Operational Excellence (OpX) Achieved by Companies That ARE Operationally Resilient

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Summary

The COVID-19 pandemic amplified global supply chain challenges that were already lurking below the surface of industry worldwide causing revolutionary disruption and triggering rapid change. This has drastically impacted the operational practices of manufacturers and processors, driving companies to accelerate their digital transformation journeys from years to weeks in order to respond in real-time to these abrupt market changes and become more agile, productive, and operationally resilient, which is the only way that companies can thrive today in what is known as the “new normal.”

Digital transformation is expediting the ability for physical and organizational boundaries to be broken to engage a real-time workforce, connect teams, and drive collaboration. There are new methodologies and technologies required for this new normal, driven by the need to monitor, control and protect against failures, ensure product fulfillment and high productivity, protect and upskill personnel, and do all this while leveraging enhanced cyber security architectures. To meet these imperatives manufacturers and processors must seek to achieve operational excellence by continuing to accelerate their digital transformation, leveraging a common digital thread from engineering to operations that uses performance intelligence to improve agility, reliability, and efficiency building operational resilience and sustainability.

ARC Advisory Group estimates while 80-85 percent of industrial process manufacturers are piloting advanced technologies, only 5-8 percent are completely ready for digital transformation. Operational Excellence (OpX) is a systematic approach to help these companies shift from piloting these advanced technologies to digital transformation readiness.
Operational Excellence Defined

Operational Excellence (OpX) is a systematic approach for industrial organizations to attain best-in-class performance in productivity, quality, and delivery of services and/or products across the manufacturing value network. OpX spans product design and development; enterprise resource planning and control; supply chain management; manufacturing execution; and operational effectiveness of people, processes, and assets. However, rather than a destination or endpoint, OpX is an ongoing journey.

In recent years, digitally enabled technologies and approaches, such as Industry 4.0, smart manufacturing, the cloud, and the Industrial Internet of Things (IIoT) have been providing companies with new tools to achieve OpX. Having a digital thread provides a common denominator for connecting the raw operational and asset data converted into actionable intelligence to all engineering and operational domains that enable humans, software applications, and machines to take the right actions at the right time to continuously improve operational, asset, and supply chain performance (OpX is a “moving target”). IIoT-enabled smart sensors, edge devices, advanced analytics, cloud infrastructure, digital twins, augmented and virtual reality, artificial intelligence, and machine learning play an increasingly important role here along with additive manufacturing, collaborative robots, mass customization, and modular manufacturing.

Advanced analytics, artificial intelligence, and machine learning provide an immediate understanding of the current condition of machines and help predict future performance and avoid issues. They can help predict and avoid mechanical failures or other issues that could result in lost profitability and/or unsafe conditions. Process optimization analytics like predictive quality, predictive throughput, or predictive energy efficiency are changing the landscape of efficient operations. In some cases, autonomous automation technology can take the corrective action automatically, freeing people (operators, engineers, maintenance, etc.) to focus on solving problems outside the realm of automation.
Operational Excellence Model

An OpX model is a rational process that manufacturers and processors use for improving all aspects of their operations. OpX drives the enterprise to "consistently do the right things well." ARC's OpX model is used by companies looking to help improve their performance and gain competitive advantage in their markets. OpX reflects the principles of continuous improvement embodied in methodologies such as Six Sigma and Lean management. OpX goes beyond such internally focused programs, however, and recognizes the critical importance of looking outside of the organization to identify those issues that are critical to customers.

OpX drives performance levels that can significantly change the company's competitive position in the marketplace. In today's dynamic and volatile business environment, it is very difficult to predict not only what the market will do next, but also what challenges will be faced as a result of supply chain disruptions, climate change, geopolitical issues, disruptive technologies, and of course pandemics. OpX looks beyond these challenges for drivers based on fulfilling customer demands and a manufacturer or processor achieving its optimum potential by focusing its efforts at establishing sustainable best practices and its core competitive advantages.

Operational Excellence Requires Collaborative Effort

Achieving OpX through continuous improvement requires vision, planning, and a team effort. This typically involves collaboration across the value chain made possible by a common digital thread from engineering to operations. How well companies design, engineer, source, make, distribute, and support products and manage their assets will ultimately determine their success. Close collaboration across people, processes, technologies, and organizations plays a crucial role, along with a close partnership with an operations solutions provider that provides a complete portfolio of software and services supporting that digital thread spanning engineering through operations.

Operational Excellence Is a Journey, Not a Destination

An OpX roadmap must consider the customer needs and business environment. These, of course, can and will change over time, with the COVID-19
pandemic and major supply chain interruptions being recent examples of business disruptions. To meet these changing needs, the OpX goals will also invariably change to respond and adapt over time. Failure to do so will result in lagging, rather than leading, operational and business performance. A manufacturer’s or processor’s OpX challenges extend beyond the production domain, covering the entire value chain with constraints that constantly evolve over time.

Any shortfall in meeting the customer’s expectations leads to overall underperformance of the organization and gaps in fulfilling demand or meeting/surpassing other customer expectations. Part of the problem is that the manufacturer or processor does not always know how to “read” its customers changing business requirements and market dynamics and translate these into accurate product specifications, designs, finished products, and support services. Having an OpX strategy in place can help navigate these challenges.

**Operational Excellence Requires Operational Resilience**

One of the objectives of a company’s OpX and digital transformation journey driven by the new normal is to ensure resilient operations that improve its capabilities to overcome business risks, such as increasing cybersecurity threats, new regulatory compliance mandates, supply chain disruptions, and more strenuous plant and personnel safety requirements, like shifting to remote monitoring and control operations or in-plant partitioning and social spacing. All of which drives demand for operational resilience solutions.

Even before the COVID-19 pandemic, manufacturers and processors faced numerous challenges, such as market and commodity uncertainty, rapid fluctuations in demand, supply chain disruptions; and the need to become more agile, efficient, and sustainable, all while maintaining a safe and productive working environment. However, the pandemic and subsequent supply chain interruptions magnified those challenges, leading manufacturers and processors to strongly focus on operational resilience as a key corporate objective for digital transformation processes to achieve OpX.
To achieve operational resilience, companies must break down physical and organizational boundaries to engage their workforce fully, connect teams, and enhance real-time collaboration in an environment where OpX is designed into the process. Operational resilience also requires supply chains to be managed in real time to maintain their integrity, agility, and flexibility, enabling the supply chains to respond to market demand and shifts in material availability. In addition, people are increasingly valued as a critical component to maintaining operational resiliency in the face of skill shortages and generational shifts. Companies are deploying new methodologies to protect against unscheduled downtime and asset failures, ensure product fulfillment, protect personnel, sustainably manage their workforce, and enhance security architectures, all of which require clear alignment between their digital transformation journey and supporting an OpX strategy.

**ARE You Focused on Agility, Reliability and Efficiency?**

To make their OpX strategy manageable, manufacturers and processors may choose to approach the improvement of agility, reliability, and efficiency (ARE) individually. Agility focuses on improving operational resilience and helping manufacturers and processors evolve their businesses by adapting to internal and external business constraints in real time with contextualized information delivered at the correct time and location.

Reliability focuses on performing consistently, on demand and without unscheduled downtime, by achieving operationally resilient working conditions that maximize the value of data to drive a connected workforce, optimize operational processes, and increase availability of assets. Efficiency focuses on executing effectively by following an operations strategy that optimizes asset performance, automates work procedures, and infuses resilience across the organization through operational awareness.

**Optimizing People, Processes and Assets with AVEVA**

As a major global engineering and industrial software provider, AVEVA has an extensive portfolio of solutions including operations control, asset performance, and value chain optimization, leveraging a common digital thread...
from engineering to operations that uses performance intelligence to improve agility, reliability, and efficiency as well as operational resilience and sustainability.

Operations control solutions take people into account, increasing agility with visualization and team-building collaboration focused on a manufacturer’s and processor’s unique perspective with real-time access to the correct information at the right time and location. Reliability is increased by nurturing workers and systems, where operations data is a trusted source for higher analysis, and operator skillsets are managed and continuously improved to provide the best opportunity for success. Efficiency is increased by placing the best operator in the system using best practice interface design techniques, capturing experienced worker knowledge, infusing situational awareness and context-driven actions throughout operations.

Regarding asset performance management (APM) solutions, agility is increased by empowering frontline workers and remote teams with quicker access to actionable information and greater visibility of operations and assets by combining real-time data from multiple sources with artificial intelligence in a more intuitive and secure cloud environment available at any time and location.

Reliability is increased by connecting engineering, operations, and maintenance to provide a single integrated digital thread across the asset lifecycle, connecting organizations and providing workers with real-time sensor data and intelligent insights to help eliminate unscheduled downtime and optimize production processes. Efficiency is increased by leveraging deployment tools and cloud platforms to accelerate time to value and building and deploying a digitized APM 4.0 strategy focused on the most critical assets related to a manufacturer’s and processor’s goals to optimize and provide predictable asset performance, balancing people, processes, and assets to maximize efficiency.

Value chain optimization solutions take processes into account, increasing agility and maintaining velocity by adapting to internal and external business constraints at a moment’s notice, empowering production teams to respond quickly and change direction to meet demand. Reliability is increased by standardizing or automating the execution of work to perform
consistently, minimize disruption, and meet compliance goals through supply chain optimization, and the application of process insights towards continuous improvement. Efficiency is increased by the automation of processes that are vital for value chain optimization to reduce effort and eliminate value leaks across work procedures and production processes.

AVEVA’s operations software portfolio is designed to drive OpX by optimizing people, process, and assets where teams break down silos to improve efficiency, gain greater agility through optimized processes, and achieve the confidence to operate reliably by leveraging performance intelligence from the edge to enterprise, resulting in better business decisions and the benefits that promote sustainable growth and increase operational resilience.

**Conclusion: AVEVA’s OpX Users ARE Operationally Resilient**

Surviving and thriving beyond the new normal will require manufacturers and processors worldwide to deploy solutions that sustain operations resiliently using common data to connect people, processes, and assets that create a single version of the truth. OpX is a systematic approach for industrial organizations to attain best-in-class performance in productivity, quality, and delivery of services and/or products. Rather than being a destination or endpoint, OpX is an ongoing journey that requires continuous improvement for companies to maintain a competitive edge.

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