

## Lean Manufacturing in 2021 and beyond



IS LEAN MANUFACTURING STILL RELEVANT IN 2021  
AND BEYOND?

A YEAR INTO THE COVID-19 PANDEMIC, COMPANIES MUST COPE WITH GREATER UNCERTAINTY THAN EVER BEFORE, DUE TO THE UNPREDICTABILITY OF CONSUMER DEMAND, DRAMATIC FLUCTUATIONS IN SUPPLY CHAINS AND THE INSTABILITY OF THE BROADER ECONOMY. THE FUTURE LOOKS JUST AS UNSETTLED, WITH MANUFACTURERS TASKED WITH TRYING TO DETERMINE THE WAYS IN WHICH THINGS WILL SETTLE IN THE NEW NORMAL I.E., WHICH CHANGES WILL BE LONG-LASTING OR EVEN PERMANENT. IN AN ENVIRONMENT IN SUCH FLUX, SOME HAVE WONDERED WHETHER LEAN MANUFACTURING REMAINS AS RELEVANT AND VALUABLE AS IN THE PAST.

The answer is yes. From its origins in the Toyota Production System, Lean evolved to offer companies the ideal set of tools to navigate this new environment. “The disruptions caused by the COVID-19 pandemic were on an unprecedented scale, calling for a great reset across all sectors of the global economy,” says Seif Shieshakly, Co-Founder & Managing Partner of Four Principles. “The companies best equipped for that reset are those utilizing Lean principles, tools and digital operations, to improve agility and customer centricity.”

## New Technologies and Trends: How Lean Helps Companies Adapt

With an emphasis on enhanced productivity and eliminating unnecessary waste, Lean Manufacturing is an ideal fit for companies seeking to be at the forefront of new developments in the industrial sphere, such as the introduction of new technologies and the related workforce shifts. Industry 4.0 has brought greater automation, made data and metrics more available, and enabled better communication. All this makes it that much more important to fine-tune workflows driven by a customer-centric orientation. Lean enables manufacturers to operate with as many resources as they need to succeed – and no more.

### Trend 1: Integrating Digital Technologies

The past year’s extraordinary operational challenges put manufacturers to the test. Some successfully maintained operations, while others struggled with supply shortages, worker safety, and dramatic spikes and dips in demand. A key factor that differentiated the companies that adapted and flourished, was their use of Industry 4.0 digital technologies such as AI and Machine Learning, the Industrial Internet of Things (IIoT), cloud computing and analytics, and virtual and augmented reality.

In its [annual Industry 4.0 survey](#), McKinsey found that 94 percent of 400 global manufacturing companies reported that advanced production technologies had helped them to keep their operations running during the crisis. A majority (56 percent) considered digital technologies critical in how they responded successfully to the crisis.

Lean Manufacturing can help manufacturers create smart factories equipped with advanced sensors, robotics and software, to enable advanced and predictive analytics, that facilitate more sophisticated decision-making. The final result is end-to-end digitization across the supply chain and production process.

The [Global Lighthouse Network](#), a research project run by the World Economic Forum in collaboration with McKinsey, elects' companies that are at the forefront of adopting what it calls 'Fourth Industrial Revolution (4IR) technologies'. Companies like Unilever, Micron, Tata Steel, Novo Nordisk, Alibaba, Saudi Aramco and Hitachi used digital technologies to achieve significant [shifts in manufacturing productivity](#):

- Accelerating new product ramp-up by 20 percent (Micron)
- Improving demand forecast by 20 percent (Schneider Electric)
- Shortening order-to-delivery times by 75 percent (Alibaba)
- Reducing consumer complaints by 30 percent (Unilever)
- Increasing equipment efficiency and productivity by 30 percent (Novo Nordisk)

However, as a [white paper by the World Economic Forum](#) points out, not all companies adopting Industry 4.0 technologies are benefiting as intended, we at Four Principles are of the opinion that those technologies' benefits are realized when actively combined with Lean principles providing the solution to unlock the potential of these advances and to fully capture their value.

## Trend 2: Resolving Supply Chain Issues in Real Time

Supply chain disruption was the norm, rather than the exception in 2020, with some manufacturers even creating war rooms, where supply and demand planners came together to share updates, provide perspective and brainstorm alternate supply routes and workarounds.

In some cases, supply chain shocks (e.g., lack of cleaning supplies, protective safety equipment and ventilator components) revealed operational weaknesses, but for some companies, they actually presented opportunities for transformation. Today, with many manufacturers recalibrating global production, supply and demand are again hot topics.

Lean is an effective tool for addressing such supply chain issues. By implementing a [Lean supply chain](#), industrial facilities benefit from a system of interconnected partners, that coordinate to ensure a steady influx of needed materials, balancing supply and demand. With Lean, manufacturers have the metrics they need to continually monitor whether goals and objectives are being met.

Digital technologies come into play in this area as well, as manufacturers can use these capabilities to automate a digital supply network (DSN), gain a real-time overview and match needs with available materials across an ever-more-complex distribution network.

### Trend 3: Preventing Excess Product

One Lean principle that is particularly relevant to the pandemic era, is the use of a pull-based system in which products are manufactured to meet actual, rather than projected demand. With a pull system, manufacturers become more responsive, creating products to meet real-time customer demand rather than building up stock they must then store. This is one of the best ways to avoid excess product and all the inherent waste that goes with it.

By identifying value streams from the standpoint of the end user, Lean empowers leadership and management to more quickly recognize customer preferences, make nimbler adjustments to supply chain and manufacturing workflows, and achieve higher levels of customization. Disruptive technologies such as 3D printing, advanced robotics, AI and wearables can all help achieve this transformation if they are used effectively.

“By instituting a system of continuous improvement, manufacturers can ‘manage toward perfection,’ so that the number of steps and the amount of information needed to provide results for the customer is constantly reduced,” says Mehdi Chelhi, Principal at Four Principles.

### Trend 4: Leveraging the Power of Partnerships

According to a [2020 report by Deloitte](#), the most successful manufacturers today are achieving efficiency through powerful partnership strategies that allow them to rapidly develop and test new business models. Companies challenged to reduce the time to market must redesign operations and sales models, to speed production and more flexibly adapt to customer needs.

The right partnerships can help manufacturers drive competitive differentiation, scale faster and deliver better customer experience. With its emphasis on reducing rework and error risk, Lean provides a framework for crafting partnerships that create efficiency and avoid duplication. “A successful partner strategy across the value chain can boost engagement, produce better outcomes and greatly improve the customer experience,” says Patrick Wiebusch, Co-Founder & Managing Partner at Four Principles.

Four Principles provides clients with guidance in making selective partnership decisions and redesigning manufacturing processes, to integrate partners for the greatest efficiency gains and cost savings.

## Trend 5: Improving Environmental Sustainability

Environmentally sustainable production strategies such as waste reduction, re-use and improved energy efficiency, are able to add value, lower costs and shorten production times. They have also become crucial in achieving compliance with an increasingly complex regulatory landscape.

Implementing Lean as part of choosing new equipment, upgrading existing equipment, or selecting manufacturing components, can help managers evaluate environmental impacts and factor those into consideration. For example, the Lean concept known as Operator Care, is used to design standards of practice that reduce variations in the manufacturing process, leading to less waste of product and raw materials.

Many of the Industry 4.0 lighthouse companies have achieved such goals, reducing water consumption, recycling components, improving energy use and cutting emissions while reducing costs.

## Trend 6: Streamlining and Supporting the Workforce

In addition to reducing physical and operational waste, Lean addresses waste on the workforce side, preventing wasted resources in time and talent.

Many drags on workforce productivity can be resolved by integrating Lean and modern technology. For example, smart factories can analyze data collected from sensors inside production facilities, to observe quality and performance issues and carry out predictive maintenance, minimizing equipment downtime.

As a leading Lean consultancy for industry, Four Principles utilizes proven tools for optimizing manufacturing performance and re-programs companies to achieve the organizational change necessary, to meet the challenges of the post-pandemic era we are approaching. “The Lean transformation of a manufacturing or production facility, offers a way to continuously improve the management processes and eliminate waste at all levels of the cycle, adding value to the organization and customers,” says Ernest Nedic, Director Digital Kaizen Lab at Four Principles.

## Lean Manufacturing in 2021 and Beyond

It is clear that Lean Manufacturing is more essential today than at any other time, giving companies an ideal system for navigating a global business landscape that has been forever altered by the COVID-19 pandemic. Utilizing Lean in combination with new tools and technologies can help businesses iterate, solve problems and adapt to keep up with the unprecedented pace of change. The increasing emphasis on big data is particularly compatible with Lean: it provides metric and outcome monitoring and guarantees a more accurate view of gaps and strengths.

“Even more than before the pandemic, companies need to have a true understanding of the benefits their products provide to their customers and continue to deliver on those benefits,” says James Ryan, Principal at Four Principles. “Lean Manufacturing allows them to keep that promise.”

## GET IN TOUCH

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