

# Ep.3.10 - David Wang

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## SUMMARY KEYWORDS

michigan, software, beet, industry, machines, system, create, ultimately, manufacturing, partners, assembly lines, factory floor, manufacturing process, humans, company, people, working, device, data, call

## SPEAKERS

Ed Clemente, David Wang, Announcer

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### A Announcer 00:01

Welcome to The Michigan Opportunity, an economic development podcast featuring candid conversations with business leaders across Michigan. You'll hear firsthand accounts from Michigan business leaders and innovators about how the state is driving job growth and business investment, supporting a thriving entrepreneurial ecosystem, building vibrant communities and helping to attract and retain one of the most diverse and significant workforces in the nation.

### E Ed Clemente 00:29

Hello, I'm Ed Clemente. And today I'm going to introduce an interesting guy, David Wang. He's the CEO and founder of BEET. Welcome to the show, David.

### D David Wang 00:41

Well, nice to be here.

### E Ed Clemente 00:42

And we've had the pleasure of talking a little bit ahead of time, but what your company does is fascinating, especially in the area of software engineering, but, you know, BEET itself, maybe people don't know what it is. So if you meet somebody for the first time, kind of what do you tell them the company is does.

### D David Wang 00:59

So BEET is really aware everyone mentioned about Industry 4.0 Manufacturing 4.0 and we

So BEET is really aware, everyone mentioned about industry 4.0, manufacturing 4.0, and we believe we're one of the leading companies in really making this industry 4.0 become a reality. And when everyone's talking about Industry 4.0, everyone has different answers. But what BEET does, when we started the company, we recognized there's a disconnect between the humans connection to machines. So what we really try to do is create a connection of how the people run the machines based on our present understanding of how the system works. So we build a new connection between machines and humans. And now, in layman's term, that's what we do, what we provide to the marketplace.

E

Ed Clemente 01:55

Yeah, and we're gonna unpack that somewhat now if we get a chance, but before we get to that, I just want to make sure so, for example, use an example like, say, automotive or some kind of assembly line, what would your software do? So, with Industry 4.0, but just giving a quick example of how someone would see it used today as a common practice.

D

David Wang 02:22

Yeah, if you go to a factory, there are a lot of software systems already available there, right? So basically, what they will provide you is, hey, I have a station, my cycle time is this. I made 50 parts, and I should make 60 parts. And a lot of time people, you'll have you have spend time you stop watches have people standing around, looking at how the machine actually functions to find out why I'm running 10 jobs per hour below what I'm supposed to be. What we do is we deploy our software, we basically digitize that station, or that line down to every single motion and events. We will tell you how long it will take the line to open and close, we show the entire interaction of the lines, and through our software we will be able to tell you why you're losing that 10 jobs per hour without any human intervention. The software will do all the analytics. So this way, even though you're not an expert, you will be able to understand where I'm losing production where I'm leaking production. And for us, this is what we can do to help improve throughput. Right? Ultimately, that's what manufacturing is supposed to do to make the same thing with less resources.

E

Ed Clemente 03:35

So, just in my layman's terms. It's more like an efficiency thing, partially, right? Maybe it's making steps that it doesn't need to make or there could be maybe a troubleshooting thing, too, like fatigue of machines or something like that as well?

D

David Wang 03:53

Yes, well, actually it really covers both, right? I mean, manufacturing, really, ultimately is efficiency, right? I mean, the ultimate goal is put less into making the same product. Every manufacturer is supposed to do that, right? And by our ability to digitize the manufacturing process, down to every single steps or motions or devices to monitor that. We have, number one, shows you per device when acting normally, especially a high bar, a population of the same device. Okay, we're gonna see how you put one device in particular slower than others.

So you can optimize that device. And as you record every device, how they behave, and the analytics available today in the cloud, you can start observing anomalies and predict failure before the device actually fails.

E

Ed Clemente 04:46

So, first of all, I think the term - and we've had quite a few other guests mention Industry 4.0 - but for your particular portion of this, what you're doing for industry 4.0 is software advancement for efficiency purposes mainly on production lines, or is there other things it does beyond production lines?

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David Wang 05:12

Actually, our understanding at BEET of Industry 4.0, there's a lot of terms they use, right, while the most commonly used word is digital twin, right, you want to have a digital twin. Or people mention data lakes, people mention, all this different datas. I think a lot of the time really people are missing the main point of really what Industry 4.0 really is about, okay. There are several flaws in the thinking of this right when you talk about digital twins. Okay, so what is what is digital twin really serve? A lot of times the digital twin is really designed for humans, they want to try to have humans understand our process better. So they create a digital virtual reality to mimic the real reality. But really think about this, right, the virtual reality, the motion to show how the process works, will computers or AI really require that to analyze where the flaw in the system is. Most of the system designed today on the manufacturing floor is designed for human consumption, that humans asked for it to interpret data, then to make a nice report to summarize, what's the flaw in the system? And that's a lot of the effort in the Industry. 4.0, like that. What we do, I think quite different from everyone else is when we first started this journey, we realized the data sets collected from the factory floor, number one, they are incomplete. Number two, a lot of time they're missing. So we really try to rebuild a foundation to enable this Industry 4.0 revolution, because ultimately, the data is the foundation of the revolution. And when we designed our system we really designed a system to leverage cloud computing, the AIs of the future. So when we design our system, a digital process is more beneficial for machine learnings or AI. So this way we don't have humans interpret the data, rather the computer algorithms understand the inefficiency in your systems and identify that. So you know, most of the factory floor, the problem you have, 70% of the time you try to find the problems and 30% you spend in really solving a problem. So what we are targeting with our software, what believe Industry 4.0 really is, it digitizes the process to allow all that computing power available in cloud computing large database, and we create this new data sets that we eliminate the 70% of trying to find the problem, use computer analytics, you know AIs, machine learning, algorithm built into our software, we really created a first, we call it digital process engineer assistants, that can find a problem for you automatically. Now you only need humans to focus on fixing the problem. I think that's really the main difference between our approach to the market, or our understanding of Industry 4.0 compared to everyone else, that they say, Hey, give me your data, give me your data lakes, let us do it, we'll do some magic, or we'll give you some answers. And, our approach is, hey, we need a different set of data, a true set of data that can really enable the modern age computing to deploy on the factory floor.

E

Ed Clemente 08:45

So this might be a crude example. But this is the way I think when you explain it to me. So I think of like GPS on your phone, right? When you're looking for something. So if it was me telling you because I've lived from to get to point A to point B, say, Oh, you turn at the big tree and you take a left at the factory and all that. GPS comes along and gives you the ultimately most efficient way to get from point A to point B, but then also bake into the equation, there's also a traffic jam here. And there's also maybe construction there. So we're helping you avoid the things you don't have to discover. We're just trying to get you most efficiently to point B. And that's kind of what's your software and deep learning, is that kind of close to what you do?

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David Wang 09:36

Actually this is the first time somebody made this comparison. I actually really appreciate that. We're really, ultimately, a GPS system that can see all the road conditions everywhere and, yeah, literally give you the quickest way from point A to point B in manufacturing. You're listening to The Michigan Opportunity, featuring candid conversations with Michigan business leaders on what makes Michigan In a leading state to live, work and play, listen to more episodes at [michiganbusiness.org/podcast](http://michiganbusiness.org/podcast).

E

Ed Clemente 10:09

How did you get to this position? I know you've got several university degrees, can you kind of walk us through? Because I don't know how people get into software engineering. I don't know what your first degree was in, right? You got it in Beijing, right?

D

David Wang 10:25

No, no, actually. [Where was your first one?] I didn't graduate from my university, Tsinghua University. I went there and then transferred over here. Again, my bachelor's degree in engineering is from Wayne State. [Sorry.] Yes, I finished Wayne State, and started working as a computer engineer, actually. And I did a lot of PLC programming and just raced through the ranks. Three years doing that, then I kind of got bored with doing PLC programming all the time and then went into IT and raced through the ranks for my company. I used to work for a company called Comau. And in IT, became the CIO of Comau North America. So running the entire IT organizations for Comau North America for almost six years. And because of my control background, then my IT background, I went back to business. I was their global director of control engineering for Comau body welding, and eventually became the global VP of engineering for Comau body welding. So I have a quite unique background, yes, from control, to IT, then ultimately, overall process. So designing large welding assembly lines for all the OEMs around the world. So I really understand the automation. You know, it's a very interesting, unique experience to see the convergence of really three things, right? Control network was the safety network, ultimately, was the ethernet network, and they all combined into one, see this opportunity that the amount of data that becomes available, and the people not leveraging the opportunity to be able to digitize manufacturing process down to this level of details, and to see the computing power available for the future in cloud computing combined all together, to really usher in the new age of mass production, right? You know, really leverage, I call it the technology we're creating is really the internet age of mass production. You know, that's why we are trying to bring them together.

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Ed Clemente 12:35

I would imagine, and if you might want to mention some of your stakeholders, or even some of your clients, if you can't mention specific companies, but at least the industry. So I would imagine because you're based I think you're in Troy? I can't remember where you're located. [We're in Southfield, Michigan.] Sorry. And so, I would imagine you have quite a few OEMs or tier 1s or tier 2s as some of your clients. Is that why you're here?

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David Wang 13:05

Yes, you know, because my background really is from service to the automotive industry and large welding assembly lines. So our target when we came to the market was to target automobile-related businesses. So our major customers are OEMs and OEM tier 1s. And, we also have partners so we create the core technology, but we do have partners, like Google is our partner as a cloud provider, and we do have another partner called Telit. Telit created a software that allows us to talk with all the different PLCs. And we also have partners like Shinto Corporation, the largest equipment maker in foundry. So they are our, we call them value-add resellers to the foundry business, okay, they are also our resellers in Japan, in our software. We also have other partners, like TA Systems with another system integrator make the plastic assembly lines. So they are pushing our technology to their customer base. And also like service providers like KUKA, everyone probably knows KUKA is another large system integrators. And like Expert Group, another system integrator. And so we do have a lot of partners pushing our software, see the opportunity that our software can do to help them to debug, to launch their system faster. And in turn, they can provide services to their end users, right, in this case, all the tier 1s all the OEMs

E

Ed Clemente 14:50

Two questions but one I'm gonna maybe jump to one of your other questions, I'm gonna ask you about future trends, but you just described probably like eight or nine companies that you have to work with. Because, it's sort of a real integrated ecosystem that you've created somewhat with your software program. Is that the future, as you mentioned, not just for manufacturing, because this could obviously be used for any manufacturing process some of your systems, not just automotive, but is that the future of the way this is going to start moving more is with Industry 4.0 in what you're doing?

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David Wang 15:25

Yes, I truly believe that. That's the way of the future, right? And it's one of the hottest areas we're in right now. You know, because of labor shortages, with chips, all those materials. There's a lot of disruption in the supply chain. OEM got impacted big time, right? For a while, the biggest program we're working on right now is, actually through our software, implementing our software, we can really create interconnected enterprise, so basically, the supplier implementing BEETS software, and BEETS software, because it's cloud based, will be able to provide summary datas to the OEM, so the OEM can see trouble coming. So we're actually in the process working with OEMs to create what we call, you know, a supplier process,

visit the portal, that through our software, we can create clarities on upcoming shortages or inventory shortages, and be able to maybe help people to plan to not shut down the final assembly plan. So these are the things you may want us to do, you know, it's an interconnected world right now, right, because of all the advancement in communications, the internet. So BEET is going to be, I think, will play a big role in connecting manufacturers, either tier 1 or tier 2, tier 3 all the way to the OEM, to provide that visibility. The other thing I think is really important is that we're not doing this, that we cannot do this alone, right? We have to find partners who have the fundamental technology to enable us to digitize any type of manufacturing process out there, we need know how's. So we do have customers outside automotive, right, like in consumer products, and we're actually finding partner in those areas to help us to deepen our technology.

E

Ed Clemente 17:24

Being here in Michigan, but I noticed you've really emphasized sort of the global reality of a lot of your partners too. But we're also a big agriculture state. And I'm sure, Michigan is probably in the top three or four states in the country for agricultural manufacturing, from raw products to process food, right, whatever it is, everything from cereal to power bars, and liquid juices and all those kinds of things. So you can see this, even, like you said, in many different fields, but I think because the automotive industry, I mean, there's so many parts in a car, it probably has the most complicated supply chain, I think of almost any product out there, right?

D

David Wang 18:06

Yes, yes, I've been looking through a lot of different industries. I mean, just to look at different industries, I really believe the automotive industry has one of the most complex and longest supply chain or manufacturing process throughout all the industries I've been looking at, yes.

E

Ed Clemente 18:27

So a couple of things I forgot to mention, too, is when I went to your website, it's B-E-E-T, two E's, one T. That's the name of your company, though, right? [Yes, yes.] Just BEET. And so I saw that Governor Whitmer came to your office. You didn't mention that to me when we talked before I saw a picture of you and her together at your operations, right?

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David Wang 18:52

Yes, yep. The governor did visit us, I think this is before COVID. So maybe you want to know the story behind why we call ourselves BEET. [Yeah.] Okay. Officially, we always say that BEET is beyond equivalent efficiency and throughput.

E

Ed Clemente 19:14

So it's an acronym right? Okay.

D

David Wang 19:18

The real story behind that is, we aspire to lead industrial Apples. You know a company called Apple, right? What Apple revolutionized is humanity's connection to data, to information, to other people. That's what Apple introduced, this digital age, revolutionized our daily life, right? How we access data, information, other people. What I believe or what we believe, is this Industry 4.0 really is to change the relationship between humanity with machines, okay? The relationship between man and machines today is very bad, right, we only pay attention to the machines when they break down. If the machine is working well, you never see a guy go to robots, say, hey you did a great job, right. You only say hey, this robot is bad, it's breaking all the time. So to really advance humanity further or really, really ushering in this new age of industrial revolution is you try to change the relationship between humanity and machines. That's what we founded BEET for. We create a technology that's going to fundamentally change the relation relationship between humanity and machines. And that's why we believe we will be the industrial Apple, right? Apple is consumer, BEET will be industrial.

E

Ed Clemente 20:33

I don't know, I like to thank my car every winter for making it through another Michigan winter usually, but it's not a total robot, but I love my car. So the last two questions are pretty short and quick for you. Any quick advice you would give your 17-year-old self growing up? Back in? I don't know if you grew up in Beijing or if you grew up in a smaller city, but any advice you'd give yourself today that you probably didn't think about back then?

D

David Wang 21:01

No, I think you know my advice through all this is really you need to fall in love with what you do. Chase your dreams. And I think this has been something said by all the successful people, really believing in what you do, chase your dreams. And you can only ask yourself to put everything you have into something you love. And if you do something you love, you'll be happy every day. That would be my advice to myself 17 years ago. I am, right now, chasing my dreams.

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Ed Clemente 21:36

It's wonderful. And you've been in Michigan a long time now. What do you like best? Because it's interesting. Do you like festivals, the weather? What do you like about Michigan?

D

David Wang 21:45

I like Michigan, it is a beautiful, beautiful state. I travel around the world, right? But I always I think I like Michigan has a distinct four seasons. And I think, somebody will say that winter is harsh but I think humans are relative. If you don't understand the harshness of winters, you'll never appreciate the warmth of summer or the greenness of the spring or the autumn fall, right? I like the four distinct seasons, they really give you an appreciation of what you have,

right, and it's the water, all the water around Michigan. I think another 10 years, water, drinkable water will become the most precious commodity in the world and Michigan is surrounded by it and I love it for that.

E

Ed Clemente 22:34

Well, I want to thank you very much, David for all your answers. Again, our guest was David Wang, he CEO and founder of BEET. Thanks again, David. You sound like you're on a great path yourself and keep doing what you believe in. Thank you for doing the show today, too.

D

David Wang 22:49

Thank you for inviting me on. Thank you for allowing me to share our inspiration to bring Industry 4.0 to the world. Thank you.

E

Ed Clemente 22:57

Join us next week. Our guest is going to be Matt Johnson, External Relations for Eagle Mine, an active copper mine up in the UP.

A

Announcer 23:07

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