

Hi, Mark.

I am very excited about my home state winning the bid to have Foxconn invest in Wisconsin's future. You are right that this is a major game-changer for the Badger State. Your intuitions about the impact have been accurate, but I can assure you - from personal experience - that the impact is bigger than anyone might imagine.

I grew up in Madison (East High 1990) and earned a B.S. degree at UW-Madison in Materials Science & Engineering (1997). My first job after college was a seven-year stint as a metallurgist at Ladish Co. in Cudahy. In order to advance my career I ended up moving my family to Arizona in 2004 to work at Honeywell Aerospace. In 2008 I was hired by Apple to work at their **headquarters in Cupertino, CA**. My first project at Apple was to work with Foxconn to develop a new cinema display. I have spent many, many weeks in Foxconn factories in Shenzhen, China during my four years at Apple to develop parts and manufacturing processes for Apple products, including displays, iMac computers, MacMini computers, and iPad accessories. Their Shenzhen campus employs ~ 250,000 workers. The campus is practically its own city. They have many such campuses spread throughout China.

In 2013 I moved to Seattle and I have spent the past four years working for Microsoft. And during my time at Microsoft I continue to work with Foxconn, this time to develop metal and plastic parts for the Xbox gaming console and also the hardware used to run Microsoft's Cloud in our data centers. My first boss at Microsoft used to work at Foxconn (he is now retired). He was one of Terry Gou's go-to guys and he was credited for getting Foxconn the account to make Apple's initial iPod. I think the number of millionaires that Foxconn has created over the past fifteen years can rival many Silicon Valley companies.

Regarding the products that Foxconn is involved with. Foxconn is not just a major player in consumer electronics. They are a growing force in the infrastructure used in data centers that power the so-called "cloud." Server computers, racks, power-distribution units - all of it. They are the go-to supplier for both Dell and Hewlett-Packard's server business, for example, and they continue to be important for Microsoft's Windows Cloud Server hardware.

Foxconn has four main attributes that has earned itself the top-spot in Apple's supply chain (and other tech companies):

- Very fast at developing new manufacturing processes and new hardware - they have armies of engineers at their disposal
  - companies like Apple know what they want in a design, but usually have only a vague idea of how to bring it into reality; Foxconn not only provides the outsourced capital-equipment and labor, but they often provide the engineering know-how to actually achieve what companies like Apple want
- Extremely fast at bringing a new product into full production - called "ramping" in the industry; a fast ramp minimizes inventory in the supply chain and enables companies like Apple or Microsoft to bring new products to market sooner; no company in the world can ramp as fast as Foxconn; no one.
- Very strong financial resources that enable them to add capacity (factories, capital equipment, and labor) in a very short amount of time.

- Also, Foxconn has “economies of scale;” That is, few companies in the world can rival Foxconn’s purchasing power for materials and commodities used in the products they produce; they often get better prices than OEMs like Apple or Microsoft.
- Smart risk-taking. Their leadership knows how to place their bets and their strong financials allow them to absorb the losers so that they hit the home-runs that have made them the juggernaut that they are.

With respect to the product they plan on making in Wisconsin, the 8K LCD panels. Here are some facts with respect to display panels:

- The emphasis on this factory being high-tech is not overstated; not only will the level of automation in the factory be amazing, but these panels require clean rooms that will rival those found in semiconductor fabs
- display panels are almost always one of the hardest parts of any product to get ramped into full production; display panels almost always “gate” (i.e., limit output) the amount of product that a company can make available upon launch. iPhones, tablets, computers, televisions - if it isn’t the cosmetics of the enclosure, it is the displays that are the hardest problem to solve in mass-production (in terms of getting high enough yields through the process)
- South Korea and Japan have owned the display market; it is extremely difficult to have a cooperative, transparent relationship with these display companies in S. Korea and Japan; in their zeal to guard their trade secrets they end up not sharing enough information with the end customers (like Apple, Microsoft, etc) in terms of how ready their displays are for mass-production; this creates a lot of problems in the supply chain and creates extreme stress within the employment ranks at the end customers.

With respect to how the Foxconn factory will impact Wisconsin. Based on my observations over the past ten years working with Foxconn, here is what I would expect to see:

- A boom at Mitchell Airport and in the hotel, restaurant, entertainment, car rental, and chauffeur markets
  - A lot of people will be flying to WI to attend meetings at Foxconn - A LOT of people, including many international travelers from Asia
- A revitalization of Wisconsin’s plastic injection-molding industry; perhaps a revitalization of the machine-tool industry as well
  - the LCD panel is assembled into a housing before it is put into a device; those housing assemblies often include plastic parts, stamped-metal parts, cables, connectors, fasteners, & etc.
- Foxconn loves to vertically integrate - 8K LCD panels are just the beginning; most of Foxconn’s campuses expand into products and markets beyond the initial products that launched the site; expansion could easily include the following:
  - LCD panels that are assembled into touch-display modules
  - Production of the mechanical enclosures can move from Asia to Wisconsin or the Midwest more broadly (Foxconn has its own enclosure business); stamping, molding, machining, welding, painting, anodizing, die-casting, metal-injection molding, 3D printing - lots and lots of manufacturing processes are needed

- Printed circuit board assemblies (PCBAs) are another commodity made almost exclusively in China; if LCD panels can move to WI, then PCBAs can move their too; that would be amazing.
- Hardware manufacture that feeds into the data center infrastructure (currently in Juarez, Mexico)
- cable and connector production (Foxconn has its own cab/con division) - this could leverage local companies like Charter Wire and the injection-molding companies in Wisconsin.
- finished-goods assembly - not just the LCD modules but the entire television could end up being assembled in Wisconsin
- The approx. 20K in “induced” jobs that Gov. Walker references is real. Foxconn not only hires their own workers, but they hire their own subcontractors to work within their facilities and subcontractors set up their own factories near the Foxconn factory. The 250K campus in Shenzhen - that is just the Foxconn employment. The volume of subcontractor factories surrounding that campus is no less staggering.
- These jobs will offer upward mobility at Foxconn
  - Foxconn loves to promote from within, and an entry-level line worker can quickly move up to line supervisor, area supervisor, quality technician, shift supervisor, project manager, area manager, & etc.; I’ve seen it happen in other Foxconn factories.
- These jobs will be demanding
  - A job at Foxconn is not for the lazy; you will work very hard and earn every dollar of your pay and benefits; white-collar professionals will likely spend many hours per week on conference calls at night with colleagues back in Taiwan and China - its the nature of the business.
  - Its not just Foxconn that is demanding; its Foxconn’s customers that are demanding (like Apple, MSFT, etc.)
- Wisconsin will get an influx of talent in their labor pool and start reversing the “brain drain”
  - I left WI in 2004 to pursue greener pastures; I am an example of the “brain drain” of a UW-Madison grad who left the state; I can tell you - I would move back to Wisconsin to take a job at Foxconn; I have a BS in engineering, an MBA, ten years experience in the aerospace industry, and ten years experience in the consumer electronics industry, and I would be excited to bring that experience and expertise back to Wisconsin at a company like Foxconn. Over the years since I left Wisconsin I’ve considered moving back; I’ve interviewed at companies like Oshkosh Corp, Manitowoc Corp., and Harley Davidson and all of the job offers required a 30% to 50% cut in pay compared to what I could earn in AZ, CA, or WA. Foxconn would finally be a manufacturing company in Wisconsin that could offer employment packages that bring talent from the coasts back into Wisconsin and the Midwest.

These are just a few of my thoughts and comments with respect to Foxconn and their move into Wisconsin. Feel free to share any of this with your audience if you so desire, though please do not share my name.

Love your show. Thank you for such a great product on the radio / internet. FYI - I'd pay for a subscription service if necessary. You are that good!

Best regards,