ISG® imagine your future®

ISG PREDICTS

Smart Manufacturing Accelerates Adoption Post-pandemic: 2020 – 2025

Jim Routzong

ISG WHITE PAPER

INTRODUCTION

Early in the first quarter of 2020, companies in the smart manufacturing and Industry 4.0 sectors around the world were anticipating another strong year with an accelerating global economy after more than a decade of rapid growth. In January 2020, market research firm MarketsandMarkets forecasted year-over-year accelerating growth for the smart manufacturing market with a total market value of $214.7 billion in 2020 and continued strong growth through 2025, reaching a projected total market value of $384.8 billion and a 12.4 percent CAGR from 2020 to 2025. See Figure 1 below.

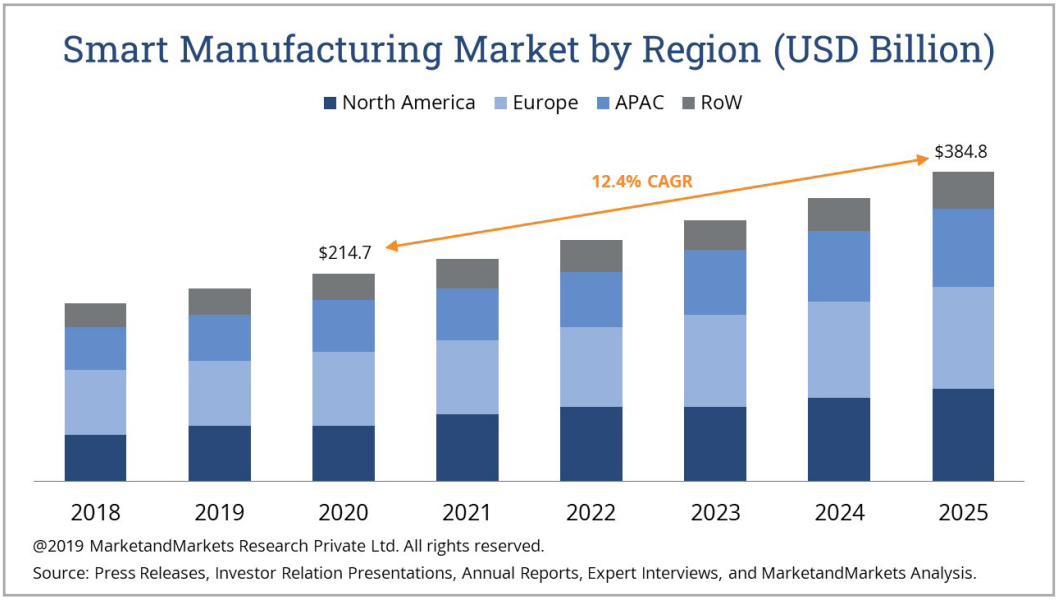

Figure 1: January 2020 Smart Manufacturing Market, by Region (USD Billion)

When the COVID-19 pandemic hit in the first quarter of 2020, the impact on the global economy was significant, and the smart manufacturing segment felt it with the loss of 1.3 million manufacturing jobs in the U.S. during the month of April. As Asia-Pacific, Europe and North America shut down their economies with governmental stay-at-home orders, MarketsandMarkets and other industry research firms began to publish a post-COVID-19 year-over-year forecast with a revised impact to 2020, predicting a negative growth rate with a drop of 16 percent. Figure 2 illustrates the revised projection with estimated growth for the market from $181.3 billion in 2020 to $220.4 billion in 2025, a CAGR of 4.0 percent. While this is less than one-third of the pre-COVID-19 forecast, it still predicts a healthy recovery starting in 2021.

Increased demand for smart manufacturing products and services in response to the public health crisis will drive further growth. This will likely spur continued evolution of digital twin technology – digital replicas of potential and actual physical assets, processes, people, places, systems and devices – in maintaining manufacturing operations across the ecosystem and a rapidly expanding role for collaborative robots in the healthcare and manufacturing sectors.

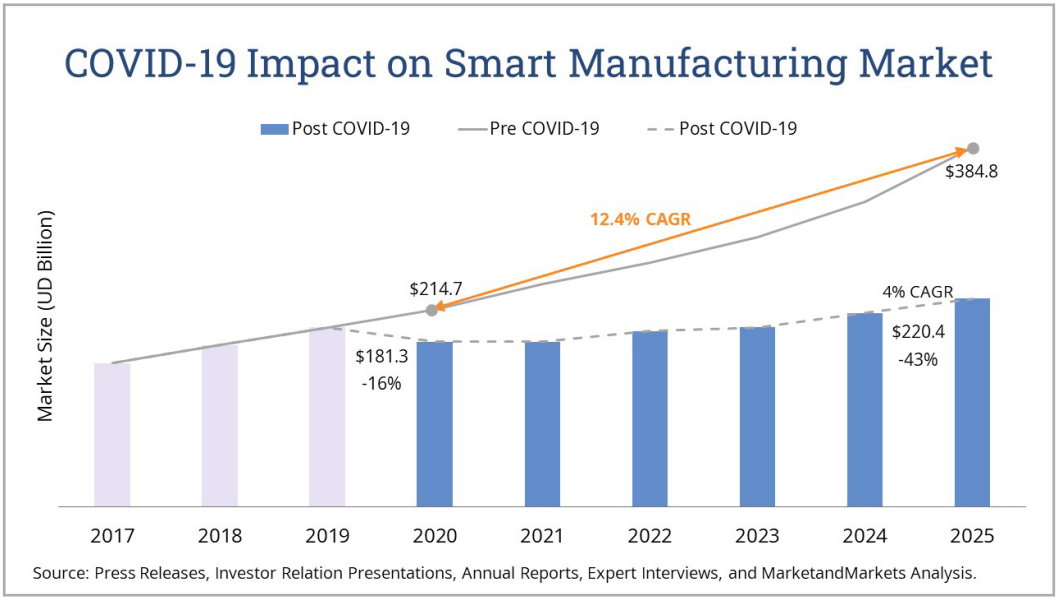

Figure 2: April 2020 Post COVID-19 Smart Manufacturing Market, by Region (USD Billion)

Although some forecasts are conservative, plenty of industry researchers and executives are bullish. Research firm Keypoint Intelligence projects that "COVID-19 is causing radical shifts in workflow across the world's millions practicing social distancing to comply with self-quarantine recommendations. Although there is no doubt that COVID-19 is a transformative force, it is not bringing us into Industry 5.0." Keypoint Intelligence also forecasts the following trends:

- COVID-19 is accelerating the adoption of Industry 4.0 products and services, leading companies across industries into a more mature state of internet of things (IoT)-based technology and workflow.
- Although businesses have had reason to embrace digital workflows in the past, COVID-19 has provided another strong incentive to move toward a smart factory, complete with smart manufacturing or smart printing processes.

- While conventional wisdom says a dedicated office space is required to maximize productivity, this theory is being put to the ultimate test as we speak.
- While the COVID-19 pandemic has not triggered Industry 5.0, it has brought home the reality of Industry 4.0. Digital workflows and automation are no longer goals; they are requirements. IoT devices have offered organizations a path toward preserving revenue streams during this pandemic. The future is here, but only the savviest businesses will bring it to its full potential.

We believe smart manufacturing will rebound aggressively, even after a downturn this year.

Bullish projections show accelerated growth for smart manufacturing starting in 2021 along the same trend line of the pre-COVID projections, or an even stronger trend line as the pre-COVID projections as represented in Figure 3. The green line in Figure 3 below represents the possibilities of growth starting in 2021 through 2025.

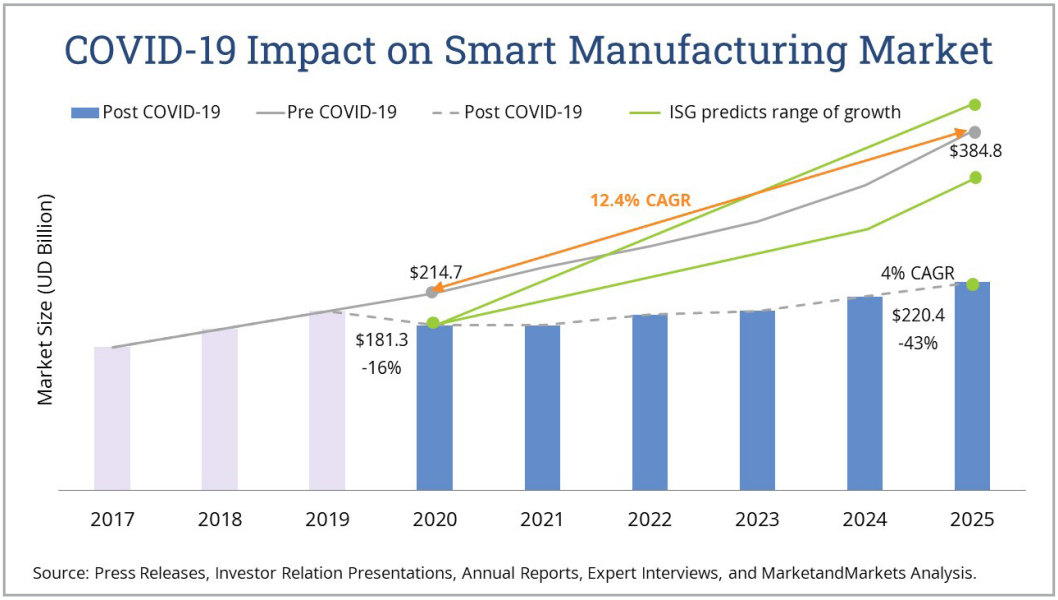

Figure 3: April 2020 Post COVID-19 Smart Manufacturing Market, by Region (USD Billion) with More Aggressive Trend Lines

After reviewing and analyzing these market projections, we believe smart manufacturing will rebound aggressively, even after a downturn this year. The primary questions are: by how much will the smart manufacturing industry rebound? Will it surpass the early 2020 pre-COVID projections or will the rebound be more dampened?

The growth of smart manufacturing will depend on the global economy and a reshuffling of the manufacturing industry across the globe between 2021 and 2025. We believe smart manufacturing will grow at the same or at a higher rate than the pre-COVID-19 market projections, shown in Figure 3 as a range of potential growth between the two green lines, depending on the nature of the rebound of the global economy.

Smart Manufacturing Adoption and Trends

The adoption rates for smart manufacturing and Industry 4.0 products and services have increased significantly over the past decade. **IoT Analytics' Market Insights for the Internet of Things January 2020** validated these adoption rates when it interviewed 150 senior manufacturing executives around the world.

Figure 4 below illustrates the findings of the survey, showing 28 percent of Industry 4.0 technologies inquired about are fully rolled out or used extensively at manufacturers today and 25 percent of the Industry 4.0 use cases as inquired about by IoT Analytics are fully rolled out or used extensively. Figure 4 also lists the top Industry 4.0 technologies and use cases adopted by respondents. The top three most-adopted smart manufacturing technologies are related to cybersecurity (with 74 percent of the technologies inquired about in the survey extensively or fully rolled out), cloud (with 65 percent of those inquired about rolled out) and IoT (with 48 percent rolled out). The top three most common use cases include condition-based monitoring (with 37 percent of the use cases extensively or fully used in everyday operations), over-the-air updates (with 32 percent of those inquired about rolled out) and remote service (with 31 percent rolled out).

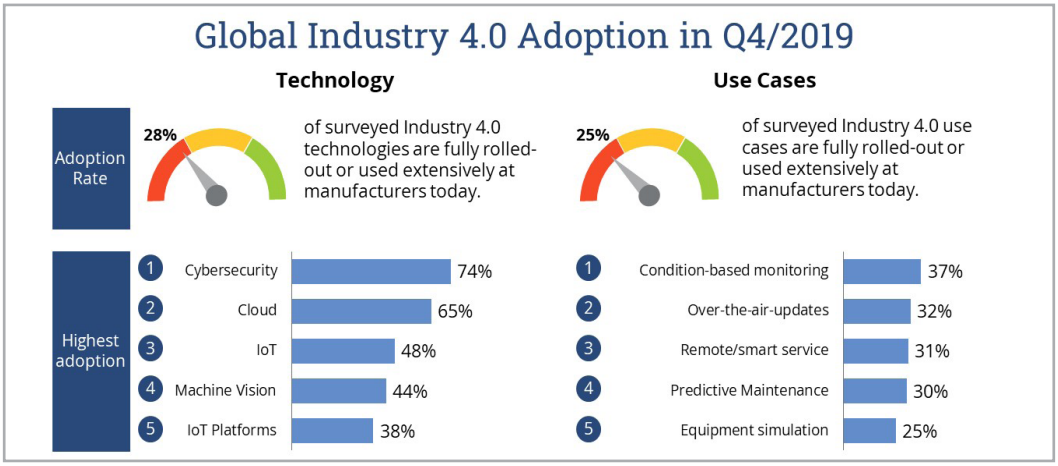

Figure 4: Global Industry 4.0 adoption in Q4/2019

Figures 5a, 5b and 5c show further findings of the survey, including smart manufacturing adoption by global region, the top five most-adopted technologies, the top three use cases, the top three challenges, the top three most popular technology vendors and the leading market adopters. North America leads overall technology adoption across the world, ahead of Europe by nine percentage points and APAC by 16 percentage points. The top technology globally continues to be cybersecurity with the ever-increasing number of security threats related to IoT and industrial internet of things (IIoT) initiatives. Cloud and IoT technologies continue to expand their footprint in the industrial and operations areas. While value-add use cases continue to grow in number, the current leading use cases being adopted are conditional monitoring, remote services, predictive maintenance and over-the-air (OTA) updates.

The top three most common challenges companies face in adopting Industry 4.0 technologies include the difficulty of obtaining top talent, skills and experienced resources.

Further, the top three most common challenges companies face in adopting Industry 4.0 technologies include the difficulty of obtaining top talent, skills and experienced resources. The next two most common challenges are the interoperability of technology and immature technology. The leading technology vendors vary by region. Microsoft, IBM and AWS are the most popular technology vendors in North America; ABB, Siemens and SAP are the leading vendors in Europe; HUAWEI, Alibaba Group and FANUC are the most popular in APAC. The manufacturers leading in adoption of Industry 4.0 products and services by region include GE, Boeing and Tesla in North America; SIEMENS, ABB and BMW in Europe; and Toyota, HUAWEI and FOXCONN in APAC.

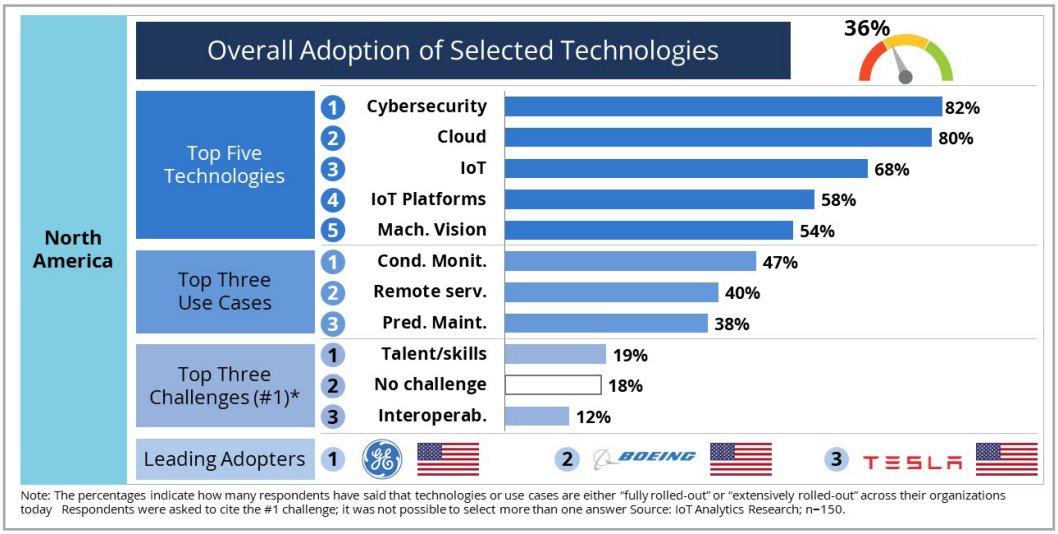

Figure 5a: Regional Industry 4.0 adoption in Q4/2019 – North America

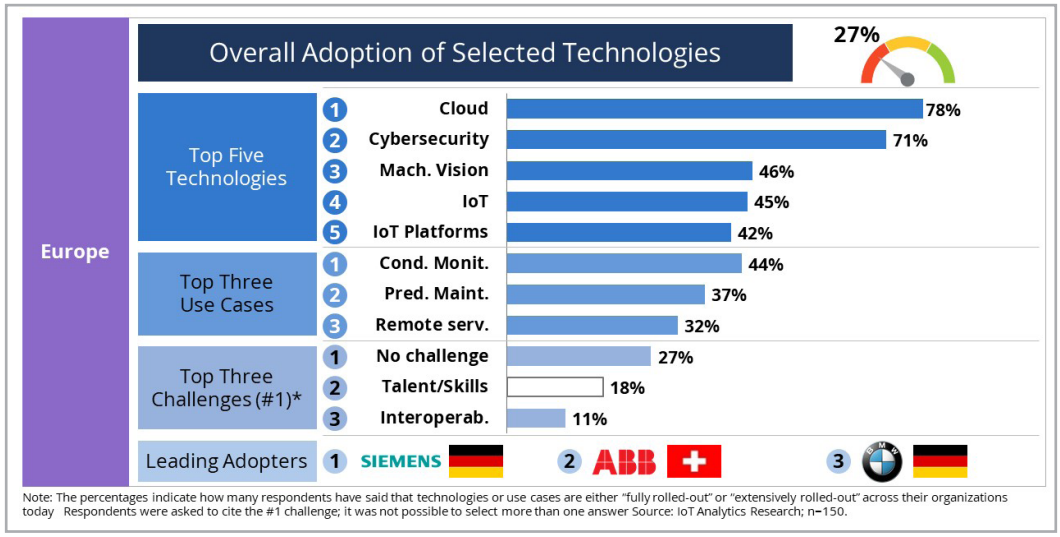

Figure 5b: Regional Industry 4.0 adoption in Q4/2019 – Europe

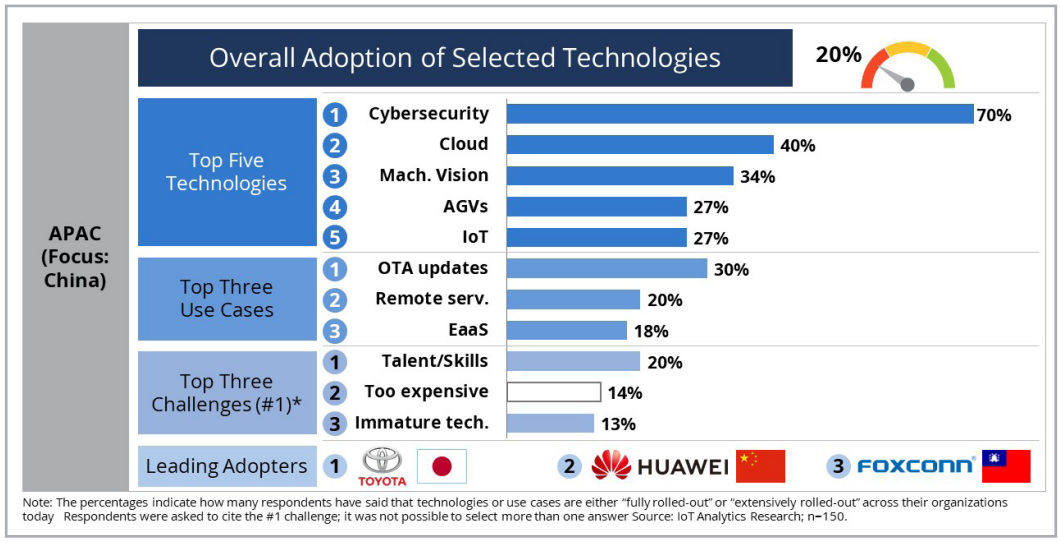

Figure 5c: Regional Industry 4.0 adoption in Q4/2019 – APAC

ISG sees the trends in manufacturing falling into three categories: 1) the manufacturing industry pre-COVID, 2) other manufacturing operations and technology pre-COVID, and 3) the manufacturing industry post-COVID.

Trends that existed in the pre-COVID manufacturing industry include:

- Growing adoption of Industry 4.0 throughout the world
- Increasing emphasis on industrial automation in manufacturing processes with increasing government support
- Growing emphasis on regulatory compliance
- Increasing complexity and integration of supply chains
- Surging demand for software systems that reduce time and cost and improve overall equipment effectiveness (OEE)
- Exponential increase in number and severity of cyber threats to operational technology (OT) and interconnectivity to IT networks with significant growth of IoT devices
- Increasing adoption of intelligent automation being driven by a shift to the middle and front office, disruption of workplace jobs and skills requirements, evolution of artificial intelligence (AI) for security services, and robotic process automation (RPA) becoming more intelligent with the application of tools such as AI, machine learning, optical character recognition (OCR) and advanced analytics.

The trends in the manufacturing operations and technology pre-COVID can be broken into two groups: 1) those disruptive to the ISA-95 levels and 2) other disruptive trends. The trends that are disruptive to the ISA-95 include:

- Migration of applications and data to the cloud
- Collapse of the convergence of ERP and MES layers and MES and SCADA layers
- Connectivity between edge computing and the cloud.

Figure 6 demonstrates the evolution of the three trends disrupting ISA-95 levels.

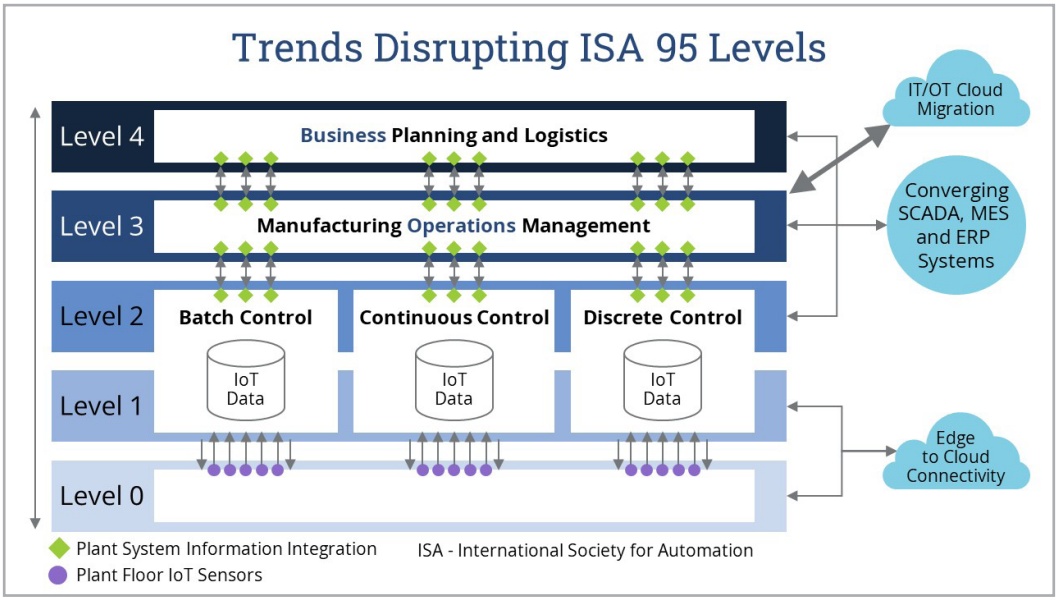

Figure 6: Trends Disrupting ISA 95 Levels

Trends that were disrupting other manufacturing operations and technology areas before the COVID-19 pandemic include:

- Increased alignment between applied analytics and digital production transformation and supply chains
- Increased use of virtual and augmented reality (VR/AR) technology to simulate manufacturing production and virtual protypes and use of digital twins to optimize the product lifecycle
- Use of near-real-time 5G networks to connect factory automation with a local radio network and enable scenarios such as robotic peer-to-peer communication without latency
- Virtualization of programmable logic controller (PLCs) into software programs
- Increased adoption of manufacturing sold “as a service”
- Increased adoption of machines sold “as a service”
- Increased flexibility in production setups
- Increased integration of value chains
- Increased use of the internet by new distribution methods.

The COVID-19 pandemic immediately brought about significant change and introduced a new set of trends that are both accelerating and dampening smart manufacturing adoption and growth. What will happen post-COVID-19? We believe all pre-COVID-19 trends previously listed will remain valid with some fluctuating impact on the growth and adoption of smart manufacturing. The following trends to watch for post-COVID-19 represent a combination of findings compiled by MarketsandMarkets, Keypoint Intelligence, MarketWatch and ISG.

- Acceleration of Industry 4.0 adoption, leading companies across industries into a more mature state of IoT-based technology, processes and workflow
- Faster enterprise movement and commitment to building smart factory portfolios
- Increasing demand for smart manufacturing products and solutions
- Increasing importance of the digital twin in maintaining operations in the manufacturing ecosystem and product development
- Emerging and expanding role of collaborative robots to address manpower deficits during social distancing requirements
- Repair of COVID-19 ruptured supply chains from China, specifically in Wuhan and Hubei provinces
- Transition of manufacturing supply chain back to the U.S. and Europe for national security related industries and products, new greenfield plants, and expanded brownfield plants
- Growth of manufacturing systems in IT to monitor real-time production and plant operations and reduce on-site plant-floor employees in response to COVID-19 social distancing requirements
- Growth of CAGR in pharmaceutical industry and a shift of manufacturing out of China and India to diversify the supply chain and reduce risk to the end market.

As the world mitigates the fallout from COVID-19 and maneuvers into the new future, manufacturers will need to consider these trends in designing their smart manufacturing adoption strategies and roadmaps. The following strategies should be considered.

Smart Manufacturing Adoption Strategies

Smart Manufacturing Centers of Excellence (CoEs)

Manufacturers have used multiple approaches to build smart manufacturing initiatives. A common approach is the establishment of an advanced or smart manufacturing CoE. These rely on centralized incubators to nurture smart manufacturing ideas and use cases, design and validate the ideas in a lab environment and sell them to manufacturing divisions or companies under their corporate umbrella or even to individual plant operations or product lines. The concept of a smart manufacturing CoE has been used by manufacturing companies around the globe and especially those in North America. The problem with this approach is that the thinking has been too small, with low return on investment with smaller use cases and initiatives and less-than-desired adoption. The concept of a smart manufacturing CoE is valid and good, but its operational deployment has often been too tactical and produced sub-optimal results with lower than desired ROIs for many smart manufacturing programs.

The concept of a smart manufacturing CoE is valid and good, but its operational deployment has often been too tactical and produced sub-optimal results.

Smart Manufacturing Use Cases

Over the past five years, many manufacturers have developed smart manufacturing use case strategies by forecasting value and ROI, but use cases were not always well defined and the ROI was difficult to predict. Today, use cases are better defined and validated across many manufacturers with a predictable history of success. Figure 7 below presents research findings of the eight leading smart manufacturing use cases, showing 37 percent of respondents have either extensively or fully rolled out condition-based monitoring into everyday operations; 12 percent of those surveyed said manufacturing-as-a-service is extensively or fully rolled out into everyday operations.

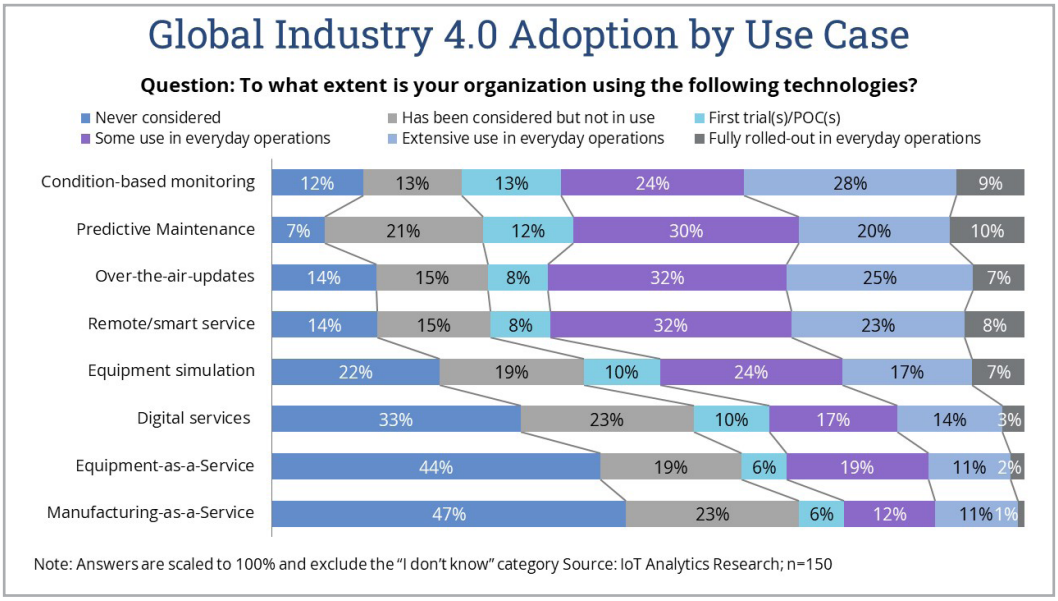

Figure 7: Global Industry 4.0 Adoption by Use Case

The benefits of smart factories include significant operational value and efficiencies, which translate into significant ROI.

Smart Factories

Smart factories are major strategic investments that include a broad range of technologies, use cases and product lines. The benefits of smart factories include significant operational value and efficiencies, which translate into significant ROI. Some of the more successful manufacturers deploying smart manufacturing use a smart factory strategy. These manufacturers see the value in thinking big and going big with their smart manufacturing initiatives.

Outstanding examples of smart factories are the World Economic Forum (WEF) Lighthouse Factories, which are the most advanced in the world, deploying a wide range of Industry 4.0 technologies and use cases to scale. In 2017, the WEF began recognizing advanced manufacturing technologies and use cases as many manufacturers initiated pilot programs or initiated their smart manufacturing CoEs. In 2018, the first 16 Lighthouse Factories were recognized. In January 2020, the **WEF recognized 18 new smart factories into their Global Lighthouse Network** of advanced manufacturers demonstrating global leadership with the application of Industry 4.0. Currently, 44 smart factories around the world are distinguished as part of the Global Lighthouse Network.

Figure 8 below lists the key performance indictors (KPIs) as identified by the WEF and the performance improvements and percentage impacts that End-to-end (E2E) Lighthouses and Lighthouse Factories have demonstrated. The KPIs include productivity, sustainability, agility, speed to market and customization. The E2E Lighthouses have demonstrated significant positive improvements across all categories and KPIs from five percent to 200 percent across the scale compared to their historical performances. KPIs in the productivity category have shown the greatest improvement with increases in factory output and quality cost reduction. The agility indicator represents the second highest improvement with strong showings across lead time reduction, change-over shortening and inventory reduction, in that order. The third strongest indicator is speed to market with strong showings across speed-to-market reduction and design-iteration-time reduction.

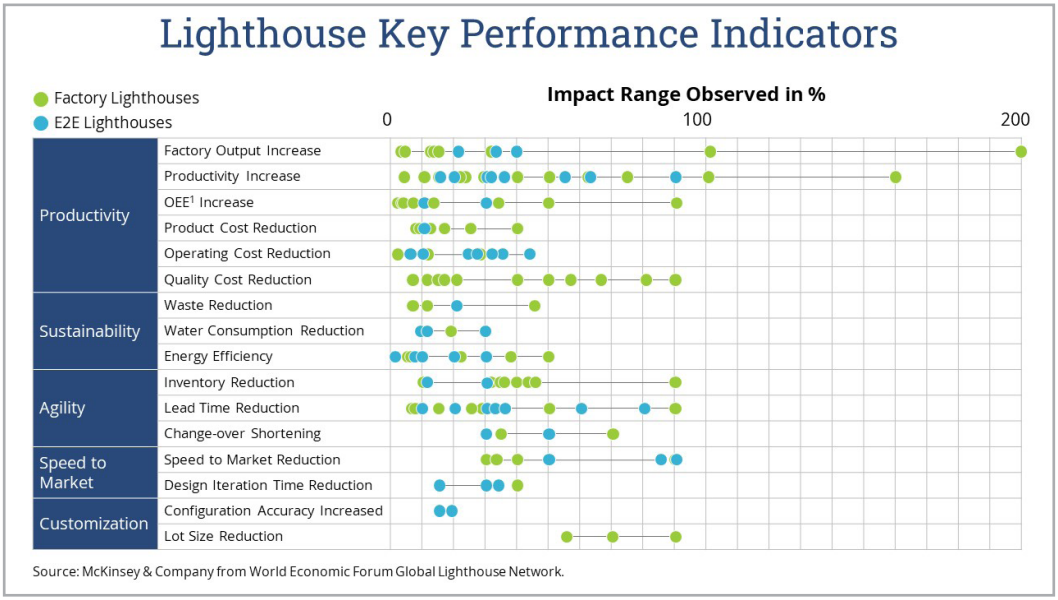

Figure 8: WEF's and McKinsey & Co. E2E Lighthouse Key Performance Indicators

Figure 9 provides four examples from different regions of the globe of recent Lighthouses recognized by the WEF for their advances in Industry 4.0 adoption. The following is a short explanation of each of the four Lighthouses.

The AGCO Lighthouse in Germany demonstrates significant productivity improvements across the production of their diversified portfolio of tractors through digital solutions and intelligent manufacturing line design. The company achieved KPI improvements by reducing cycle time 60 percent and improving productivity by 24 percent. It also reduced transportation costs by 28 percent, reduced the time to identify field-quality issues by 30 percent and improved on-time delivery by 20 percent. The leading use cases for delivering this performance value include digitally enabled variable takt time, which is the average time to start production of one unit to the next, virtual build for design to manufacture and line balancing, intelligent transformation management, advanced analytics for quality monitoring, and digital supplier performance management.

ISG recognizes members of the Global Lighthouse Network as excellent examples of smart factories that manufacturers can leverage as part of a smart factory strategy and as models for operational excellence.

The GE Healthcare Lighthouse in Japan embraced Industry 4.0 technologies on top of their lean manufacturing process culture and history to stairstep improvement of cutting costs by 30 percent, reducing cycle time by 46 percent, reducing labor by 33 percent, and reducing walking distance for inventory picking by 43 percent. The use cases include application-based eAndon notification on the production lines, operators' biometrics, real-time performance monitoring with visualization, RFID eKanban material movement, and eSpaghetti visualization for optimized route walking through the plants.

The Johnson & Johnson Vision Care Lighthouse in the U.S. digitally connected its value chain end-to-end from suppliers to consumers and reconfigured manufacturing operations to achieve double-digit cost reduction and sales growth. The performance impact also includes double-digit conversion rate improvement of customers, 30 percent reduction in development and launch timeline, 13 percent reduction in inventory levels and reductions in FTE labor. The leading use cases include digital customer collaboration, modular platform for rapid manufacturing line reconfiguration, IIoT-enabled advanced process automation, E2E supply chain visibility platform and vision-guided robotics order fulfillment.

The Groupe Renault Lighthouse in Brazil engaged Industry 4.0 technologies to improve employee accountability and E2E connectivity and develop a connected ecosystem across value-chain players, including dealers, customers and workers. The performance improvements include an 18 percent productivity uptick without capital deployment.

Other positive performance impacts include a 10 percent sales increase with one model, a 19-percent reduction of non-value-added activities, a 10-percent reduction in cost per unit, a 30-percent reduction in lead time and a 20-percent time reduction to fill blue-collar labor positions. The top contributing use cases includes customer connectivity B2C e-commerce platforms, connected workforce for driving performance, flexible automation for automatic guided vehicles and cobots, E2E vehicle delivery tracking and digital recruitment platform tailored to the shop floor.

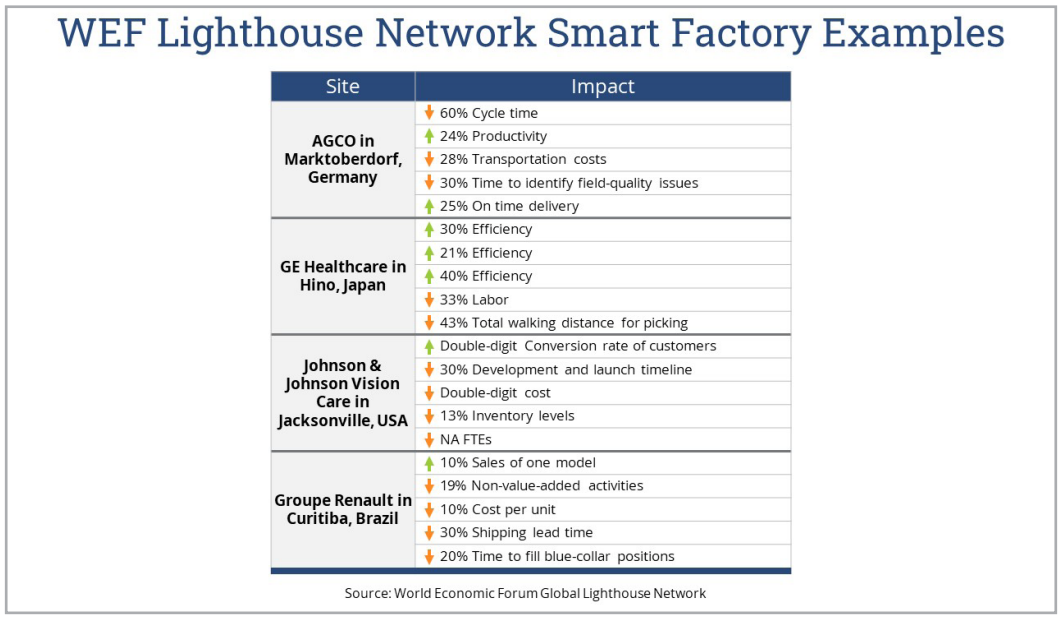

Figure 9: WEF Lighthouse Examples across the Globe

ISG recognizes members of the Global Lighthouse Network as excellent examples of smart factories that manufacturers can leverage as part of a smart factory strategy and as models for operational excellence.

Six Core Initiatives for Establishing a Smart Factory

ISG recommends the following six core initiatives as represented in Figure 10 for initiating a transformation roadmap to establish smart factories.

1. **Individualized product-as-a-service:** Offer customized consumption-as-a-service to enhance the customer experience with the owned product or for shared services like shared usage.

2. **Faster response to change:** Use flexible manufacturing, digital twins, and AI technology across production lines and units to promote flexibility, and self-healing to significantly improve responsiveness to change.
3. **The fully networked plant:** Increase transparency, flexibility, and degree of individualization with a connected and a fully digitized supply chain.
4. **Productive innovation through technology:** Innovate to achieve shifts in performance. Deploy 5G networking, additive manufacturing, and AI to change the face of manufacturing and innovate for shifts in performance.
5. **Central command and control structure:** Use a single command and control center to monitor and steer local production units for quick reactions.
6. **Consolidated operational business view:** Create a software-based central view of critical commercial and operational KPIs across the manufacturing environment.

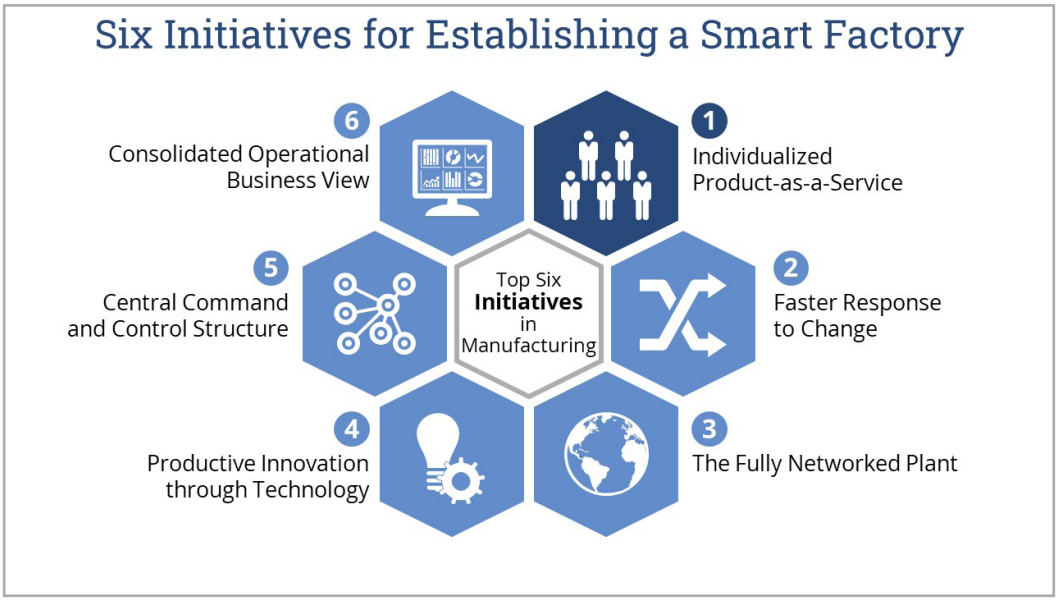

Figure 10: ISG's Six Core Initiatives for Establishing a Smart Factory

The use of new digital technologies, such as additive manufacturing, AI, cloud computing, big data, analytics and IIoT, enable manufacturers to increase flexibility and innovation so they can respond more quickly to the needs of customers, partners and employees.

Maximizing Value and Return on Investment (ROI)

One of the challenges for smart manufacturing initiatives has been achieving ROI targets, but manufacturers' perceptions about and realization of ROI have improved over the past couple of years. Figure 11 below illustrates the findings of an IoT Analytics survey that shows 78 percent of smart manufacturing initiatives are producing positive ROI results and 27 percent are amortizing within a year. This is a positive result that will only continue to improve as manufacturers achieve greater and greater ROI across their use cases, initiatives and smart factory programs.

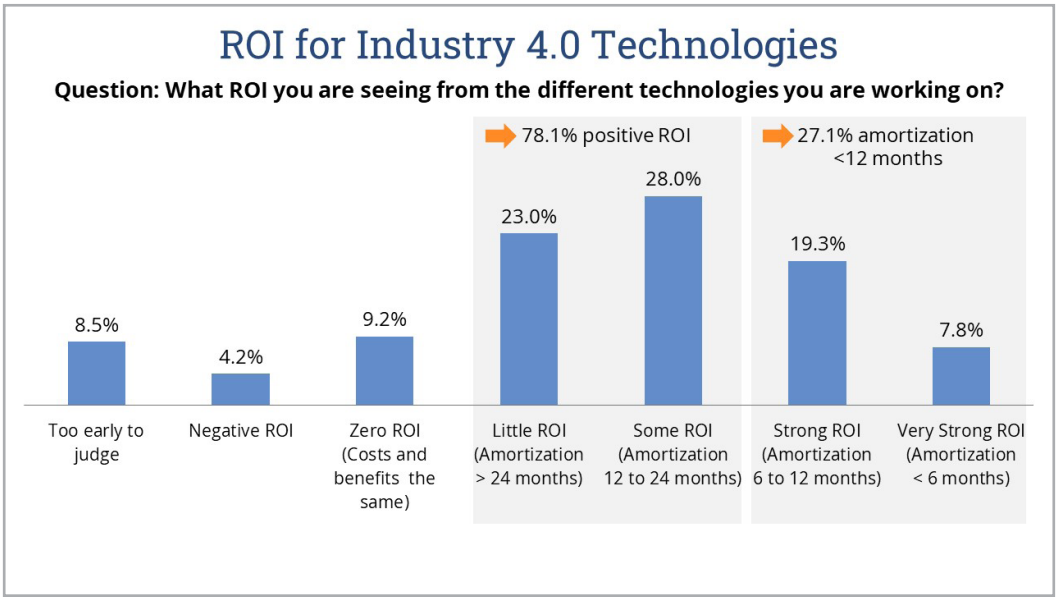

Figure 11: ROI for Industry 4.0 Technologies

Further breakdown of ROI by Industry 4.0 technologies, as seen in Figure 12, reveals machine vision (43% amortization in first 12 months), digital twin (38% amortization in first 12 months), automated guided vehicles (AGVs) (37% amortization in first 12 months), cobots (35% amortization in first 12 months), and 3D printing (32% amortization in first 12 months) are the top five leading Industry 4.0 technologies for ROI.

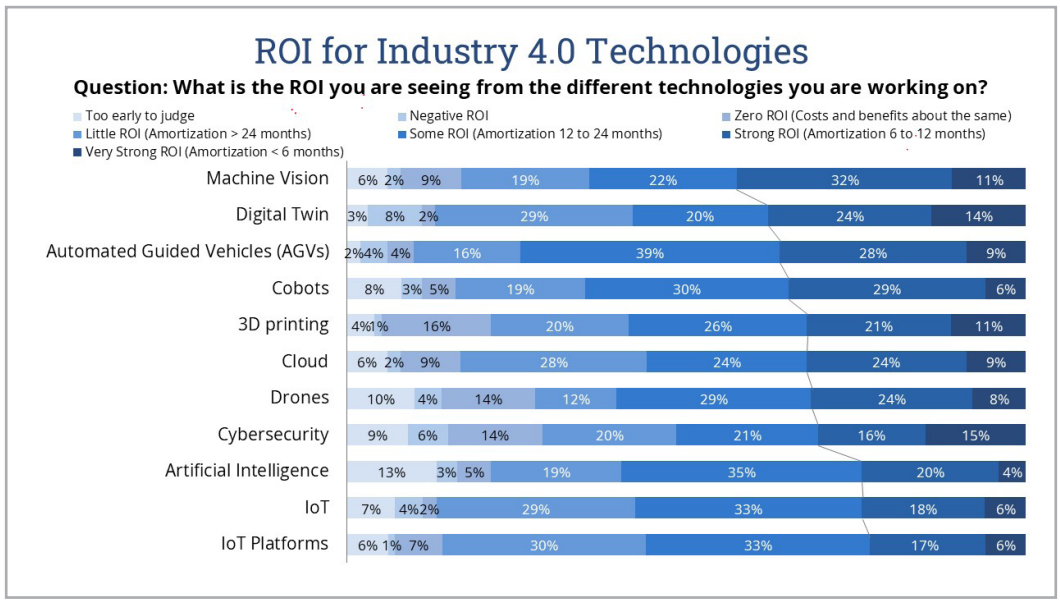

Figure 12: ROI for Industry 4.0 Technologies – by Technology

Maximizing value and ROI of smart manufacturing initiatives starts with understanding critical success factors and planning carefully to execute them.

Maximizing value and ROI of smart manufacturing initiatives starts with understanding critical success factors and planning carefully to execute them. Figure 13 lists the top ten Industry 4.0 critical success factors for smart manufacturing implementations. The most common cited by the IoT Analytics survey include 1) investment of people and training, 2) development of the business case with accurate projections for ROI and overall value, 3) definition of the problem, customer need, use case and value proposition, and 4) a change management and communication strategy. Manufacturers should review the top ten as identified by IoT Analytics and focus on the factors that best enhance their probability of successful smart manufacturing implementations.

Figure 13: Industry 4.0 Implementation Success Factors

Regardless how aggressive the smart manufacturing growth and adoption rates are in the years that follow the COVID-19 pandemic, we recommend manufacturers maximize smart manufacturing value delivery and ROI.

Manufacturers that remain flexible, adaptable and agile and that invest in leading smart manufacturing technology are far more likely to successfully traverse the impact of the pandemic and come out ahead as the economy resumes. The risk of sub-optimizing use cases and underachieving ROIs is real, but a smart manufacturing CoE incubator can validate technology innovation for larger use cases and smart manufacturing initiatives.

Regardless how aggressive the smart manufacturing growth and adoption rates are in the years that follow the COVID-19 pandemic, we recommend manufacturers maximize smart manufacturing value delivery and ROI. The following approach will help manufacturers achieve smart manufacturing implementation and deployment success and capture greater value.

This begins with developing a smart manufacturing vision, strategy and multi-year deployment roadmap that covers the entire defined program, including plants that are in-scope, programs, projects and use cases. Using a **strategic top-down and holistic approach** at a conceptual level is critical to developing a big picture vision, strategy and objectives that maximize value delivery and ROI. **Build a business case from the bottom up to justify and validate use cases** from detail cost/benefit analysis to ensure the desired return on investment can be achieved.

The next step is to build or transform a smart manufacturing CoE to support bigger smart factory programs. Innovate and validate new concepts within targeted programs. Initiatives and use cases should complement and build on each other to maximize value and ROI holistically across the smart manufacturing program. Strive to optimize by avoiding and eliminating sub-optimal smaller uses cases that return underachieving ROI and build toward greater overall value and accumulative ROI.

Go bigger with smart factory programs built on larger, proven use cases that show greater ROI.

Go bigger with smart factory programs built on larger, proven use cases that show greater ROI. Focus on proven and higher-valued use cases such as additive production, digital product engineering, optimized operations, data analytics-driven plant performance operations, condition-based monitoring, predictive maintenance and remote smart service. Review and select one or multiple World Economic Forum Global Lighthouse Network smart factories after which to model your smart manufacturing programs and use their key performance achievements as targets. Continue to learn and modify your smart factory program based on Lighthouses with new ideas and innovation as they are added to the network.

Develop a smart manufacturing framework reference architecture that evolves over time and provides a foundational architecture across the enterprise, plant operations and the edge for the integration of Industry 4.0 manufacturing technology, including applications, solutions, products, IoT, IIoT platforms, smart gateways, network services, connectivity, data stores, analytics, smart devices, tools, compute, and equipment assets, security, access control, privacy and compliance management. The primary value of the smart manufacturing framework architecture is to provide a foundational standard architecture for smart manufacturing integration of solutions and products.

Develop a smart manufacturing catalog for products, solutions and service provider capabilities and maintain it over time. Design solutions to scale IT and OT across the enterprise.

Develop and execute an organizational change management (OCM) transformation, that is based on the best-fit organizational execution model, optimized leadership and strong governance and program communications. Design and implement the framework for scaling up and develop a target operating model and roadmap from the as-is environment. Then work to continuously improve the smart manufacturing and Industry 4.0 operating environment.

Conclusion

Although the COVID-19 pandemic has significantly impacted the global economy and with it the growth and adoption rate of smart manufacturing products and services, we project the sector will recover robustly in 2021. While the strong pre-COVID-19 trends will persist and accelerate growth for smart manufacturing in the years to come, post-COVID trends will also materialize. Manufacturers must position themselves to take advantage of both pre- and post-COVID trends to seize opportunities as they unfold between 2021 through 2025. The right adoption strategies will make the difference for manufacturers as they mitigate the turbulence of today and prepare to maximize value and ROI into the new future.

ABOUT THE AUTHOR

ISG Predicts
Smart Manufacturing Accelerates Adoption Post-pandemic: 2020 – 2025

JIM ROUTZONG

Jim Routzong is an expert in engineering services sourcing, smart manufacturing, application development and maintenance (ADM) outsourcing, IT infrastructure outsourcing (ITO), restructuring/renegotiations, and business process outsourcing (BPO). Jim led the engineering services global market analysis and business case development that justified ISG's market entry with the engineering solutions. Jim was instrumental with the start-up and establishment of ISG's engineering solutions market pursuit with the design and establishment of multiple solutions and services including successful client service delivery, IP development, engineering services conferences, and white papers. He has led or participated in over 50 ISG engagements over the past decade and a half across many diversified clients and global industries from vehicle to high-tech and heavy equipment manufacturing, aerospace and defense, retail, energy, financial services and insurance, biotechnology, and media and entertainment. Jim is ITIL Foundation v3 certified and an ISG Digital Expert.

ISG®

imagine your future®

ABOUT ISG

ISG (Information Services Group) (Nasdaq: III) is a leading global technology research and advisory firm. A trusted business partner to more than 700 clients, including more than 75 of the top 100 enterprises in the world, ISG is committed to helping corporations, public sector organizations, and service and technology providers achieve operational excellence and faster growth. The firm specializes in digital transformation services, including automation, cloud and data analytics; sourcing advisory; managed governance and risk services; network carrier services; strategy and operations design; change management; market intelligence and technology research and analysis. Founded in 2006, and based in Stamford, Conn., ISG employs more than 1,300 digital-ready professionals operating in more than 20 countries—a global team known for its innovative thinking, market influence, deep industry and technology expertise, and world-class research and analytical capabilities based on the industry's most comprehensive marketplace data.

www.isg-one.com

Let's connect NOW...

ISG®

imagine your future®

