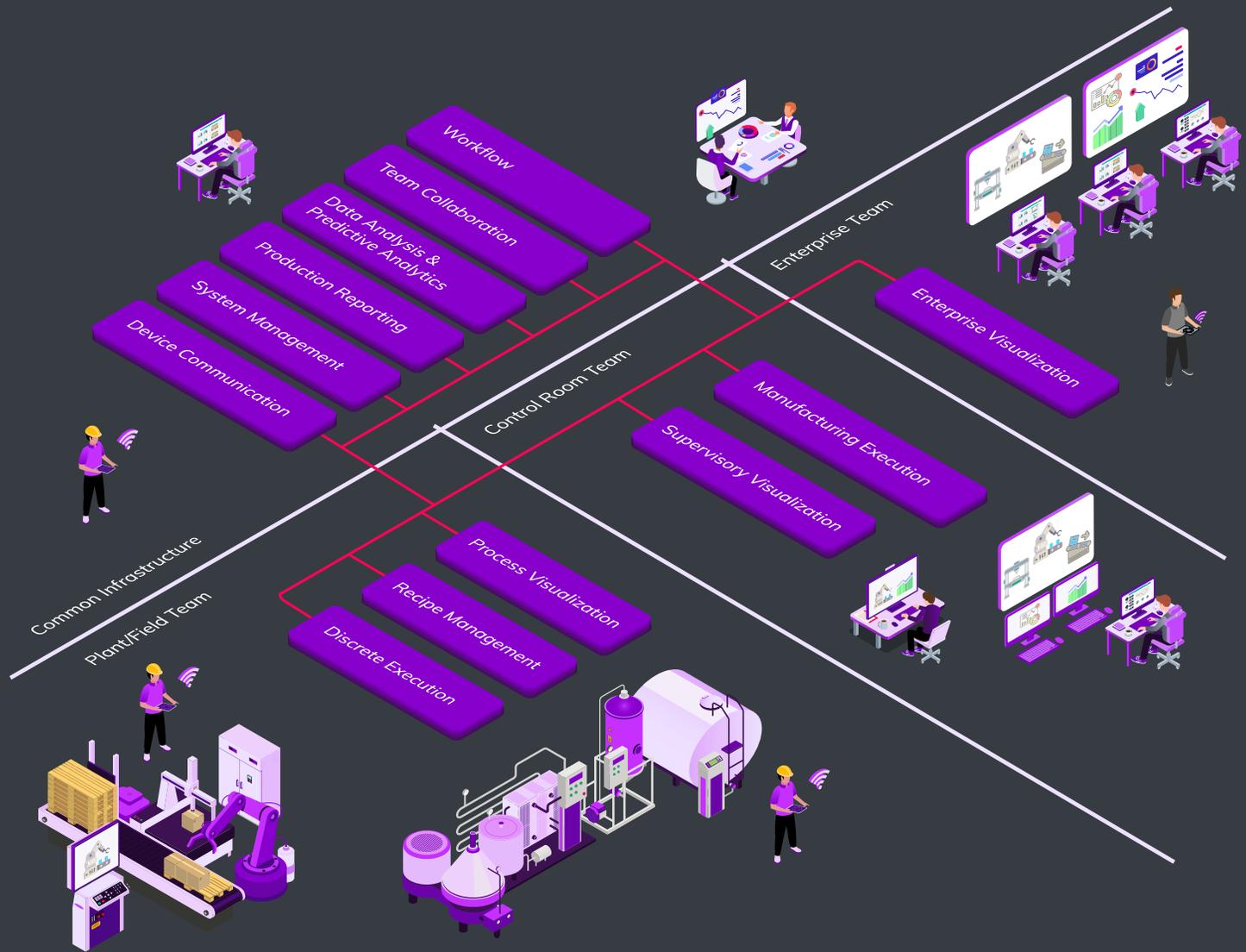
Whether an edge, supervisory, or enterprise user, advanced digital solutions like AVEVA™ Operations Control deliver a holistic approach to operations management and visibility. A subscription-based model like AVEVA™ Flex allows for flexibility and scalability, so you only pay for what you need when you need it.

By approaching operations control holistically, organizations can improve operational efficiency by enabling collaboration and the real-time flow of information across the entire enterprise. Analytics tools, whether on-premises or in the cloud, unlock new insights for every type of user, whether they're tasked with bringing an asset back online, supervising plant conditions, or informing stakeholders of recent developments.

With cloud-based technology supporting the common digital thread, all data can be accessed by any credentialed user from anywhere, improving efficiency and enabling seamlessly troubleshooting. Operational knowledge is preserved in a central repository, which aids in training new workers and ensuring the same problem does not happen twice. With operations control software, enterprises gain greater degrees of operational visibility, helping them clearly see the problems at hand and chart a course for the future.

About AVEVA Operations Control

AVEVA Operations Control provides software for modern industrial operations and gives teams consistent methods of collaborating and operating from a cohesive and sustainable set of tools. From real-time HMI/SCADA and enterprise visualization to collaboration and predictive analytics, AVEVA Operations Control combines immersive visuals, hybrid-SaaS, mobility, and AI into a comprehensive framework that provides your teams with the digital capabilities to operate smarter.



To learn more about AVEVA Operations Control please visit: aveva.com/align-your-teams

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