



## How We're Mobilizing Our Resources to Help Find Solutions for COVID-19

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### INNOVATION

## 4 High-Tech Tools Johnson & Johnson Is Using to Get Products to You During the Pandemic

Smart glasses with remote access capabilities. Track-and-trace sensors powered by GPS. These are just two cutting-edge technologies the company has tapped to help keep its supply chain running smoothly at manufacturing and shipping facilities around the world.

By **Barbara Brody**, September 10, 2020

**W**hen the **COVID-19** pandemic first hit, everyday staples like toilet paper and paper towels were suddenly seemingly nowhere to be found. Over-the-counter products, like **fever reducers** and cough medicine, were in high demand—along with hand sanitizer, disinfectant sprays and cleaning wipes.

While consumers were getting a crash course in supply and demand, the experts at Johnson & Johnson remained confident in their ability to manage or circumvent disruptions so that hospitals, pharmacies and people around the world could continue to get much needed medications, medical devices and other healthcare products.

"One of the things I've learned after working on the supply chain for many years is that we need to expect the unexpected," says Lada Kecman, Vice President of Supply Chain Systems and Solutions, Johnson & Johnson. "The COVID-19 pandemic has reminded us how supply chain market patterns can be affected by outside events—but the latest technologies allow us to be more agile in response to those events."

We take you on a behind-the-scenes look at some of the novel—and high-tech—ways Johnson & Johnson's supply chain organization tackled challenges posed by the pandemic to continue to serve patients, consumers, healthcare

providers and customers worldwide.



**What You Need to Know About How Johnson & Johnson's Supply Chain Is Responding to the COVID-19 Pandemic**

# 1.

## The pandemic scenario: Responding to rapid surges in product demand

Early on in the pandemic, Johnson & Johnson saw demand from consumers and wholesale customers alike for **Tylenol®** literally double. The company's supply chain took all possible measures to maximize product availability in the face of this surge, running its plants 24/7 and making trade-offs in other areas, such as reducing the production of more complex formulations, in order to focus on producing the highest volumes of the medicines people most needed in the moment.



We want global supply to keep matching the global demand. We're confident that we can keep medication flowing as long as everyone only orders what they need.

— **Kevin Whitehead**, Head of Digital Strategy, Janssen Pharmaceutical Companies of Johnson & Johnson



"Sometimes, the reason for the higher demand might be logical, but if it was simply due to stockpiling, we wouldn't automatically fill the order," says Kevin Whitehead, Head of Digital Strategy, Supply Chain, Janssen Pharmaceutical Companies of Johnson & Johnson. Instead, the company would reassure the purchaser or country that enough product would be made available to them in future to meet their needs.



**Johnson & Johnson Earns the #3 Spot on the 2020 Gartner Supply Chain Top 25 List**

Another way the company works to circumvent unnecessary stockpiling: leveraging **data science** and utilizing complex algorithms to monitor typical order patterns and flag major deviations. Johnson & Johnson has technology that automatically monitors hundreds of thousands of orders placed by big customers, such as medical centers and governments. So when an algorithm detects an unusual pattern, it alerts supply chain professionals to investigate it.

"We want global supply to keep matching the global demand," Whitehead says. "We're confident that we can keep medication flowing as long as everyone only orders what they need."

## 2.

### The pandemic scenario: Planning ahead to be ready for a moment just like this

When COVID-19 first broke out in Italy, supply chain leaders knew they would have to deal with variable staffing levels in the company's manufacturing plants due to community exposure to the virus or government requirements to quarantine at home. How great an impact would that have on a given factory's output? What about all the factories in the country?



Johnson & Johnson was prepared to keep manufacturing going with a limited in-person staff

To troubleshoot this in advance, Johnson & Johnson turned to highly automated scenario risk simulation technology, which uses real, live data about staffing levels and typical production rates to make predictions about different worst-case scenarios that could occur. This way, the company could plan ahead instead of being forced to react in an emergency.



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"We wanted to know what the thresholds were and what contingencies we had to plan for," Whitehead says. Could a factory function sufficiently at 30% or 40% reduced capacity? What if the products couldn't be transported for a week, two weeks or even a month?

Mathematical models enabled supply chain leaders to understand what they could withstand—and what would require some rejiggering, perhaps by shifting production to a different location, staggering shifts or changing shipping methods.

Risk simulation technology has also allowed the company to keep better track of the need for raw materials, so there was no reason to over-order or under-order—both of which could have costly consequences.

## 3.

### The pandemic scenario: Ensuring products arrive on time—as promised

As one of the world's biggest manufacturers of pharmaceuticals, medical devices and consumer healthcare items, Johnson & Johnson's products must often travel thousands of miles before reaching their ultimate home.

But a lot can happen between the time a package leaves a manufacturing plant and its arrival at the final destination.



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Enter track-and-trace sensors that travel with a shipment, allowing for "end-to-end visibility"—meaning it can be continually monitored from the time it departs its initial location to the time it reaches its ultimate location. The sensor utilizes GPS technology, so it's easy to keep tabs on where a shipment is at any given moment, explains Whitehead.



**4 Latest Facts About Johnson & Johnson's Investigational COVID-19 Vaccine**

It also measures temperature, so recipients know whether the product has experienced fluctuations that might interfere with its quality. "And it can check for shock—like if it's fallen off the back of a lorry or has been involved in an accident—we can measure that," Whitehead adds.

Knowing where your product is at any point in the supply chain is especially crucial during a pandemic, he says, adding that a recent critical shipment was on its way from the Netherlands to the United States when it missed its connection at an airport in Germany.

"Previously, we wouldn't have even known that had happened," Whitehead says. But thanks to the end-to-end visibility provided by track-and-trace sensors, the company was able to follow the shipment in real time and get it onto the next plane without further delay.

In some instances, track-and-trace technology is also being paired with intelligent automation, which is essentially an alarm or trigger that uses data to automatically set next steps in motion. So if a plane took off without an important package on it, for example, intelligent automation might instantly generate an email to the person responsible for monitoring that shipment.



## The pandemic scenario: Managing manufacturing virtually

Before COVID-19, it wasn't unusual for a scientist or engineer to hop on a plane or train to check in on manufacturing equipment. Due to travel restrictions and contagion concerns, however, such in-person fine-tuning is not always an option.

This is where smart glass technology, such as Google Glass, comes in, which allows someone at a remote location to virtually see the exact same thing that a worker standing in front of a machine is seeing.



An employee uses smart glass technology to give a remote colleague on-site visibility



**She's a Scientist  
with One of the  
World's Most  
Important Jobs:  
Creating a Potential  
COVID-19 Vaccine**

Employees often refer to it as "you see what I see," Kecman says, because it means someone need not be physically present to see or access information that was previously only available to someone in the same room. When paired with "privileged remote access," you can go a step further: An expert in a remote location is given elevated security clearance and can actually tap into the equipment, pull data from it and change the settings.

The benefits are clear. At many Johnson & Johnson locations, the combination of smart glass technology and privileged remote access has enabled manufacturing to continue without interruption, despite being in the middle of a pandemic, Kecman notes.

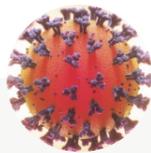
What's more, the company has been able to harness the technology to keep production flowing for its medical devices and consumer products, as well as to open new research and development centers and run them 24/7—allowing crucial projects to expand in record time.

Of course, relying on technology of this scale also requires an equally sophisticated security protocol. "**Cybersecurity** is extremely important for obvious reasons," she says. "We work very closely with the Johnson & Johnson information security risk management group" to ensure all data is kept secure.

Whitehead agrees and credits old-fashioned collaboration with the company's ability to successfully implement advanced technologies so quickly. "All our supply chain teams have a role to play," he says. "Everybody works together."

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### **How Johnson & Johnson Is Responding to the COVID-19 Pandemic**

Learn more about the innovative ways the company is mobilizing to help combat the global outbreak caused by the novel coronavirus.

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