



The Intelligent Enterprise

The Future of **MANUFACTURING**

JULY 2023





Overview

The Manufacturing industry is at crossroads today. It faces challenges such as geopolitical risks, supply chain disruptions, changing regulatory environments, workforce shortage, and changing consumer demands. Overcoming these requires innovation, collaboration, and proactive adaptation.

Fortunately, many of these challenges can be mitigated by technology. The future of Manufacturing will be shaped by advanced technology, automation, and AI. We are seeing early evidence of how smart factories, robotics, and 3D printing are transforming production processes for increased efficiency and customisation.

Manufacturing is all set to become more agile, efficient, and sustainable.



Drivers of Evolution in Manufacturing



SUPPLY CHAIN COMPLEXITY

Managing intricate global supply chains with multiple suppliers, partners, and logistics requires coordination, visibility, and risk management.



BALANCING SKILLS SHORTAGE & AUTOMATION

Balancing human labour with automation poses challenges in optimising productivity and efficiency – especially as it requires manufacturers to upskill and address workforce concerns.



SUSTAINABLE PRACTICES

As building a sustainable value chain becomes a priority for all industries, manufacturers have to set and meet their sustainability goals while maintaining cost-efficiency.



Key Tech Trends in Manufacturing 2023 & Beyond



PRODUCT AS A SERVICE BECOMES ACHIEVABLE

While this has been an emerging trend for a while now, the maturation of technologies such IoT, AI, and predictive analytics, coupled with significant changes in consumer behaviour, is finally making 'servitisation' a reality.



INCREASE IN IIOT USE CASES

Use cases include predictive maintenance, asset tracking and management, quality control, supply chain optimisation, energy management, and remote monitoring and control. The focus is on insights to improve efficiency, reduce costs, and enhance overall performance across business units.



ERP MODERNISATION

This is being prompted by cloud adoption and the need for system consolidation. Manufacturers are focusing on simplicity and not heavy customisations – identifying actual business needs and designing replicable templates and best practices that support those needs.



Manufacturer Business Priorities are Shifting



+46%

Cost
Optimisation



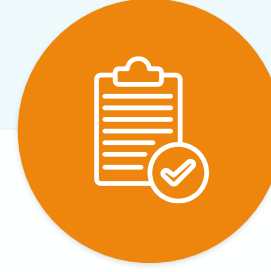
+45%

Innovation



+43%

Business
Continuity



-66%

Compliance
with
regulations



-37%

Revenue
Growth



Increased Focus since 2022



Decreased Focus since 2022

Source: Ecosystem Digital Enterprise Study, 2023



The World Economic Forum's Global Lighthouse Network

“Lighthouses are manufacturers showing leadership in applying 4IR technologies at scale to drive step-change financial, operational and sustainability improvements by transforming factories, value chains and business models.

Lighthouses help manufacturers around the world adopt the latest technologies through a shared learning journey. They serve as beacons to overcome the challenges in upgrading technology at scale in manufacturing.”

WEF





Fourth Industrial Revolution (4IR) in Asia Pacific



ASE Taiwan's wafer bumping factory faced challenges due to the complexity of semiconductor chip manufacturing and market disruptions. To overcome these challenges, they adopted 4IR technologies, including AI-enabled processes. The implementations resulted in improved manufacturing yields and accuracy – 67% increase in output and 39% reduction in order lead time.



CEAT India deployed 4IR use cases like advanced analytics to optimise cycle times and IIOT to ensure 100% coverage of operator touchpoints. They experienced 46% decrease in process scrap; 15% reduction in energy consumption; and this meant a ~2.5x increase in export and OEM sales in two years.



Lenovo China
To meet competitive challenges and dynamic customer demands, they implemented over 30 4IR use cases, including automation and advanced analytics. The results included 45% increase in productivity, 55% decrease in supplier quality issues, and a more efficient handling of a high volume of small customer orders.



Fourth Industrial Revolution (4IR) in Asia Pacific



FOXCONN

Foxconn China

They deployed 37 different 4IR use cases to enable agile product development, faster capacity ramp-up, and smarter mass production. This resulted in a 29% acceleration in new products to market, 50% faster ramp-ups, 56% reduction in quality non-conformance, and 30% reduction in manufacturing cost.



Johnson & Johnson
CONSUMER HEALTH

J&J Consumer Health India

They deployed 4IR solutions such as demand sensing, smart logistics, robotics, and 3D printing, leading to 66% reduction in On Time In Full (OTIF) losses, 33% acceleration in new product introduction, and a 34% improvement in cost per piece.



Agilent
Trusted Answers

Agilent Technologies Singapore

Through the adoption of 4IR, they optimised productivity by 60% and increased output by 80%. They have also demonstrated a commitment to sustainability by improving efficiency and relying more on renewable energy sources.



Ecosystem Opinion



Kaushik Ghatak
Principal Advisor
Ecosystem



The need to deliver customer value is driving a complete relook of the key strategic initiatives of the Manufacturing industry today. Automation and robotics is helping build efficiency, flexibility, and precision into production processes. Digitalisation is pushing the adoption of technologies such as IoT and AI, optimising operations and making supply chains resilient, agile, and flexible. Sustainability is gaining prominence as eco-friendly practices and materials are adopted to reduce environmental impact.

Collectively, the Manufacturing industry is rapidly advancing towards facilitating business models, processes, and product innovations, paving the way for the factories of the future.



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