AVEVA

Increasing awareness throughout operations to drive better decisions

Accelerate operational efficiency and safety

Increasingly, operations teams are being asked to do more with less and deliver efficiency gains using the same systems, tools and budgets, despite an increasing array of inputs and data sets. The need to rethink and reinvent the way industrial automation applications are built has become a non-negotiable imperative, and failure to embrace and evolve user experience can lead to unsafe operations and ill-informed decisions.
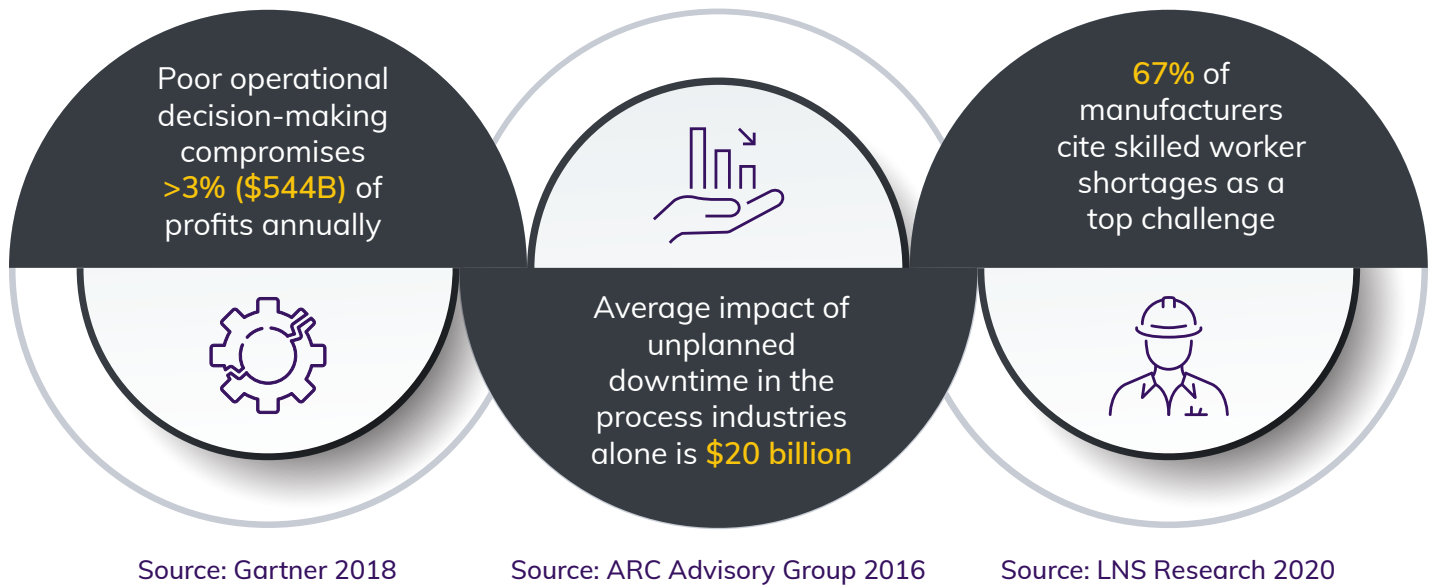
AVEVA takes a fully integrated industrial operations approach, where information is managed in such a way that the right information is delivered to the right person at the right time and in the right context, enabling better and more informed decisions. This wealth of information and higher insight on the organizational processes enables better collaboration between the different levels of the organization and optimized management of the entire value chain.

Challenge: Data silos and lack of context impacting decision making

As modern industrial systems continue to grow in complexity at an ever-accelerating pace, this results in new operational challenges including:

- Access to information
- Remote and mobile visibility
- Information in context
- Ability to make rapid decisions
- Collaboration and knowledge sharing across less experienced personnel

Disparate visualizations and HMIs increase operator workload and the risk of error. Compounding the problem, operators might not always be physically in front of the right application or screen at the right moment. This makes it difficult to gather the appropriate information in a timely manner to diagnose problems. Worse yet, this information may even be obscured by another application window that is irrelevant to the situation. In addition, operators' tendency to ignore perceived nuisance alarms paralyze their ability to act in time.

Poor operational decision-making compromises >3% ($544B) of profits annually

Average impact of unplanned downtime in the process industries alone is $20 billion

67% of manufacturers cite skilled worker shortages as a top challenge

Source: Gartner 2018

Source: ARC Advisory Group 2016

Source: LNS Research 2020

Solution: Add the sixth sense to your user experience through situational awareness

People are at the heart of your operations. To achieve real transformation, you must be focused on empowering operators with situational awareness, so that your teams have the best resources and insight at all levels.

Visual innovations have improved considerably and offer the ability to better understand the recent past, present and possible future of your process.
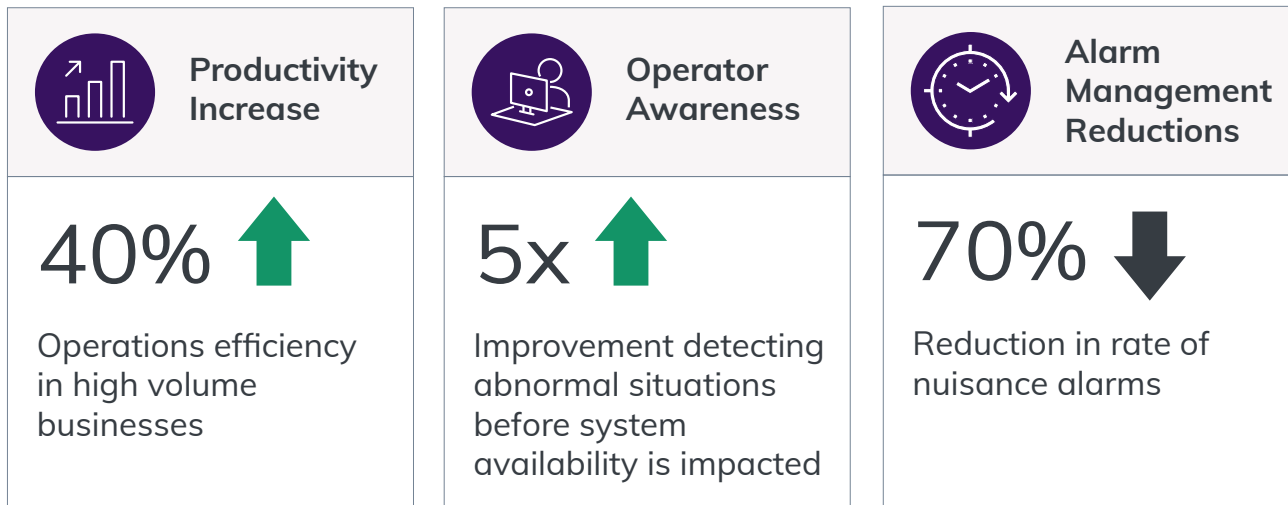
Proper implementation of situational awareness, transforms traditional HMI and SCADA applications into highly contextualized and easily interpreted decision-engines that surface relevant information in a concise way to maximize operator attention.

The human asset can perform significantly better using effective visualization and predictive/prescriptive guidance to identify value leaks and increase operational and asset performance.

Similarly, organizations should consider undertaking operational efficiency initiatives that:

- Employ an effective situational awareness strategy enabling personnel to effectively understand and address operations of the facility
- Develop 'single version of the truth' for optimized decision-making across functional dept – operations, productions, quality, maintenance
- Ensure capture of institutional knowledge of current workforce for effective training of future operators

Typical success metrics using situational awareness

Productivity Increase
40% ⬆
Operations efficiency in high volume businesses

Operator Awareness
5x ⬆
Improvement detecting abnormal situations before system availability is impacted

Alarm Management Reductions
70% ⬇
Reduction in rate of nuisance alarms

Customer case study – Pima County Water District – doubled capacity resulting in 50% increase in operational efficiency

Beyond traditional HMI SCADA

Pima County has employed advanced situational awareness techniques in its HMI SCADA implementation. The situational awareness strategy implemented by Pima County uses goal-oriented design, effective window structure, color usage, and actionable alarm management. Operators who previously ignored too many nuisance alarms now take immediate action. Problems are identified and addressed right away before they escalate.

Pima County also undertook SCADA automation consolidation of 10 different SCADA systems into a single unified visualization display. The new system replaces manual collection of data and logbooks with electronic records.

The Operations Command Control Center provides 24/7 centralized monitoring and control of the entire wastewater system, including treatment plants and pump stations.

Using situational awareness and a sophisticated mobile workforce and decision support system, Pima County has created an HMI SCADA solution that has driven down the cost of operations, increased efficiency and promotes safety in its wastewater reclamation facilities.

How AVEVA can help

At AVEVA, one way in which we help customers achieve increased efficiency is by expanding the immediate situational awareness of operators, improving their effectiveness under any conditions.

Situational awareness empowers operators with actionable information to quickly identify and resolve abnormal incidents before any process disruption.

Our solution capabilities for improving operators' situational awareness:

- Minimize visual distraction using out-of-the-box situational awareness graphic libraries and workflows, leveraging abnormal situation management (ASM) design standards to improve decision making and overall productivity.

- Reduce equipment downtime with predictive notifications that highlight automated anomaly detection through advanced analytics and machine learning.

- Intelligent alarming that reduces operator distractions and fatigue by rationalizing nuisance and 'bad actor' alarms with the use of advanced alarm management capabilities such state-based alarming, alarm suppression, alarm shelving and grouping, and aggregating alarms by severity. This makes it easier for operators to focus on the most relevant process information on the screen at all times.

- Geographically support decisions that introduce spatial information enabling operators to become more aware and responsive to distributed assets.

- Historical perspective through process view playback for new insights and operator training. Just hit play.

- Context-based apps provide access to non-traditional information sources (e.g., work orders) without shifting applications when moving from process-centric views to IT processes/ applications.

- Increased collaboration and team knowledge sharing through captured alarm cause and response, accelerating the knowledge transfer to newer less experienced personnel.

- Improve decision support leveraging cloud-based tools that enable insights across the teams extending the single source continuity of actionable information for operational, engineering and corporate users.

- Usability enhancements through responsive UI/UX allowing operations to control and monitor industrial and production sites anywhere, on any device. Operators can quickly navigate HMI displays by panning and zooming, clutter and declutter of graphical layers and a larger detailed view of the process.

Take the next step for increased operational efficiency

Drive greater situational awareness for your operators using goal-oriented design that reduces the noise to focus attention on what matters in any given moment. AVEVA's software solutions provide incredible capabilities to make users and operators far more productive, while dramatically reducing training times for new operators.

Key benefits of adopting situational awareness:

- Better decision making due to information accessibility and analysis with pre-built charts and dashboards

- Safer Operations by minimizing human errors with intuitive UI and relevant data presentation

- Faster problem resolution/response times context-driven information

- Faster operator training with ability to playback any existing graphicsMaximize operations productivity and effectiveness with easy-to-use tools tailored forindustrial operations personnel

Gain Operational Excellence

Operational Excellence is a purpose we share with our customers. The AVEVA Operations portfolio empowers your operators, maintenance personnel, IT professionals, plant managers and business executives with a unifying, collaborative platform. By arming your people with a standardized source of real-time, contextualized information and analysis tools, you can better understand the business, make smarter decisions, and drive your enterprise to its fullest potential.

AVEVA™ Operations Control

A complete industrial automation solution that enables a unique user experience, where customers can access information and functionality from across AVEVA's broad range of proven applications. From real-time HMI/SCADA process data, collaboration, and reporting, to manufacturing execution management, and predictive analytics. AVEVA Operations Control combines edge computing, hybrid deployment, cloud analytics, mobile access and AI.

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