AVEVA

The new normal: Optimizing manufacturing operations to support growth and agility in a post-pandemic age

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The manufacturing industry is in the midst of disruption

The COVID-19 pandemic caused massive expansion and shrinkage in supply and demand. However, manufacturing industries have been in a continuous state of transformation long before the pandemic hit.

Along with navigating change, manufacturing leaders constantly manage waste and losses, quality and safety, and productivity – all while maintaining an agile, resilient operation. In spite of these challenges, manufacturers may hesitate when it's time to significantly change operations, even if production and markets are stable.

What if changing systems and increasing flexibility slows productivity, or is difficult for employees to adopt? In this case, the long-term reward far outweighs the short-term risk, and many manufacturers will still push for change because they recognize the potential for improvement.

While change is easier during periods of stability, making changes during uncertain times becomes more complex. When the future is unpredictable, the inclination can be to wait for the disruption to pass before optimizing plant operations. But these are the periods where change is most necessary. In spite of the fears, manufacturers must continue to press forward to improve operations.

Change is a constant for manufacturers

Until recently, consumer goods manufacturers enjoyed an amazing period of growth. From the 1980s until 2010, consumer goods was one of the most successful industry segments, growing 10% year over year. That success can be attributed to conventional means, such as building mass-market brands, maintaining strong distributor relationships, shaping markets in developing economies, and performing mergers and acquisitions that drove the benefits of scale.

"We got good at being consistent in execution, in driving down cost and improving productivity in plants," said Keith Chambers, Vice President of Operations Management Software at AVEVA. "But in the last five to 10 years, those strengths became risks." Consumers are "going green" and digital, competition has become global, and the input costs are becoming increasingly volatile.

Then the COVID-19 pandemic hit and exposed further weakness in operational practices. Manufacturers struggled to keep up with large swings in demand, making change imperative to survival.

> **We're seeing growth in canned-soup lines, which had been depressed for years. Now, demand surged 40% in the space of six weeks. How do you, as a manufacturer, cope with that? How do you convert lines that made other things to make that product, and how do you source 40% more ingredients?"**
>
> **Keith Chambers**
> Vice President of Operations Management Software, AVEVA

Manufacturers face numerous types of disruptions

Beyond the incremental changes in the market and the swift change brought by a pandemic, manufacturers have long had to overcome numerous hurdles:

- **Manage waste and loss:** As part of sustainability and managing costs, manufacturers must figure out how to recycle products or packaging to minimize waste.

- **Ensuring product safety:** This is always of utmost concern. Tracing raw materials, ingredients, or components is key to quickly identifying potential issues.

- **Follow regulatory requirements:** Compliance with the Federal Food, Drug, and Cosmetic Act, the Global Food Safety Initiative, Consumer Product Safety, and GMP regulations is necessary, but documenting compliance and preparing for vendor audits or inspections is labor-intensive and time-consuming.

- **Adjust to changing consumer behaviors:** Consumers look for transparency about where products, ingredients and raw materials are sourced. They are also increasingly focused on environmental sustainability and staying at home, so they are buying more products online than ever before. Manufacturers must frequently adjust to these demands to include new types of products, sustainable packaging, and new digital channels.

- **Competition:** In response to changing consumer behaviors, competition for products and e-commerce inventory has increased, even from startups. Newcomers in manufacturing can disrupt an industry with popular niche products, requiring manufacturers to respond quickly.

Agility overcomes disruptions

Manufacturers can't stop demand and supply disruptions from happening, but they can be ready to adjust and pivot, as needed. "What you really want is agility," said Sree Hameed, Global Marketing Manager at AVEVA. "If the world is constantly changing, you want to adapt and be agile."

"Implementing digital technology in manufacturing helps enable that level of agility and adaptation. The pandemic made that clear," Hameed said.

"During that time, essential manufacturing employees had to work as part of a skeleton crew. But employees who had digital visibility could help manage the factory from home using information available through technology solutions. The digital enablement became evident because some employees weren't there on the plant floor but were still able to help keep the operations going."

Many progressive manufacturers use enterprise resource planning (ERP) systems to manage the business end, such as payroll, purchase orders, and production capacity. This is critical, but companies often lack another essential piece: a manufacturing execution system (MES) that provides a view of the shop floor with the data, analysis, and insights that gives a full and accurate picture of the organization.

“ERPs very rarely have the granularity of what you do on the plant floor,” Chambers said. “They don’t capture the process of making the materials. ERPs focus more on how much do we need; how much is made. If you were making barbecue sauce, your ERP would know the ingredients but wouldn’t know the process – that the ingredients have to be mixed in a certain way, or have to go into wooden barrels to be aged, or what bag of spices was added into the sauce – that would fall under an MES.” He added, “The MES understands the processes, it can capture quality and compliance data.”

“Beyond understanding the process, an MES also understands the machinery,” said Andy Dominguez, Senior Industry Marketing Leader for AVEVA. “It can predict when an asset is going to go down or shift production because they need to do asset maintenance. It provides a full understanding for the front office of everything happening on the production floor.”

“An MES combined with Advanced Planning and Scheduling (APS) software lets manufacturers optimize their production by knowing how and when to change over equipment efficiently,” Chambers added. “MES allows manufacturers to be proactive, not reactive. Instead of slowing down during disruption, manufacturers can use manufacturing operations data to apply advanced analytics to press forward in their digital transformation.”

How an MES increases agility in the face of disruption

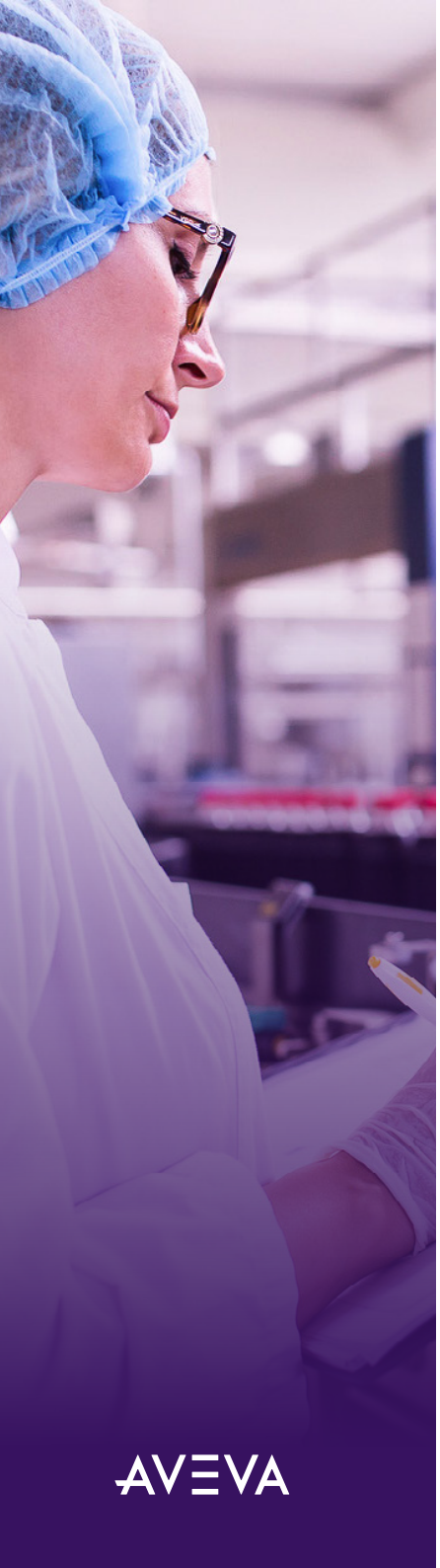
Sometimes, a manufacturing plant will run a new line of products as an exception, so it is done manually. However, a manual process takes longer and is more prone to error. This is even more critical as manufacturers bring on new products more routinely. Digitizing and automating manual processes helps optimize the system, so lines are run in the most efficient order possible.

Keith Chambers
Vice President of Operations Management Software, AVEVA

Identifying value leaks

One of the areas where a digital manufacturing execution system excels is identifying value leaks. If a chief financial officer were to walk through a factory floor, they'd see money leaking. If a machine isn't being utilized, it's money tied up that's not working for you. If there's too much scrap that has to be thrown away, that's another type of value leak. If you have a problem with a machine and the machine cannot produce, raw material or parts inventory is sitting idly. The worker cannot do the work. Those value leaks are interlinked."

Sree Hameed
Global Marketing Manager, AVEVA



Pinpointing the need for manufacturing operations transformation

“Manufacturers often have several triggers highlighting the need for digital transformation by deploying manufacturing execution systems” Dominguez said. Typically, companies will ask:

- **How can we further save costs and improve sustainability, given we cannot identify any other ways to limit value leaks?**
- **How do we become more agile or engage with customers in new and innovative ways?**
- **How can we accelerate growth across our distributed network of plants?**
- **Is there a practical way to keep up with regulatory cost and reduce risks?**
- **How do we engage our new employees who are digital natives and increasingly expect to work in an environment which provides them with a more digital user experience?**

> **The industry is moving fast, but the consumer is causing that rapid change. To meet the consumers’ needs, food and beverage companies must address these changing dynamics in a more agile way.”**

Andy Dominguez
Senior Industry Marketing Leader, AVEVA

Strategy

Start

Scale

Sustain

Get started on the path towards optimization

"Committing to optimizing manufacturing operations can feel overwhelming, but it doesn't have to be," Chambers said. "The general view of how you do digital transformation is **strategy, start, scale, and sustain**. Most industry companies are in the strategy stage. After that step, they should start small and look for a value to improve. Once that has been accomplished, begin to scale that out."

"Most customers deploy the AVEVA MES to figure out how to measure and improve plant efficiency, improve quality, or extend the ERP into plant operations," Chambers said. "Recently, manufacturing industries faced numerous disruptions – and that trend is not likely to reverse. As a result, forward-thinking leaders who want to see their companies progress cannot wait for a "quiet" time to change. Instead, they should see these uncertain times as an opportunity to become more agile. Nimbleness comes from having a complete view of the operation, including both the supply chain and production sides to optimize their value chain."

The integration of both business planning and manufacturing execution into a single digital system is the way forward for manufacturers to optimize operations and increase growth and profitability. This ultimately gives them an advantage over competitors who hesitate.

> **Companies should understand that not moving forward can mean taking a step back. If manufacturers don't become agile, they can lose their position in the market."**

Keith Chambers
Vice President of Operations Management Software, AVEVA

AVEVA

AVEVA's Manufacturing Execution System helps you to increase your operational agility and remain competitive.

Schedule a demo to see it in action.

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About AVEVA

AVEVA is a global leader in industrial software, driving digital transformation and sustainability. By connecting the power of information and artificial intelligence with human insight, AVEVA enables teams to use their data to unlock new value. We call this Performance Intelligence. AVEVA's comprehensive portfolio enables more than 20,000 industrial enterprises to engineer smarter, operate better and drive sustainable efficiency. AVEVA supports customers through a trusted ecosystem that includes 5,500 partners and 5,700 certified developers around the world. The company is headquartered in Cambridge, UK, with over 6,500 employees and 90 offices in over 40 countries.

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