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SPECIAL REPORT: THE

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Foxconn's tech in

Tech firm's influence
expected to elevate
state's innovation status

BY NICK WILLIAMS
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Reports that Taiwanese electronics manufacturer Foxconn Technology Group was changing its plans for its 22-million-square-foot, \$10 billion manufacturing campus in Mount Pleasant shook the state's business community in January.

After days of speculation, however, Foxconn Technology Group said it will still build a generation-six, liquid crystal display screen fabrication facility in Mount Pleasant. That southeast Wisconsin plant, which could break ground over the next 18 months, will fabricate smaller, high-resolution LCD screens than the company originally planned to make.

Six components to the Mount Pleasant project in upcoming years include building a liquid crystal module packaging plant; a high-precision molding factory; a system integration assembly facility; a rapid prototyping center; a research and development center; a data center and a town center to support employees.

Due to evolving technologies within the industry, Foxconn said at least 80 percent of the 13,000 jobs it will create in Wisconsin would be engineers and research and development scientists, a shift from the 75 percent projection of the employees being assembly workers.

While meeting their targeted job numbers is important to Wisconsin, slightly overlooked has been how Foxconn's presence will significantly elevate Wisconsin's technological know-how and innovation, which in the long run, may be more valuable than anything else associated with the company's presence in Wisconsin.

In the third of a four-part Innovate94 series highlighting innovation in Wisconsin and neighboring Twin Cities and Lake County, Ill., region, we look at the effect Foxconn will potentially have on the state.



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The Marquette University Law School and the Milwaukee Business Journal have again partnered to focus on important issues facing southeastern Wisconsin. This is the third in a four-part series focused on the innovation that is happening along the Interstate 94 corridor between northern Illinois and Minneapolis.

GROWING NEXT-GENERATION TALENT NETWORK

Foxconn's areas of interest match with several of Wisconsin's strengths, such as robotics, medical imaging, production technologies and engineering, said Tom Still, president of the Wisconsin Technology Council in Madison.

"I think it's going to have an absolute influence," Still said. "Foxconn is going

to ultimately change a lot in Wisconsin in terms of not only innovation that might cluster around its Mount Pleasant facility, but other parts of the state where they choose to open innovation centers. The fact that those centers will be in two medium-sized cities will help spur innovation and entrepreneurship in the regions around them."

Still is referring to Foxconn's Innovation Center in Green Bay, where more than 200 Foxconn employees are expected to work and focus on artificial intelligence, fifth-generation cellular systems, 8,000-pxel, high-definition resolution and advanced manufacturing.

There's also Foxconn Place Chippewa Valley, a center in the city of Eau Claire that will employ 150 high-tech professionals, also working on 5G, 8K and advanced manufacturing.

"Foxconn's Wisconsin First vision is to build an innovation and talent network across the state that will be the foundation of the AI 8K and 5G ecosystem we are creating," Louis Woo, special assistant to Foxconn founder and CEO Terry Gou, said in a statement provided to the Milwaukee Business Journal.

"In doing so, we will foster as many local suppliers as possible to form a network of talent and knowledge workers to enable Wisconsin's transformation into a

5G,
AI



Foxconn's North American headquarters in downtown Milwaukee



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A sample of Foxconn products used in automobiles on display

global high-technology hub."

Along with Foxconn having its North American headquarters in Milwaukee and the Wisconsin Valley Innovation Center inside its recently purchased building in Racine, Foxconn's needs for fast and efficient wireless broadband will lead to greater infrastructure changes in Wisconsin, Still said, moving Wisconsin from a region "lagging behind in broadband to a state moving ahead in that area," he said.

"Foxconn is America's chance to compete to be a leader in 5G," Still said.

Wisconsin's potential is seemingly endless because of Foxconn, Still said.

Aside from its advanced manufacturing capabilities, through the company's Smart Technologies arm, Foxconn holds the largest market share of interactive tech in the U.S. and about 40 percent of high-performance computing servers in the world are produced by Foxconn, he said.

To add, there's the expected emergence of more startup tech companies to launch in Wisconsin that want to become part of Foxconn's supply chain.

In 2018, Foxconn co-established a \$100 million corporate venture fund based in Milwaukee with Northwestern Mutual, Johnson Controls and Advocate Aurora

Health, multiplying the potential amount of entrepreneurs across the globe that could flock to Wisconsin.

"You'll see those related jobs taking place, along with their direct jobs," Still said.

MAKING WISCONSIN A LEADER IN ADVANCED MANUFACTURING

"The challenges of a competitive environment require constant innovation from our industry to sustain success," Woo said. "Foxconn wants to be an enabler of talent creation, investment and technology that spurs such innovation here in Wisconsin and beyond. The future of manufacturing will require the industry to innovate further to apply advanced, high-precision manufacturing principles to produce high-performance computer, communication and consumer electronics (3C) products like computers, notebooks, tablets, smartphones and wearables."

With Foxconn's capabilities in Industry 4.0 – the current trend of automation and data exchange in manufacturing technologies – and the Industrial Internet of things industry, where machinery and power systems are connected to the internet for data extraction, remote man-

► INNOVATE94 SERIES DETAILS

FEB. 1: Creative and innovative products and development in Wisconsin in urban planning/housing, health care, utilities and transit



FEB. 8: What's being invented and tested at Wisconsin's largest and most high-tech colleges and universities

FEB. 15: Foxconn Technology Group's impact on Wisconsin technology

FEB. 22: Green Bay Packers partnership with Microsoft Corp. for Titledown Tech

For this series, reporter Nick Williams and freelance reporter Larry Sandler interviewed public and private business executives throughout Wisconsin who are on the front lines of innovation in industries ranging from housing to utilities, to health care to manufacturing.

The Milwaukee Business Journal will be focusing on innovation throughout the Interstate 94 corridor between northern Illinois and Minneapolis throughout 2019. To see more coverage of this issue, visit

www.milwaukeebusinessjournal.com.

agement and more, Wisconsin businesses can learn to be more efficient while increasing productivity and decreasing expenses.

Experts say it's something that's needed in Wisconsin. There are more than 9,000 manufacturing companies in Wisconsin, but only 23 percent of them are actually adopting digital automation and connectivity.

"(Wisconsin) is used to being a little bit off the leading edge," said Buckley Brinkman, executive director and CEO of the Wisconsin Center for Manufacturing and Productivity. "We're very good adopters of what people create. We're going to be the creators this time. What Foxconn coming to Wisconsin means is we're going to be the folks that are participating in the experimentation, the breakthroughs, the widespread impact at the front edge."

"If you're not ready for that, and I would say most manufacturers aren't, you're going to have a rough time. If you are ready for it, there are going to be some tremendous opportunities that open up if you're willing to be proactive

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SPECIAL REPORT: THIRD IN A FOUR-PART SERIES

Foxconn's
Louis Woo

and partner with groups that are also of like-mind."

Foxconn also intends to spend \$1.4 billion annually in supplier purchases from Wisconsin companies.

"Foxconn is the largest contract manufacturer in the world," Brinkman said. "Wisconsin manufacturers can be a part of that. You can be with Foxconn on the front edge. There will be a small percentage of people who choose to do that and are capable of doing that. For the rest, you're going to have to raise your game because Foxconn is going to demand world-class, no-kidding standards."

"If you don't choose to play, you'll still have to have some version of it because that's where the market is going."

There will be several causalities in the tech realm due to Foxconn in Wisconsin.

Adoption of advanced manufacturing technology in Wisconsin, for one, will lead to greater demand for high-level cybersecurity across the state, experts say.

Artificial intelligence, or AI, is driven off massive amounts of data. Loss of data due to a breach and any kind of down time associated with a cyber attack translates to lost dollars, said Brice Williams, who leads the managed security advisory services team for Brookfield-based SysLogic Inc.

Data related to infrastructure in a building and manufacturing blueprints stored online has value in industrial espionage, Williams said.

"You need to put thought into how it's protected and how it's managed over time," he added.

And with a projection of 3.5 million unfilled cybersecurity jobs globally by 2021, that only makes the challenge to fill those jobs greater in Wisconsin. It also means there's opportunity for the

region to be a leader in that industry.

"Instead of following other regions and hiring the same people, how do we do it different by attracting a different type of tech professional?" said Tina Chang, CEO of SysLogic. "We can do that with cyber."

Cybersecurity is just one of the examples of how Wisconsin and its industries will be affected by Foxconn's presence.

Technology based companies aren't new to Wisconsin, Chang said. Foxconn, however, is building an innovative system here that's focused on sharing, unveiling and highlighting technology that was previously kept under wraps, she said.



Tina Chang

"What's really different about Foxconn is they're trying to push it in the market by having a more externally focused ecosystem, so it's not just their supply chain," she said. "They're also asking that supply chain to innovate in an externally focused ecosystem, as opposed to traditional companies that tended to look at that ecosystem and innovation internally."

Foxconn's impact is already being realized in many areas.

In higher education, Foxconn has gifted \$100 million to the University of Wisconsin-Madison to establish the Foxconn Institute for Research in Science and Technology to pursue further collaboration in research, education and scientific outreach.

Foxconn also established an agreement with the University of Wisconsin-Milwaukee and Chung Yuan Christian University to create an inter-

national co-op program that will allow UWM engineering students to study at the university and work at a Foxconn facility in Taiwan before returning to UWM to complete their degrees.

The program eventually could be expanded to other colleges and universities in Wisconsin and the Midwest.

Another example is Foxconn's support of Wisconsin college students, staff and faculty around the state as part of its \$1 million "Smart Cities - Smart Futures" competition, which aims to incorporate the selected ideas throughout the state.

Foxconn also is exploring the use of autonomous and electric vehicles at its Mount Pleasant site with an array of partners, Woo said. Partnerships with Wisconsin companies may span the transportation, health care and medical solutions, and smart living industries, he added.

In Racine County, Foxconn and Advocate Aurora Health are piloting a next-generation, digital health services network, combining Foxconn's predictive modeling technology and Advocate Aurora Health's artificial intelligence technology to create a cloud-based network that will be able to forecast health care costs and wellness programs, while also compiling patient data.

"We want to help develop Wisconsin Valley into a high-technology hub to eventually rival that of Silicon Valley in the west and the Boston corridor in the east," Woo said. "This is not something that can be achieved by a single organization no matter how visionary its leadership is."

"Reaching this goal requires the development of an ecosystem that fosters talent, investment and technology to catalyze the development of new solutions and applications for the future."

INSPIRING IDEAS

Breaking down the Smart Cities - Smart Futures competition

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Of 325 submissions, 88 teams from Wisconsin colleges and universities advanced through the first round of the "Smart Cities - Smart Futures" competition sponsored with \$1 million from Foxconn Technology Group over the next three years.



The competition is designed to bring to the forefront ideas from students and faculty in Wisconsin that could improve health care, transportation, production and other elements of the state's economy.

The first round of winners were announced in December at an event at University of Wisconsin-Parkside. Each team received \$500 to support their ideas and were invited to apply for the second round.

Second round winners, which will be up to 50, will be announced in March. Those teams will get \$1,500. Third round winners, up to 16, will each receive \$5,000.

Here's a look at which schools are leading in the competition.

NUMBER OF TEAMS/COLLEGES FROM SCHOOL TO ADVANCE THROUGH ROUND 1

Medical College of Wisconsin	21
UW-Madison	15
UW-Platteville	13
UW-Milwaukee	7
UW-Parkside	6
UW-Whitewater	6
Gateway Technical College	3
Marquette University	3
Milwaukee School of Engineering	3
Carthage College	2
Carroll University	2
Concordia University	2
UW-Eau Claire	2
UW-Green Bay	2
Madison Area Technical College	1

Source: Smart Cities - Smart Futures