



Manufacturing resilience in the face of crisis

A past, present and future look at
how crises drive innovation

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The COVID-19 coronavirus is causing huge disruption across the globe.

It's shutting down supply chains, creating the need for quarantine zones, triggering significant stock market volatility and causing supply shortages.

The manufacturing industry is feeling the ripple effects.

If you step back, you can take a past, present and future look at not just world events and crises but also the manufacturing industry as a whole. You can see that innovation is one consistent and significant result of crises.

In the following pages, we'll take you through past crises that spurred significant innovation, highlight the innovative ways manufacturers are currently serving the country during COVID-19, and make six big predictions about how the manufacturing industry will change post-coronavirus.

Crises cause industry disruption and innovation

COVID-19 isn't the first time the world has experienced a crisis of this magnitude. And every time there's been a crisis — from a pandemic to a recession — there's been an equal challenge to innovate.

The 21st century has provided us with three significant examples:

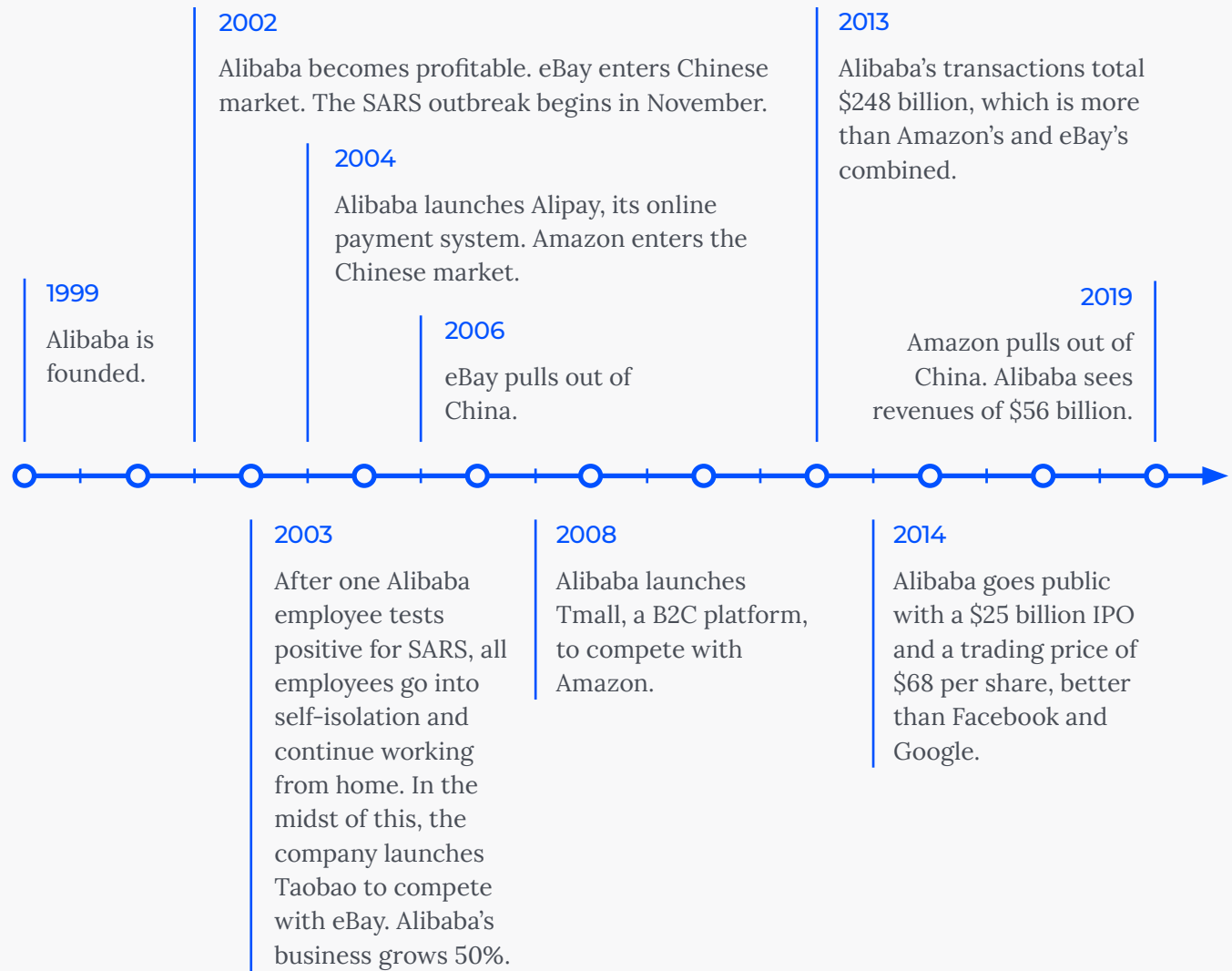
1. Severe acute respiratory syndrome (SARS)

We're not just mentioning SARS because it was the first coronavirus. It makes this list because it changed the retail industry forever.

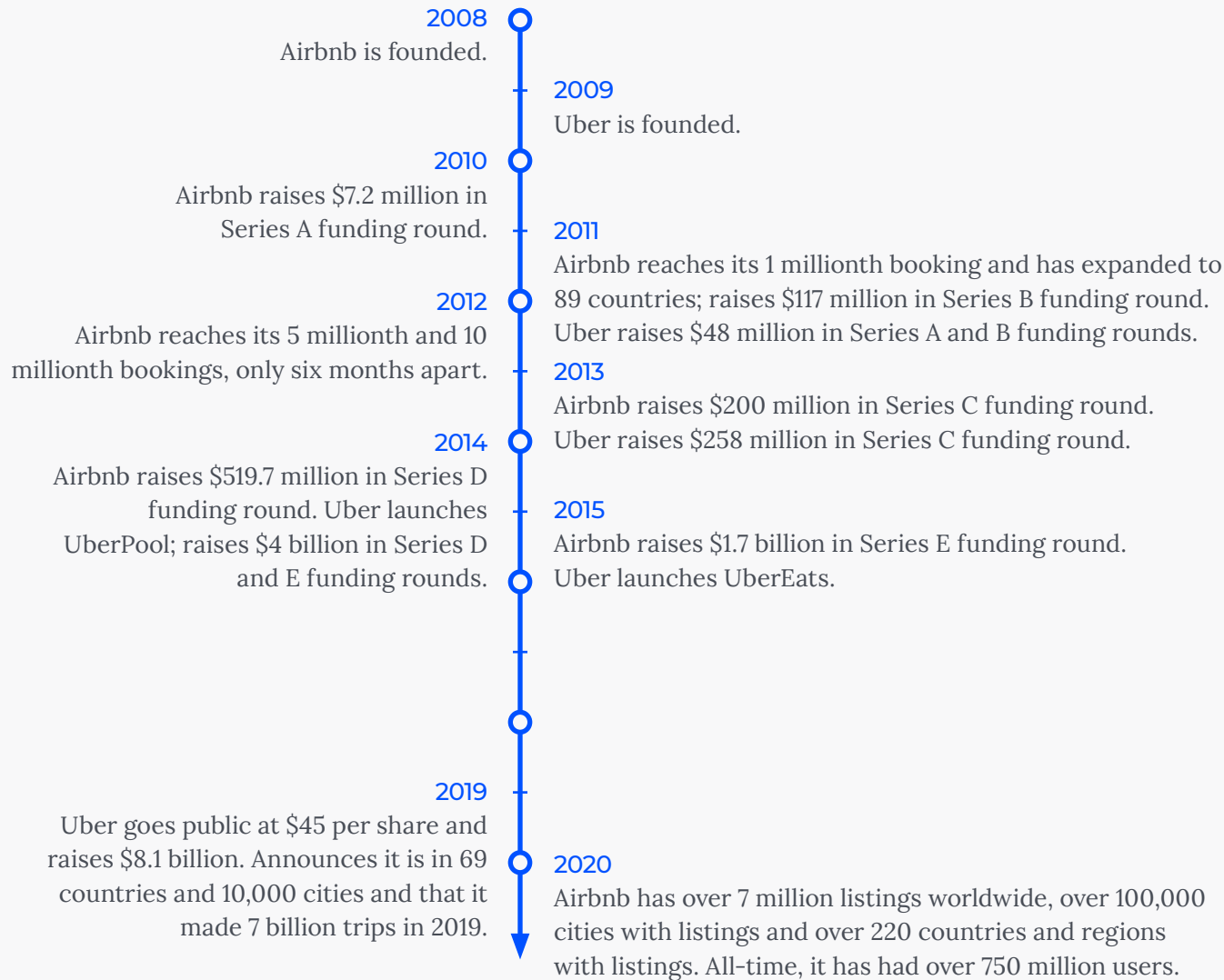
Why and how? [The SARS outbreak](#) began in November 2002 and ended in July 2003, and during that period, over 8,000 people were infected, with a case fatality ratio of 9.6%. This fueled anxiety over traveling and especially over human contact. But what came out of those fears? The true rise of e-commerce giant Alibaba.

It was in the wake of SARS — which caused travel alerts and decreased foreign business in China, as well as millions of Chinese to stay home to avoid the virus — that Chinese turned to online shopping. In 2003, Alibaba was perfectly positioned to fill that need, connecting suppliers and buyers with a few clicks of a button. It quickly came to dominate the Chinese e-commerce market.

The rise of Alibaba



The rise of Airbnb and Uber



2. The financial crisis of 2007-08

Four years after SARS, the world was thrown into the worst financial crisis since the Great Depression. Companies went out of business; people lost their jobs, pensions, 401(k)s and even life savings; and many people lost their homes.

The need to supplement lower personal incomes was the driving force to start using what assets people did have, and thus the gig worker was truly born.

Airbnb was founded in 2008 and Uber in 2009. With the help of disruptive technology, a whole industry developed to leverage people who had a car that could act as a taxi, enabling them to earn money during a time when jobs were scarce, or who had space in their home they could rent for much cheaper than a hotel room, enabling them to meet their mortgage payments. Necessity was truly the mother of invention.

3. Falling manufacturer margins and a shrinking workforce

This last example isn't one big event you can pin a start date to. It's been a growing trend heavily interconnected with other trends, evolving expectations and a changing way of life.

You have the ongoing retirement of baby boomers; the continual push of high school students to enter four-year colleges and turn their noses up at traditional industries like manufacturing and construction; and the simple fact that there aren't enough Gen Xers, millennials and Gen Zers to fill all the jobs in the roaring economy we were enjoying before the COVID-19 crisis showed up.

Then you have falling margins pushing manufacturers to cut costs and search for ways to do more with what they have.

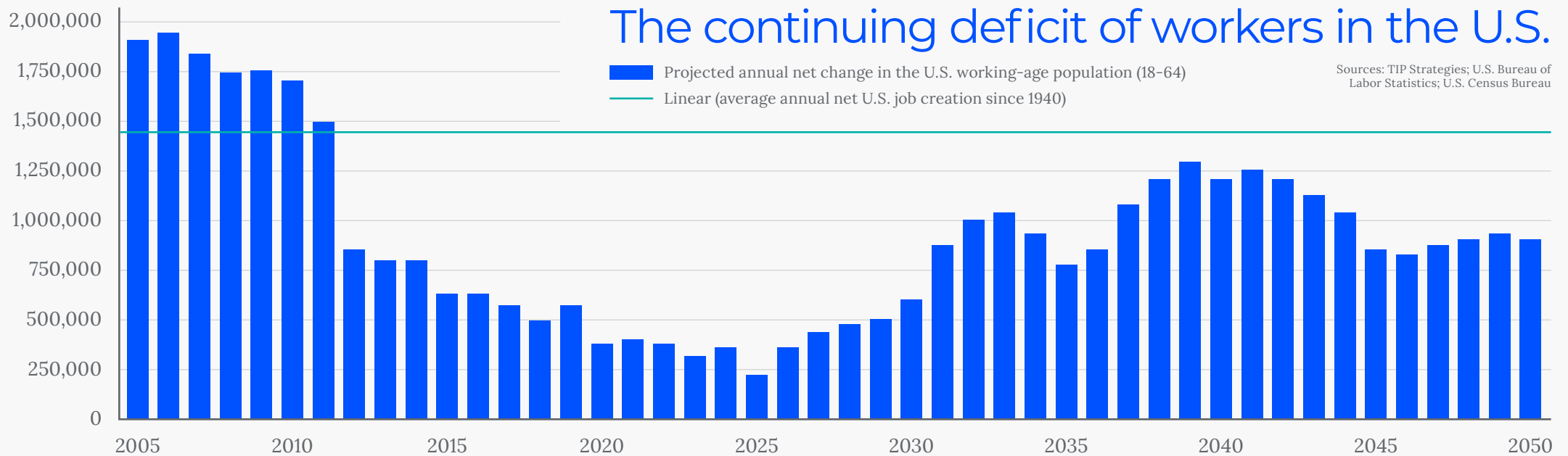
All that together was the perfect recipe for Industry 4.0, the subset of the fourth industrial revolution that's making manufacturing smarter and more efficient. You've got the rise of the cloud, the industrial internet of things, heavy automation (even "lights out" manufacturing), and the ability to convert real-time data into intelligence.

Manufacturers began connecting every machine on the shop floor and receiving hundreds of thousands of real-time data points. They used that data to

predict downtime and get machines serviced before a surprise halt in production.

Technology allows manufacturers to make better decisions about what lines are more profitable and what customers to accept or pursue in the future, and the ability to move personnel from repetitive tasks into jobs that require the human brain's ingenuity. They've fought falling margins and a shrinking workforce with automation and productivity/efficiency gains.

Just like in any other crisis, they've survived and thrived.



Industry disruption: Past, present and future

In times of crisis, people not only band together to get through it but also respond in unique ways. Innovation and disruption become necessary, and it's fascinating to see it happen over and over again.

It is happening now with COVID-19 affecting so much of the world. And that's why we're going to dive into manufacturing's response so far to COVID-19 and take a look at what manufacturing might look like afterwards.



How manufacturers have responded to COVID-19

In a progressive world, the only thing certain is uncertainty. And how we approach it – what we do with it – is our choice.

It wasn't that long ago that manufacturers were concerned with the presidential election and how potential policies could impact them. Then there was talk of a recession and whether the market could continue its 10-year-plus climb.

No one saw a worldwide pandemic coming, that's for sure.

Now businesses across the globe are pushing in the clutch after years of running in high gear. Yet amid talk of doom and gloom, what truly presents itself is opportunity.

Innovation is the result of any major crisis, and what's happening now is certainly a crisis. You have social separation and shelter-in-place orders triggering a mass movement to remote working. You have absenteeism from those in quarantine. And you're seeing supply chains disrupted or, in some places, stopped in their tracks.

We can see five early responses to COVID-19 that highlight the great potential for innovation to come out of this crisis.



1. We're seeing a new norm for socializing

Amid social distancing and shelter-in-place orders, employees across industries are working from home. For people used to socializing with their coworkers in the office or after work, that's a difficult adjustment to make.

But what's wonderful is that the sudden lack of socialization opportunities has only made people get creative. I recently participated in a virtual happy hour. Everyone enjoyed an adult beverage, as usual, but the backdrop wasn't a bar or restaurant but rather everyone's individual home. You could see pets or kids sitting on their lap. You could see their office or kitchen or basement — wherever they had their home office set up — and get more of a peek into their personal life. Sure, it was awkward at first, but so is anything brand new. It turned out to be fun.

During this time, you cannot downplay the importance of staying connected, of seeing co-workers face-to-face and not just hearing their voice on the phone.

Technology makes this all possible. That's why it's critical for manufacturers to have the right tools they need to enable a remote workforce for those who are able to work off site. These tools include everything from the technology platform to the security that protects it, from cloud storage to mobile apps.

Enabling a remote workforce: [Click here to watch our on-demand webcast](#) on how manufacturers can make the transition, and [click here](#) to learn more about how Wipfli is helping manufacturers go remote.

2. Manufacturers are pivoting overnight

The shortage of critical supplies to help fight COVID-19 has made manufacturers more important than ever. Many in mass production have reformatted themselves seemingly overnight to begin manufacturing personal protective equipment like masks and even machinery like ventilators.

This is a heroic response to serve humanity as a whole during a time we need it most — not to mention a great way to keep the doors open and staff employed when many other industries are having to lay employees off.

Every morning I learn about huge shifts in help, without government assistance. I see how companies are banding together, leveraging their knowledge, talent and equipment to create single, humanity-focused solutions. It reminds me that our combined selves are much more powerful than our singular selves.

If your manufacturing company would like to learn more about how you can help during the COVID-19 crisis, [we've put together several resources here](#).

3. Manufacturers are hiring displaced workers

Speaking of not having to lay employees off, manufacturers have started hiring those displaced by COVID-19: specifically, hospitality and food service workers. These employees are trained to serve customers directly, which can translate well to manufacturing, since you could say the industry struggles to serve itself and not just its customers. Manufacturing can benefit from the service experience these workers bring to the table.

Plus, [as we noted previously](#), displaced workers are ready to work immediately. Manufacturing's offer of full-time positions with benefits is sure going to beat part-time, minimum wage jobs — meaning you're likely to keep these employees after the pandemic is over. The next-generation manufacturing workforce is ready, all because COVID-19 has highlighted the opportunity.

Navigating people-centered change and optimizing talent isn't easy, even when there isn't a crisis going on, so relying on [an outside resource specializing in talent and change](#) can be beneficial to getting a jump on this opportunity.

4. The front office is moving to the front line

Another response to the COVID-19 crisis is manufacturers' front-office personnel pushing aside their keyboards and moving to the shop floor. They're seeing how many shop floor workers are quarantined at home, caring for children or sick relatives, or working in alternative arrangements – and they're asking how they can help make products and keep things going.

Final assembly is one of the best places front-office personnel are moving into. They're helping manufacturers not only make ship dates but also fill in for absent employees or allow those employees to fill gaps in more skilled positions.

Then there's technology. Many manufacturers are using technology such as Microsoft Teams to enable social distancing on the shop floor. Instead of holding meetings in person in one room, supervisors can hold them through Teams via tablets, allowing employees to stay at their workstations.

However, many shop floor employees are using this technology for the first time. And that's where front-office employees are coming in. They know the ins and outs of the technology because they've been using it in their own departments, and that has put them in the perfect position to be superusers who help shop floor employees navigate and make the most of this new technology.

Whether it's helping to sew masks at home for coworkers, friends and family, or finding and filling in gaps to help keep manufacturers running, front-office personnel are making themselves indispensable. They're truly showing the rest of us how to work for a higher cause, set aside traditional hurdles and push into uncharted space without hesitancy.

5. Supply chains are keeping everything running

Obviously, it's difficult in manufacturing to work from home. Some, like engineers, can do so, but not those on the shop floor. And that holds true for the supply chain. From the start of the COVID-19 outbreak, the response from supply chains working tirelessly to keep the U.S. healthy and fed has been incredible.

As a manufacturer, you're probably concerned about how to protect your supply chain in times of crisis. It's getting increasingly difficult to receive product on time from suppliers and meet customer demand. Many manufacturers are having to place larger orders to ensure they get what they need. Others are reassessing relationships with key suppliers.

Your manufacturing business can mitigate risk by re-evaluating your supply chain strategy and inventory assumptions. Developing a strong, comprehensive supply chain strategy improves your responsiveness to future business interruptions, setting your business up for success even in uncertain times.

Read more: [How manufacturers can protect their supply chain in times of crisis](#)

On-demand webcast: [Supply chain strategy: Responding to COVID-19 and preparing for the future](#)

Reach out to learn how supply chain response and strategy can help you find and resolve hidden risks, develop a supply chain plan to optimize performance, and protect your cash flow.



6 predictions: What manufacturing could look like after COVID-19

So, we've covered how past crises gave rise to incredible innovation, and how manufacturers are currently responding to COVID-19 in creative ways, but what about after the virus? How might the manufacturing industry change? What kind of amazing innovation can we expect to see?

Let's forecast the six biggest potential impacts post-COVID-19.

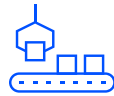


1. Buying preferences

After SARS in 2003, we saw the true rise of e-commerce. After COVID-19, we'll likely see even less brick and mortar in consumer buying preferences. And less brick and mortar requires more effective and efficient buying transactions and expectations, akin to the Amazon model.

As the demand for more efficient buying of materials in manufacturing rises, we'll see more interactive portals between customers, suppliers and manufacturing operations — providing visibility and traceability as well as predicting needs. People get the Amazon experience in their personal lives and will expect it in their professional lives, too. They'll want mobile access that allows remote transactions at the tap of a button.

This "Amazon experience" will create more digital dependency. As a result, manufacturers will rely on blockchain's robust security to help reduce fraudulent activities. Cybersecurity Ventures has predicted that cybercrime will cost the world \$6 trillion annually by 2021, up from \$3 trillion in 2015. Every manufacturer knows how its large procurement needs make it a target for fraud. Blockchain is one way manufacturers will help combat rising cybercrime and mitigate the risk of fraud.



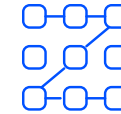
2. Supply chain visibility, inventory and sustainability

After COVID-19, we could see the global sourcing process replaced with dynamic risk-mitigation algorithms based on numerous factors, from weather forecasts to current or evolving political situations. Technology could help target where you're vulnerable in your supply chain.

Plus, with greater supply chain digitization, where everything has RFID to GPS to blockchain, technology can transfer data without human input, keeping your supply chain running smoothly and maintaining a clear audit trail. This, in turn, will allow more back-office automation.

There will be more wearable technology so people can stay up to date, buy what they need or even change their minds based on real-time information.

And we may even see the rise of the circular supply chain ecosystem, where materials and products are reused through reverse logistics of multiple companies cooperating for cost benefits and sustainable strategies. The biggest cost in manufacturing is freight, and much of what's involved is reusable by you or someone else. You simply need the visibility and connections in place to make it work. In a post-COVID-19 world, that seems possible.



3. Connected machines and ecosystems

Technology has already done an amazing job of connecting machines and ecosystems, and that's only going to ramp up after COVID-19. High-speed 5G connections make Wi-Fi, Bluetooth and the cloud more relevant than ever for manufacturers. More people will have the ability to [monitor what's happening on the shop floor in real time](#), and, combined with robotics, this will pave the way for a completely remote shop floor workforce. Like a pilot manning an airplane on autopilot, your workforce can monitor and adjust as needed.

Robotics is key for repetitive work. Robots can complete quality control and auditing functions, taking note of dimensions and color and logging the information. Drones can launch automatically, flying through warehouses and scanning RFIDs to take a virtual count of inventory. Supply chain adjustments based on demand and production variability can be automated.

For example, if your rack gets down to 10 sheets of steel, the robot automatically places an order with your steel supplier. That supplier puts it on the truck, and the robot receives the tracking information, as well as the invoice. It draws the funds from your bank account to pay the invoice. The audit trail is there, but no human intervention is needed.



4. Remote workforce

With a more remote workforce comes other opportunities, even related to professional social networking events. You could begin hosting or attending virtual trade shows. Manufacturers spend hundreds of millions of dollars on trade shows, but if you create virtual trade shows where you can view and speak to different providers, you could avoid the costs of renting booths, moving equipment, and booking hotel rooms and airplane tickets. I've already seen virtual trade shows in action. With everything going on right now with social isolation, this is primed to expand after COVID-19.

[We definitely have the technology right now](#) to help employees become more productive at home. Open-source apps put the tools right in your hands. And a remote workforce widens your talent pool considerably, making it possible to hire far outside your standard range. Plus, gig sourcing (aka hiring a freelancer) is a good alternative for specific jobs that would have been done remotely anyway.

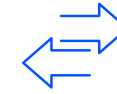


5. Knowledge transfer

Flattening the learning curve in manufacturing is especially important. There's so much tribal knowledge involved that it can be overwhelming to consider how best to transfer knowledge, especially as the most knowledgeable retire. I predict this ramping up in importance after COVID-19.

A teacher toolbox can document current best practices quickly and efficiently. It flattens the learning curve with multimedia content, from videos to photo instruction templates to written content. And it enables you to share best practices across unrelated entities. Find out who else is doing something like this and what their best practices are. What can you learn from them?

You could even eliminate the need for temp agencies. Once the knowledge is transferred, that person becomes a resource who can be borrowed and shared. And that leads us to our last prediction.



6. Resource and risk sharing

Similar to Uber or Airbnb technology platforms, we could see the rise of technology that provides access to machine and people capabilities. In a real-life example, right now, GE provides jet engines to airlines on a subscription basis, and they maintain the engines and guarantee uptime.

OEMs have the ability to provide technology, machinery and people in exchange for fees. They could create a platform to barter on, exchanging one service for another, or paying traditionally. If you're thinking this sounds like a bookkeeping nightmare, blockchain is the way to solve that. It can identify who borrowed what and how much it's worth and track it all, helping create a different way of using and exchanging assets.



Getting ready for life after COVID-19

In manufacturing, if you stand around too long, you become extinct. Any major crisis, from a recession to a pandemic, is a reason to look inward at your processes and capabilities and then outward at what's possible.

Now is the time to capitalize on the shifts in the manufacturing industry. The technology keeping you operating today is the same technology that will launch new opportunities for those who view this time as a once-a-decade chance to advance. It's only mindsets that need to be challenged.

We're here to help

Wipfli has been working with manufacturers for over 90 years to innovate and unlock the full potential of their business. Because COVID-19 has had such a huge impact on the U.S. economy and companies both small and large, we've pinpointed ways we can help manufacturers face their challenges head on and put themselves in the best position to succeed going forward.

Solutions to meet your needs



Supply chain response and strategy

With the COVID-19 pandemic causing severe supply chain disruption, many manufacturers are facing new challenges. Your manufacturing business can mitigate risk by [re-evaluating your supply chain strategy and inventory assumptions](#).

Let Wipfli help. Our manufacturing professionals and supply chain specialists can help you find and resolve hidden risks, develop a supply chain plan to optimize performance, and protect your cash flow. Use our team to develop a strong, comprehensive supply chain strategy to improve your responsiveness to future business interruptions and set your business up for success even in uncertain times.

Let's get started

To learn more, reach out to your relationship executive at Wipfli, or [visit our manufacturing and distribution COVID-19 resource center](#).



Enabling remote workers

When it comes to remote work, technology is the first and most critical component of your solution. Wipfli is here to help. We've developed [quick-start solutions](#) to support remote work and facilitate operational processes during this disruptive time.

With Wipfli, you can enable remote team members to interact with their counterparts in the office or on the shop floor, fostering collaborative work while maintaining social distancing. Encourage accountability and collaboration for conversations through team visibility. And configure everything you need, from instant messaging to video conferencing, and from document sharing to collaboration channels.



Sustainable recovery

You've probably thought about how cutting costs and streamlining operations can help address the challenges of the COVID-19 pandemic.

Wipfli can help you [pinpoint opportunities to reduce costs without affecting production](#). Work with us to review your current indirect expense spending, dive into certain expense lines down to the individual transaction level, perform value stream mapping exercises, and prioritize and develop operational improvement plans to reduce spend.