



INDUSTRY 4.0


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INDUSTRY 4.0

The fourth industrial revolution, also known as Industry 4.0, describes smart, autonomous systems, which uses algorithms to control physical things such as machines, robots, and vehicles. The most important technologies that have been developed in this area are big data and AI analytics, cloud computing, augmented reality, additive manufacturing/ 3D printing, autonomous robots, and digital twins. While the fourth industrial revolution was coined in 2016, it was greatly accelerated recently due to the COVID-19 pandemic.

As Tom Kelly, Executive Director and CEO at Automation Alley in Troy, MI explains, the pandemic was a catalyst for the adaption of Industry 4.0-related technologies. While most employees were working remotely, the machines had to continue running within the plant. Companies had to invent ways employees could communicate with the plant from home. These developments are expected to have lasting impacts. Companies that digitalized their operations and introduced practices aligned with Industry 4.0 were able to handle the crisis better and were expected to recover more quickly from the losses endured during the pandemic.

This was reflected in a survey of global manufacturing companies conducted by McKinsey & Company in 2021. According to the results, 94% of companies stated that Industry 4.0 had helped them to maintain their business during the height of the crisis, with 56% stating that the technologies were critical to their crisis response. Therefore, it is crucial for companies to keep up with Industry 4.0 trends in technology. Companies that are leading the way need to ensure that they continue to keep up with future developments, while companies that have not yet transformed into digitalized companies should make it a priority to bridge the gap as soon as possible. German companies in the US have recognized the need for investment in this area. According to the 2022 German American Business Outlook (GABO) survey conducted by the German American Chambers of Commerce and KPMG Germany, the top three planned investments for German companies in the US are related to digitalization and automation. The most frequently mentioned areas were investments in machinery for automation and productivity development (39%), digital transformation of business operations (37%), and distribution channels (incl. ecommerce) (25%). Tom Kelly admits that it takes courage for companies to take on a digitalization project due to the required investments and changes within the company, but he also explains that the vast majority of these projects have a positive ROI for the company.

GACC Midwest supports German companies navigating the United States' unique landscape. We hope this publication serves as a helpful guide to Industry 4.0 in the US and opportunities for German businesses. Please get in touch with us to discuss how we can support your company.

I 4.0 IN THE MIDWEST

Many manufacturers have moved their operations back to the US, particularly to the Midwest. This can be attributed to the disadvantages of offshore manufacturing that were highlighted by the supply chain issues brought on by the pandemic. Companies have named supply chain reliability, market steadiness, and high numbers of skilled employees as their reasons for moving back into the Midwest. Keith Spayth, COO at MPDV, expects to see the industry rise further in the Midwest in part due to the Chips Act of 2022, recently passed by the US Senate, which includes a significant amount of funding for domestic semiconductor production. According to Spayth, two of the states that are likely to attract these manufacturing companies are Ohio and Michigan. He states that the investments in these areas are in addition to plants that are currently already being built in the Midwest and adds that they are also going to require ties to Industry 4.0.

Manufacturing can profit greatly from Industry 4.0 developments. Dr. Adam Porter, Executive Director at Fraunhofer USA Center Mid-Atlantic, explains that Industry 4.0 aims to enable custom production at the cost of mass production, allowing for new business opportunities. In addition, Tom Kelly states that another opportunity for manufacturers is the license of their intellectual property, in particular 3D drawings of their products. Customers could use these drawings to produce the products themselves on 3D printers. By licensing these drawings, manufacturers can ensure they maintain income in an increasingly decentralized production process and digitalized industry.

“INDUSTRY 4.0 AIMS TO
ENABLE CUSTOM
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PRODUCTION, ALLOWING
FOR NEW BUSINESS
OPPORTUNITIES.”

- DR. ADAM PORTER,
EXECUTIVE DIRECTOR,
FRAUNHOFER USA CENTER MID-ATLANTIC

OPPORTUNITIES FOR GERMAN COMPANIES

Industry 4.0 is a term that was coined in Germany. According to Dr. Porter, German technology is recognized worldwide for its high quality. He states that German companies involved in Industry 4.0 are generally well received in the US due to smart factory’s deep roots in German manufacturing. Furthermore, Germany is the largest exporter to the US for manufacturing machinery, with a total export value of over 72.5 mil USD.

These statements are supported by the German American Business Outlook (GABO) results, where the majority of respondents spoke positively about the digitalization processes at their companies. More than half of the German subsidiaries surveyed (56%) agree or even strongly agree that their company is able to identify appropriate partners to increase their pace of digital transformation, and 49% even state that their company has in-depth insights into future operational scenarios as well as a coherent view on key technological trends.

The US, in particular the Midwest, is also known for advancements in Industry 4.0. This can be attributed in part to the many institutions for higher education located in the region. German companies can tap into this innovation to grow their business by combining their expertise and high-quality products with the technological advancements and skilled workforce available in the Midwest. According to Tom Kelly, SMEs should take advantage of this opportunity. Small and medium-sized companies cannot access capital as easily as large companies and can therefore learn from the German “Mittelstand”, which is more advanced in Industry 4.0, how to make reasonable progress in this area with a limited budget.



HYDRA Success Story



PANDUIT CORP.

Panduit is a leading global provider of network infrastructure solutions. Panduit's products are used in the automotive industry, the energy sector and for security systems. Among other things, the company produces several million cable ties every day. Panduit employs around 4000 people at its locations in Chicago, Georgia as well as in Mexico, Costa Rica, China, Singapore and Romania. Panduit has been using MPDV's Manufacturing Execution System (MES) HYDRA in production at its plants worldwide for three years. As a result, production efficiency has been increased by up to 10 percent.

“MPDV's MES HYDRA has given us full transparency on the shop floor. Now we know exactly which machine is particularly efficient and which should be replaced by a more powerful one. Thanks to HYDRA we can make much more targeted decisions and intervene at the right spots,” explains Mike Kimbrell, IT Manager for Enterprise Applications at Panduit.

PANDUIT™



Task and solution

Where previously self-developed systems were used in production, Panduit now relies on MPDV's MES HYDRA. „Back then, we had our own solution in use at every production site. This made it extremely difficult to compare the different sites. Since we have been using HYDRA, this is a thing of the past. Now we can easily compare our sites and learn from each other,” says Mike Kimbrell, IT Manager for Enterprise Applications at Panduit.

The Panduit team has successfully connected 75 percent of the machines Panduit to HYDRA. These days, production employees know exactly how efficient the individual machines in the plants are. „HYDRA has increased the transparency in the shop floor tremendously. Based on the figures we record and evaluate with HYDRA, we now can see at once how efficiently our machines work. This is crucial, because only then can we make targeted decisions based on facts,” says Kimbrell.

By using the HYDRA-DNC module, the Panduit team imports information on work orders directly from the Panduit's planning and scheduling systems into the MES HYDRA. The data no longer needs to be requested manually. When an order is logged on, HYDRA automatically transfers the information to the machine. The high degree of automation minimizes the error rate and accelerates the entire process.

HYDRA's Tool and Resource Management module enables the Panduit team to keep track of maintenance and managing of tools and resources. „The system shows us in advance when a tool needs maintenance. This allowed us to significantly minimize our deployment costs,” says Kimbrell.

The MES HYDRA has a modular structure. Panduit has altogether introduced five different modules worldwide step by step. MPDV's training sessions were particularly valuable during this process. „Experts from MPDV have taught us the most important things about MES HYDRA in a very short time. We quickly became efficient because we could work directly with the system ourselves,” concludes Kimbrell contently. „A big advantage was that MPDV has locations all over the world. For example, our team in Chicago was able



to complete a training course at MPDV in Orland Park, Illinois, and MPDV also has a location in Singapore, which is very close to our production site. Just great.”

Mike Kimbrell has been working for Panduit for 21 years and leads several IT teams in his function as the IT manager for Enterprise Applications. He is product manager for MES HYDRA and has overseen the implementation process. He was especially impressed right from the start by how easy HYDRA is to operate and how reliably the system runs. „I am still quite amazed at how quickly we were able to work with the MES ourselves. Our expectations have been greatly exceeded,” he says.

HYDRA in use

- 75 percent of the machines worldwide connected to HYDRA
- Increase in OEE by up to 10 percent
- Connecting to Panduit's planning and scheduling systems



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SMART DIMENSIONS

We focus on four smart dimensions of Industry 4.0: Smart Manufacturing, Smart Products and Services, Smart Supply Chain, and Smart Working.

SMART MANUFACTURING

Smart manufacturing describes the use of Internet -connected machinery to monitor the production process. Machines are connected through the Internet of Things (IoT), enabling them to communicate with each other.

COVID-19 has disrupted manufacturing, introducing restrictions such as social distancing. These challenges can be mitigated with digital technologies. For instance, wearable technologies can help maintain safe distances. Germany is seen as one of the leaders in IoT technologies. According to the International Trade Administration of the United States, more than 75% of German companies have already implemented digital solutions and 15 million employees are involved in advanced manufacturing industries.

Like most areas, companies in the Midwest have also recognized the need to implement smart manufacturing into their operations. German companies can use their

expertise and head start in this area to collaborate with Midwestern companies and expand their business into this region.

SMART PRODUCTS AND SERVICES

Smart products are the main elements of cyberphysical networks and can be incorporated into platforms, clouds, ecosystems, and edge computing. Networks that consist of multiple smart products form intelligent learning services. The biggest advantages of smart services are the ability to optimize, repair, and maintain processes, plan capacity, ensure business continuity and organize services portfolios that are highly individual.

Smart products change the process from centralized control systems to a production process that is defined by intelligent, interconnected products. One of the most important innovations is the development of digital twins, which enables companies in Germany and the US to digitalize their entire production processes. A digital twin is a virtual representation of an object or system that spans its lifecycle, is updated from real-time data, and uses simulation, machine learning and reasoning to support

decision-making. Brian St. Denis, Vice President of Business Development at STIWA Automation, explains that the digital twin allows for collaboration between different disciplines, and for changes in mechanics to be immediately reflected in the software. Furthermore, the digitalization of the entire process makes it possible for manufacturers to produce anywhere. According to Tom Kelly, this can help them remain price-competitive with what are considered low-cost producers abroad.

Another example of smart products are sensors that are installed in manufacturing devices that continuously collect data on the machine’s performance. Tom Kelly explains that smart sensors can be used for a long time, making them a worthwhile investment in the long run. Due to the importance of manufacturing in the Midwest, there is high demand for smart sensors. Some of the major players in the smart sensor market are German, which demonstrates the key industry knowledge that exists in Germany and presents an opportunity for German companies to enter the market or expand their current presence.





SMART WORKING

Smart working refers to a flexible work environment without time and place constraints. This enables companies to adapt quickly and intelligently to changing circumstances. In a smart work environment, employees and their supervisors agree on certain tasks and the time frame in which they should be completed. The employee can then complete these tasks on their own schedule in a place of their choosing. This flexibility enables the company and its employees to create new ways of working that focus on completing tasks instead of in-person work at a set office during fixed hours. Rüdiger Zollondz, Global Head of Product Management at Herrmann Ultraschall, explains that through increased digitalization more and more jobs can be completed remotely, and depending on personal profiles, some employees are even more productive when working from home.

Companies and employees in both Germany and the US recognize the opportunities that this new working style entails. German companies that have implemented smart working regulations are more likely to attract and retain talented employees and can thus generate a competitive advantage. The COVID-19 pandemic accelerated the smart working trend. In a survey by the manufacturing leadership council, 54.8% of respondents stated that management's focus on the digital transformation increased due to the COVID-19 pandemic, and 62.2% said they would continue to allow their leaders and employees to work remotely. Remote work is not only expected to continue, but technology driven leaders are said to be more effective. Stephanie Murphy, Leadership Strategy Consultant at Advisa stated in a panel discussion with Clayton & McKervery in February 2022 that technology driven leaders are two times more effective in creating and maintaining stress levels, and five times more effective in creating connected cultures.

“53% OF COMPANIES STARTED OFFERING DIGITAL WORKPLACES IN 2021.”

- GERMAN AMERICAN BUSINESS OUTLOOK, 2022

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SMART SUPPLY CHAIN

Smart sensors can improve supply chain efficiency. These sensors enable the automated collection of data which can then be processed and help the company gain valuable insight into the supply chain. The smart supply chain can help reduce the downtime of the machine when it needs to be repaired and therefore also decrease the associated costs. By implementing a smart supply chain, you can also track your inventory in realtime and improve demand planning. In addition, product development can be improved which can strengthen the product life cycle. Finally, with a smart supply chain, you can connect more closely with your customers for better customer service.

Another major trend within supply chain is onshoring. Following the COVID-19 pandemic, many companies that had previously moved their production overseas have been returning their operations to the US. According to the Thomasnet 2021 State of North American Manufacturing Annual Report, which surveyed 709 manufacturers, 83% of respondents said they are likely or extremely likely to re-shore their production operations and are planning to add US suppliers to their supply chains. As previously described, recent technology and the decentralization of production also enables companies to lower costs and therefore compete with the prices of companies abroad. This also results in a return of many often highly paid jobs. These efforts have been supported through funding by the Biden administration, which allocated more than \$600 billion of its 2022 budget to the support of US-based manufacturing jobs. Onshoring is expected to further strengthen industries in the Midwest and increase economic growth.

SMART SENSORS AND SUPPLY CHAIN

A SMART SUPPLY CHAIN INVOLVES THE USE OF MANY EMERGING TECHNOLOGIES INCLUDING BIG DATA, IOT, BLOCKCHAIN, AND RPA TO STREAMLINE OPERATIONS. THESE TECHNOLOGIES ALLOW SUPPLY CHAIN COMPANIES TO CUT COSTS, SHORTEN DELIVERY TIMES, REDUCE NEGATIVE ENVIRONMENTAL IMPACTS, AND ACHIEVE UNPRECEDENTED LEVELS OF AUTOMATION.

Get Out Hardwiring –
Today's World Needs Connectors

BUILDING MANUFACTURING AND SUPPLY CHAIN RESILIENCY



The COVID-19 pandemic has had profound effects on every industry. One of the most significantly disrupted industries has been manufacturing and their supply chains. From plant shutdowns and port closures in the earlier days of the pandemic to current global shortages of silicon and lumber and skilled labor shortages, one thing has been undeniable – shortcuts taken in the past are unsustainable in the face of uncertainty.

Due to this upheaval, changes have been happening in industrial markets: companies are making dramatic shifts in manufacturing and supply chain structures to make them more resilient to uncertain conditions and reevaluating staffing in response to skilled labor shortages. Through all of this, one message is clear: the future is coming, and companies must adapt to survive.

Connectivity and the right connectivity partner play a critical role in making manufacturing and supply chains more resilient and better prepared for the future.

SHIFT FROM COST-COMPETITIVENESS TO RISK-COMPETITIVENESS

In 2020, the World Economic Forum in conjunction with leading research group Kearney conducted interviews with senior operations and supply chain from companies like Siemens, Schneider Elec-

tric, and Rockwell to understand how COVID-19 has affected manufacturing and supply chains in order to identify the commonalities between companies that remained stable throughout the pandemic.

Connectivity and the right connectivity partner play a critical role in making manufacturing and supply chains more resilient and better prepared for the future.

They found that companies who were able to maintain their operations effectively without substantial losses already had in place highly flexible, technologically advanced, and risk-averse manufacturing and supply chain models. Those who struggled the most had built their factories and supply chains around being as in-

expensive as possible. The World Economic Forum found that the pandemic accelerated a shift that was already happening from highly cost-competitive models to models that are *risk-competitive*.

They then described the characteristics of a risk-competitive model, which included:

- Flexible and decentralized manufacturing models for increased agility in responding and adapting to changing customer needs
- Investment in advanced manufacturing technologies that enable full transparency and leverage data to make informed decisions
- Fostering strategic relationships and collaboration with partners that offer reliable and local support.

Let's look at how the right connectivity partner can help companies make the shift to be "risk-competitive."

CONNECTORIZATION ENABLES FLEXIBLE MANUFACTURING

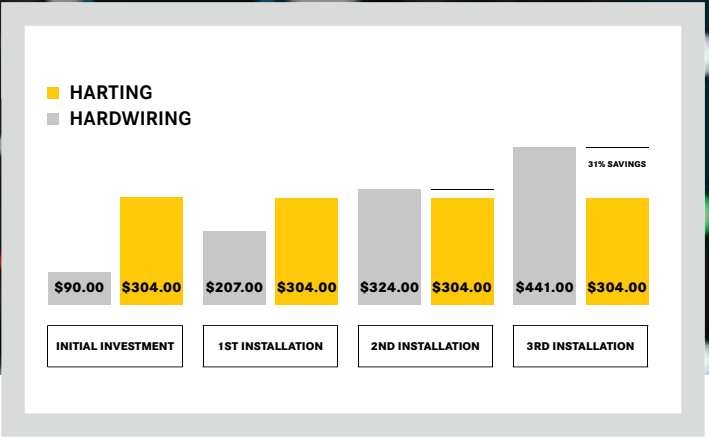
In the past, a manufacturing floor was static, meaning lines remained relatively the same with upgrades occurring every few years. Machines were placed with the intention that they would perform the same tasks for the duration of their useful life. This, however, has been changing even before the pandemic.

Now, manufacturing floors need to be rearranged frequently in order to customize products to customer-specific needs. With the addition of co-bots and modular machinery, floors can be reorganized quickly to manufacture entirely different products.

When manufacturing plants were static, connections for bringing power, signal, and data into these old machines could be hardwired. This means all connections going in and out of the machine were permanently fixed to terminal blocks. This was less expensive upfront than adding quick

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In addition to the mechanical considerations, hardwiring is significantly riskier than using a connector.



connects on the machines, but there were drawbacks. Installing or disassembling had to be done by a skilled electrician, which was time and cost intensive. Hardwired connections were often miswired, which resulted in downtime and lost revenue.

Hardwiring has been an outdated technology for a long time, and many manufacturers and machine builders moved away from the technology years ago. Some machine manufacturers used hardwiring because it was a bit cheaper in the initial machine build than a connector. However, once a machine is disconnected twice, hardwiring is more expensive, and it is the end user who pays for the labor to disconnect and reconnect.

Connectorization, on the other hand, makes flexible manufacturing possible as machines can be disconnected and reconnected quickly, without the need for skilled labor, and with no risk of miswiring. The ability to install without a skilled electrician is critical now due to skilled labor shortages.

Now, connectorization is an absolute must. Manufacturers do not have the time to spend an entire day disconnecting a machine, when a plug and play solution exists. Connectorization, simply put, is the backbone of a successful risk-competitive structure.

TOTAL TIME REQUIRED FOR INITIAL INSTALLATION, UNINSTALL AND REINSTALL

	
HARDWIRED	HARTING CONNECTORS
02:03:52:00	01:35:23:00

ADVANCES IN ETHERNET ENABLE FULL TRANSPARENCY FROM CLOUD TO INDIVIDUAL DEVICES ON A NETWORK

The pandemic proved the importance of transparency in manufacturing and supply chain processes. Transparency enables operations and supply chain to know the status and capabilities of their machines, implement predictive maintenance models to reduce downtime, and utilize data to make informed decisions.

In the past, there were many different data protocols used on industrial communication networks. Ethernet was and is still the leading protocol for computer networks. At the machine, however, serial bus protocols were more common. This created a barrier that made machine data difficult or impossible to access except physically at the machine.

Advances in Ethernet are making Ethernet the standard protocol from the cloud to every sensor on a machine. The most important advancement in this field is the standardization of industrial Single Pair Ethernet. Single Pair Ethernet can send up to 1 Gbit/s Ethernet over just two wires.

As Single Pair Ethernet uses only two copper wires, weight and cost is reduced.

As a result, seamless communication and data gathering from machine to cloud can finally occur allowing data to be processed into actionable insights.

HARTING participates in multiple standards organizations, including IEEE, IEC and TIA, with a focus on standardization of Single Pair Ethernet and is leading a working group within ODVA to define the Single Pair Ethernet standard for industrial environments.

PARTNERS WITH IN-REGION CAPABILITIES MAKE SUPPLY CHAINS RISK RESISTANT

Finally, one of the most important aspects of building a risk-competitive and resilient manufacturing and supply chain model is having strategic partnerships with suppliers who are also “risk-competitive”. One of the biggest lessons learned from the pandemic is that without the right suppliers, even the most resilient manufacturing and supply chains are at risk.

A supplier who is well-positioned will have the same manufacturing capabilities in multiple regions to prevent supply chain disruptions from local events, offer in-region manufacturing and customization capabilities to support customer specific needs, and have a in-region teams to support their customers on their time zone.

One of the biggest lessons learned from the pandemic is that without the right suppliers, even the most resilient manufacturing and supply chains are at risk.

HARTING has been well-positioned for many years in the Americas, allowing us to keep our service levels for customers stable throughout the duration of the pandemic.

HARTING’s structure has always focused on both the global and local levels. HARTING Americas has been an independent group since its founding in 1986 in Illinois, employing a local staff of engineers, product management, finance, and manufacturing to support the unique needs of the Americas. Another aspect of HARTING’s strategy for decades has been to have manufacturing in multiple regions to ensure a reliable supply chain.

Prior to COVID-19, HARTING also made significant investments in North America with a focus on local manufacturing for in-region demand. This became critical for HARTING’s customers during the pandemic, to resounding success. As a result, HARTING Americas has doubled capacity by ramping up shifts in our Illinois plant, focused on both component manufacturing and cable assemblies.

IN CONCLUSION ...

The effects of COVID-19 have accelerated existing trends in manufacturing and supply chains. Companies now must make a choice, become risk-competitive or risk losing out on future business. ■



WHAT'S NEXT?

Industry 5.0 is not considered another revolution, but rather an addition to Industry 4.0. While Industry 4.0 focuses on technology, in particular automation, Industry 5.0 focuses on humans, sustainability, and resilience. This concept has been adopted by the European Commission, which shows Europe's ambition to be a pioneer in this topic. The European Commission identifies three main topics of Industry 5.0. First, Industry 5.0 is human-centric: there is a focus on the promotion of talent, diversity, and empowerment. The second topic is sustainability: companies should be respectful of environmental boundaries. Finally, companies should be agile and resilient. Companies can excel in these dimensions by focusing on flexible and adaptable technologies.

In short, with Industry 5.0, humans are brought back to the center of the industrial revolution. It also recognizes that businesses should have more goals beyond economic growth, which is in line with the sustainability movement that has been gaining popularity.

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Similar to the acceleration of the digital transformation that happened during the COVID-19 pandemic, the topic of Industry 5.0 also gained importance. Industry 5.0 is often enabled by Industry 4.0, which provides the necessary technology. Smart working, which is a dimension of Industry 4.0, is also an important component of the focus on employee wellbeing within Industry 5.0. Since the movement for Industry 5.0 is more well-known in Europe than the United States, it gives German companies the opportunity to be pioneers in this field. German companies tend to perform strongly in these areas, which can give them a competitive advantage in the US.

The core aspects of Industry 5.0, such as centering employees and sustainability, are gaining importance in the US, especially among young professionals. Companies that integrate these concepts are more likely to attract and retain talented employees.



ROBOTS HELP HUMANS WORK BETTER AND FASTER BY LEVERAGING ADVANCED TECHNOLOGIES LIKE THE INTERNET OF THINGS (IOT) AND BIG DATA.

THE FUTURE OF MANUFACTURING DEPENDS ON RESILIENT, SMALL MANUFACTURERS

LEARN HOW WISCONSIN HELPS MANUFACTURERS SUCCEED

Katy Sinnott, vice president of global trade and investment at the Wisconsin Economic Development Corporation, recently sat down with Buckley Brinkman, executive director and CEO of the Wisconsin Center for Manufacturing & Productivity, to discuss how our manufacturing future depends on resilient, small manufacturers.

“The resurgence of American manufacturing depends on the ability of our small and midsize manufacturers (SMMs) to stay competitive and resilient in turbulent times,” said Brinkman. “Industry 4.0 manufacturing technologies will play a major role in the transformation required to meet the challenges created by worker shortages and accelerating change.”

SMMs make up over 98% of manufacturing companies, forming the backbone of critical supply chains and providing the parts and materials flagship manufacturers need. The manufacturing industry’s future competitiveness depends on these smaller operations’ ability to specialize and remain flexible and innovative.

As part of the National Institute of Standards and Technology Hollings Manufacturing Extension Partnership, Brinkman’s organization is engaged with manufacturing across the U.S. and he said he sees these companies facing the future in different ways. “The unprecedented speed of change bifurcates the market into manufacturers that lean into the future and those that don’t,” said Brinkman. “The leaders make changes and smart technology investments that position themselves for new opportunities. The laggards wait for clear pathways and lower risks, finding themselves falling behind with little chance of making up lost ground.”

Industry 4.0 technologies threaten existing business structures by making new approaches not only possible but practical and profitable. For example, many companies find that targeted technology investments increase their production flexibility while reducing their costs, making it possible to “insource” parts previously supplied to them by smaller manufacturers. The ability to control schedule and quality without sacrificing profits makes it impossible for the outsource manufacturer to compete on these items. The companies losing this business are usually the same manufacturers ignoring rapid change.

Of course, technology creates its own threats. Companies implementing Industry 4.0 expose themselves to greater cybersecurity risks. The more connected systems become, the more attack opportunities exist for cybercriminals. In the past few years, system breaches have shifted from typically being focused on major targets to become ubiquitous, mass-produced attacks that can hit anyone, anywhere.

“An entirely new, professionally run cybercrime industry emerged,” said Brinkman. “These new organizations sell

turnkey attacks, provide help desk assistance, and even extend money-back guarantees for substandard returns on their product. It’s an entirely different landscape.”

Ultimately, SMMs must accelerate action and reduce risks to make their businesses thrive. Fewer resources mean these companies work with a narrower margin of error than their larger counterparts. Significant investments in smaller



“The unprecedented speed of change bifurcates the market into manufacturers that lean into the future and those that don’t.”

BUCKLEY BRINKMAN
Executive Director and CEO,
Wisconsin Center for Manufacturing
& Productivity

THE FUTURE OF MANUFACTURING DEPENDS ON RESILIENT, SMALL MANUFACTURERS

LEARN HOW WISCONSIN HELPS MANUFACTURERS SUCCEED



“Wisconsin knows how to make things. We also know what it takes to support manufacturing—especially as we move further into the digital age.”

BUCKLEY BRINKMAN
Executive Director and CEO,
Wisconsin Center for Manufacturing
& Productivity

firms accentuate the need to minimize exposure and speed up returns.

In fact, transformational change requires a scale where SMMs can invest in needed technology, implement the cybersecurity required to protect their organization, and accelerate the returns on these investments. Often this means SMMs must prioritize growth as never before, committing time and resources to find and engage new customers in new markets. The challenge can be daunting, and Wisconsin responds by connecting manufacturers in networks that provide the resources they need to thrive: solid expertise, proven guides and a robust network to connect with industry, technical and other support resources.

“Wisconsin knows how to make things,” said Brinkman. “We also know what it takes to support manufacturing—especially as we move further into the digital age.”

Successful SMMs will act quickly to leverage emerging manufacturing opportunities and engage Industry 4.0 technologies to make these opportunities profitable. These companies create custom roadmaps that prioritize growth and make change faster with less risk. Resilient operations incorporate cybersecurity actions as a normal part of daily routines. Finally, forward-thinking SMMs engage knowledgeable guides who catalyze transformation by streamlining decisions and minimizing risks during the journey.

To learn more about how your firm can strategically adopt automation, visit the [Manufacturing Automation and Technology Solutions](#) program page or contact:



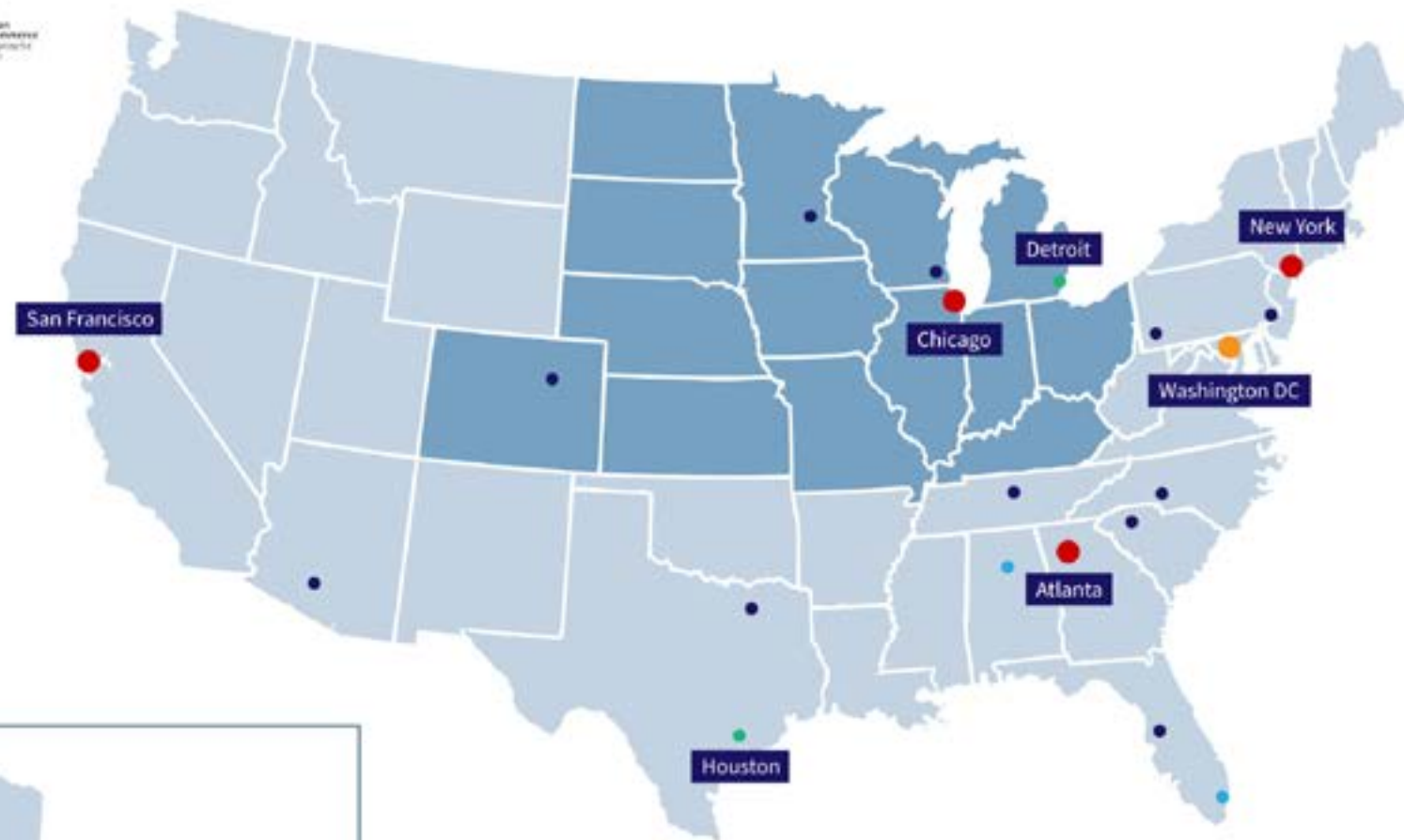
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ABOUT GACC MIDWEST

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The German American Chamber of Commerce® of the Midwest, headquartered in the heart of downtown Chicago with a branch office in Detroit, was founded in 1963. GACC Midwest is an integral part of the German Chamber Network (AHKs) with 140 offices in 92 countries around the globe. Our continuing mission is to promote German-American business relations and to support trade and investment between Germany and the United States, especially the Midwest. Our organization combines elements of a trade commission, a membership association, and professional consulting services for market entry, apprenticeships in the US, and more.

Your Partner for the US

GACC Midwest, with its offices in Chicago and Detroit, has broad experience and knowledge of the market conditions in the US and in Germany. In our role as an advisor, we help German companies identify opportunities for cooperation and growth in the US. Our team is specialized in effectively setting up your subsidiary for success in the US.

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