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# Manufacturing Redefined: How to Accelerate Towards a Digital Future

by Venkat Gopikanth, Sagar Asalapuram and Betsy Tao

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*Kalypso is a people business. We don't have manufacturing plants or production lines, but we do have industry expertise and deep experience with clients that do. To meet this moment, we're working hard to capture what we know and share it. We hope you find this article useful as you think about what you can do to reduce your risks today and prepare for the future.*

The role of manufacturers is important in a global crisis – including making essential medical equipment and consumer products. As we move forward, many manufacturers face significant challenges in workplace safety, logistics, supply chains, inventory control, and warehouse operations. There are specific actions that manufacturers can take today to mitigate short-term risks, while developing a strategy and plan to adapt and thrive in a new (and likely very different) global environment.

Workplace safety has been redefined. New standard operating procedures (SOPs) will include insight into the availability of key personnel on the production floor, the ability to manage production schedules with staggered shifts to meet social distancing requirements, and implementing sanitized clean room procedures in the factory.

Logistics and transportation of inbound materials and outbound finished goods have been disrupted. Supply chains have been impacted due to unpredictable global supplier operations. For many manufacturers, supply-side inventory has been depleted while finished goods stack up due to changing demand patterns and transportation disruptions. With all of this, manufacturers must rethink supply chain strategies and plan for a new normal.

# Immediate Tactics to Reduce Your Risk

So, given these unique challenges for manufacturers, what can and should be done? While the answer to this question will be unique for specific companies, there are some short-term actions that all companies should consider:

## Workforce & Facilities Management

- Identify essential operations that must be done onsite and those that can be done remotely: operationalize the onsite plan with staggered shifts
- Provide protective equipment to front line workers and revisit workplace safety policies, including clean factory policies enforced during and between shifts
- Reassess entry and exit points to factories and implement body temperature scanners using infrared or thermal imaging technologies
- Consider contactless systems with help of wireless technologies (e.g. RFID) to minimize touch and enhance clean and hygienic operations

## Production Operations

- Leverage automation and remote monitoring of assets and operations through [IoT solutions](#) to minimize physical presence in factory operations
- Use [AR/VR technologies](#) to reduce workforce specialization and grow workforce flexibility on the factory floor, and administer training on factory processes and maintenance procedures through video and AR/VR tools
- Take advantage of a reduced production schedule to enable [predictive maintenance insights](#), and do not ignore critical maintenance activities to machinery during a hyper accelerated production schedule
- Modify existing plant turnaround and line / equipment shutdown processes for quicker shutdown and restart, which will support rapid production line switches for staggered work shifts and address variable demand for products

## Supply Chain

- Evaluate supply chain risks and consider rapidly changing logistics and transportation options, depending on travel and cargo restrictions
- Leverage spare parts inventory as substitutes for new products with appropriate risk management plans in place for existing warranty support and repair processes

## Logistics

- Create logistics contingency plans, including re-routing and alternate modes of transportation (e.g. land, sea, air) to reduce the impact of current logistics fluctuations

# How to Reimagine Business as Usual

Leaders across the manufacturing industry should take the opportunity to re-think the way they do business and evolve to become more resilient. Many of the changes happening today will influence the way organizations

operate in the long-term.

The scale of the issues faced by each manufacturer will vary based on vertical industry customers, demand patterns, location, and the country/countries where factories operate. However, when planning for a new normal, there are five core areas where companies should focus now to be better prepared for the future:

### **Reevaluate Strategy**

- Risk mitigation plans and business strategies should be reevaluated for the long term, while enabling or enhancing core digital capabilities for the enterprise
- To position for long-term success, create a strategy that supports quick pivots and diversification of core products to other industries, helping to address future rapid demand shifts (e.g. A plastics and resins manufacturer quickly pivoting to manufacture face shields for medical applications and safety shields for checkout counters at grocery stores)

### **Plan for a Digital Factory**

- [Automated manufacturing and smart connected operations](#) with IoT sensors will help create a connected factory floor and enable agile responses to demand variations and supply chain risks
- [Remote monitoring and predictive maintenance](#) of critical assets will help smooth operations in periods of high demand
- Democratized training with AR/VR or video conferencing techniques leverages centralized expertise, increases the skills quotient of factory personnel, improves cross-training, and increases labor flexibility
- Digital twins can help virtualize physical designs, products and processes, resulting in faster prototypes, more agile processes through simulations, and the ability to spot design issues early in the cycle, minimizing rework and accelerating cycle time

### **Digitize Supply Chain**

- Supplier diversification has historically focused on cost reduction, but during a crisis and recovery it should focus instead on supply chain resilience, so sourcing materials from a single supplier or from suppliers from a single location must be avoided
- Transparency and visibility in the supply chain must be enabled for all levels, because the supply chain is not resilient if all roads lead to one or two suppliers in one location at any tier of the supply chain
- Assess demand fluctuations and become diligent about demand forecasts and risk factors in the industry segment
- Analytical models can help sort through different location-based supply and demand spikes and constraints

### **Make Data a Priority through Analytics & AI**

- Leverage valuable data from connected factory operations and connected supply chains to look for patterns and use scenario-based planning models to guide decision making
- As operations are more connected and data islands are reduced, the increased data transparency across factory floor and supply chain will lead to a connected enterprise that can bring agility to decision making

### **Automate, Automate, Automate**

- Identify work that is repetitive and mechanical and find ways to automate
- Automated Guided Vehicles (AGVs) and robots can assist in managing operations, increasing productivity and moving skilled labor to more value-added tasks across the manufacturing value chain
- 3D printing can address spare parts production
- Drones can be used for checking on inventory levels and certain visual inspections
- Machine vision-based inspection systems can play a role in quality inspections

## How to Prepare Now for a More Resilient Future

The silver lining of any crisis is the opportunity for companies to learn about and adapt to uncertainty. As manufacturers recalibrate their strategies and operations, risk mitigation plans will center on improving and strengthening core manufacturing capabilities to prepare for the inevitable next crisis.

After addressing short-term problems, manufacturers should pivot strategies to address risk in all aspects of manufacturing, identifying and automating repetitive and mechanical work, creating a connected factory, building supply chain resilience, and investing in advanced analytics for actionable insights and advanced scenario modeling as part of contingency planning.

In summary, manufacturers should seek to build resiliency and adaptability across the organization and solidify the foundation of their digital transformation and product diversification efforts. This will position companies ahead of the curve when the next crisis occurs.

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