

LTI

Let's Solve



Point of view

Industry 5.0 – Technology Trends **Transforming Manufacturing**

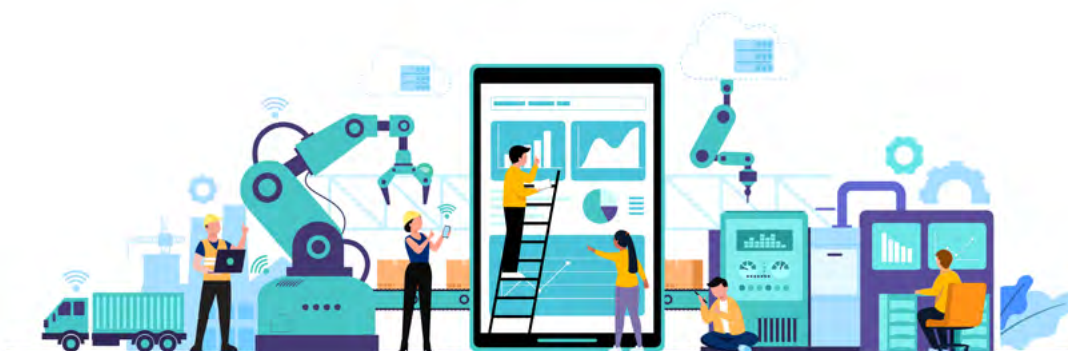
Across the globe, this year, “Technology Trends” reports have been governed majorly by the COVID-19 pandemic, which shifted market outlook and customer demand to a greater extent than ever before. This shift has been pressuring organizations to become more agile towards market demand, wanting to achieve business strength and create opportunities to survive in the reconnecting world post-pandemic, also known as the “New Normal”.

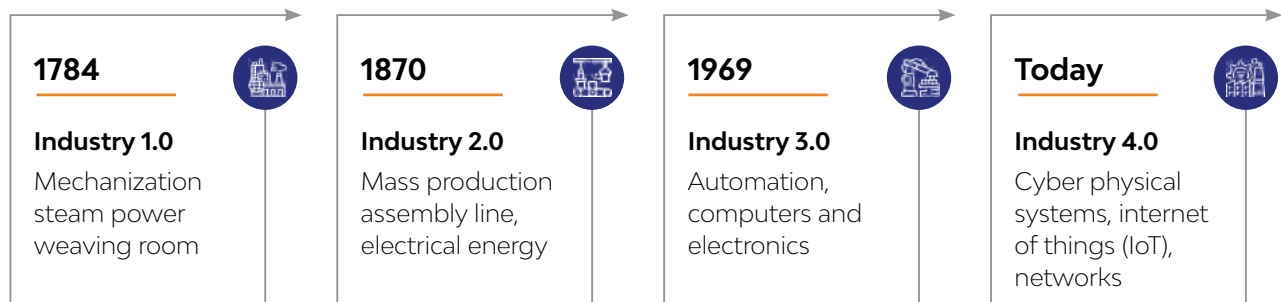
As economies are re-opening at different paces across the globe and the future is still uncertain, manufacturers – discrete and process, have to deal with the new reality of running their operations remotely with employees working from home, i.e. out of the four walls and eyes of a corporate/business office.

Digital transformation slowly diminishes the physical and organizational silos across and within organizations to connect multi-cultural, virtual teams and engage the real-time workforce to drive collaboration. All organizations are under immense pressure to manage their supply chains, minimize wastages and costs, improve productivity while maintaining flexibility for sudden market shifts.

Today, organizations worldwide are exploring the untapped benefits of mixing technology and operations through digital transformation. This mix of technology with company operations is crucial to stay in the competition.

Manufacturers and other multi-faceted industrial organizations today, irrespective of whether they are into Discrete manufacturing - ETO (Engineer-To-Order), MTO (Make-To-Order), CTO (Configure-To-Order), MTS (Make-To-Stock) or Process manufacturing face the increasing demand for real-time control and visibility. Throughout and across the supply chain, this includes its vendors and customers/consumers. In response, they have started to leverage Industrial IoT and Industry 4.0 technology and approaches, including 5G networking, cloud and edge computing, additive manufacturing, advanced analytics, digital twins, Mixed Reality (MR), ML, and other emerging technologies.





What's of prime and utmost importance is that customers start quickly realizing the business value from these technologies.

From a technology point of view, the Internet of Things (IoT) / Industrial Internet of Things (IIOT) is a collection of cloud services that connect, monitor and control millions of IoT assets. The architecture generally consists of an IoT Hub (service hosted in the cloud) that acts as a central hub for communications in both directions between an IoT and its attached devices. The IoT suite helps get us the best from both worlds, including the device SDK, which includes a cloud library and runs on various operating systems and devices. It's highly secure, enterprise-grade, with predictable pricing and industry-focused. With 5G, speed is the essence here, and it brings in the speed and agility to –

- ▶ Connect IoT devices to the cloud with ease and quickly.
- ▶ Availability of centralized management to configure, reconfigure, update devices.
- ▶ Work towards bridging the gap between business applications and IoT data.



The data is used for all three types of business statistics which help organizations take proactive, informed decisions, corrective and preventive actions; hence being productive, proactive, agile and providing solutions to focused challenges.

- ▶ Descriptive statistics/analytics – Collecting, summarizing and describing data.
- ▶ Inferential statistics/analytics – Drawing conclusions and/or making decisions concerning a population based on sample or continuous data.
- ▶ Predictive statistics/analytics – Predicting the future value of variables based on past/simulated values.

More and more players in the industry are making use of MR across different processes such as quality control, equipment management, production control and workforce training. In a Mixed Reality, virtual objects are fixated on the real world. It is a hybrid world of reality and virtual reality wherein digital and physical objects co-exist and interact in real-time and where users interact organically using head-mounted devices. MR solutions are a trailblazer in this regard and are used today for Task guides and Task management solutions with Design and Prototyping. Usage of MR for Remote Assist is lowest but is projected to grow in the coming years.

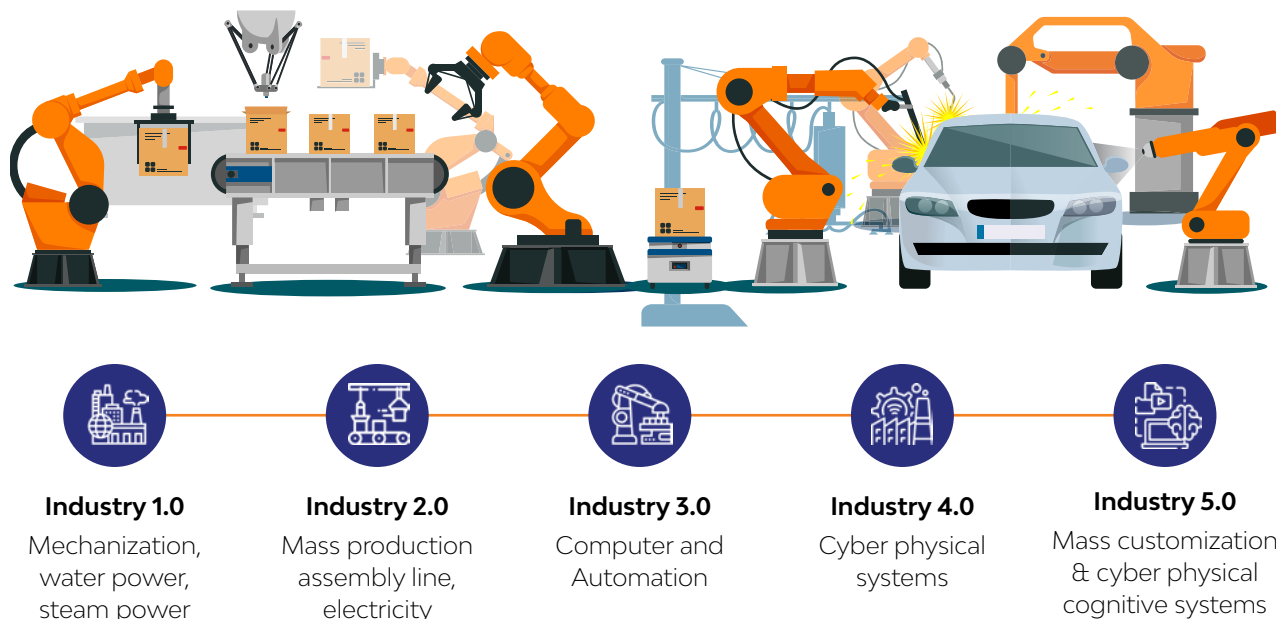


Thoughts on Mixed Reality and way ahead –

With Mixed Reality's unique immersive ability to blend the physical and digital, it offers solutions for use cases ranging from connecting remote experts to enhanced assembly procedures. It has eliminated the need for instruction materials or highly skilled personnel on customer sites by anchoring virtual objects to the real world. This real-time remote assistance to the new workforce has been a boon to companies specializing in Customer support/ maintenance at remote sites. Again, this technology has found its use in one

more area, i.e. training – With the help of MR enabled equipment; trainees can get training related information on real-world equipment/machines and parts and necessary simulation practice experience. This eliminates safety-related concerns for the new trainees as the learning process is digitally simulated. MR allows one to be present at multiple locations. In today's pandemic situation, looking at the myriad of opportunities opened by this technology, it is evident that MR is poised to stay here and mature further.

5G is collectively important when bundled with IoT and Mixed Reality; services will be strengthened via enhanced coverage reliability (in-doors and out-doors), voice reliability, data reliability, and speed. All these usages of IoT and MR can bear fruits once they are accompanied with 5G connectivity which enables the integration with the systems from remote most places. Many players in the industry today are investing in order to create a mesh of 5G enabled IoT, MR to improve productivity, increase automation, achieve higher flexibility in logistics and supply chain, and Intelligent asset and operations management.



Having moved past the concept of the new normal and the digital revolution of the prior several years, the concept of “Never Normal” has hit the planet already, and as we welcome the transformation with Industry 5.0; it has been predicted to be heavily twinned with digital technologies considering 5G, IoT and Mixed Reality as its base/basics. It's time to again thrive in a time of perpetual change.

About the Authors



Aditya Dhengale

Senior Software Engineer, LTI

Aditya has 5+ years of delivery and consulting experience in the Real Estate & Manufacturing sectors. He is currently responsible for delivering data-driven business outcomes for an American Elevator company. He holds an MBA from IIM Calcutta. His areas of expertise include project management, driving process improvements, data analysis and reporting.



Hemantkumar Savla

Associate Principal - Cloud Services and Software, LTI

Hemant has rich experience in manufacturing domain, working with pressure vessels, and precision equipment manufacturers. In his Information Technology career, Hemant provides consulting to LTI's Manufacturing (Discrete), Insurance and Retail clients. His expertise includes designing and delivering high maturity solutions for support, maintenance, and implementation. He also holds a post graduate degree in Business Management.

LTI (NSE: LTI) is a global technology consulting and digital solutions Company helping more than 460 clients succeed in a converging world. With operations in 33 countries, we go the extra mile for our clients and accelerate their digital transformation with LTI's Mosaic platform enabling their mobile, social, analytics, IoT and cloud journeys. Founded in 1997 as a subsidiary of Larsen & Toubro Limited, our unique heritage gives us unrivalled real-world expertise to solve the most complex challenges of enterprises across all industries. Each day, our team of more than 40,000 LTIites enable our clients to improve the effectiveness of their business and technology operations and deliver value to their customers, employees and shareholders. Find more at <http://www.Ltinfotech.com> or follow us at @LTI_Global.