

Ep. 21 - Dr. Steve Melnyk_mixdown

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SPEAKERS

Announcer, Ed Clemente, Dr. Steven Melnyk



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.



Ed Clemente 00:28

Welcome to The Michigan Opportunity brought to you by the Michigan Economic Development Corporation. Hello, my name is Ed Clemente. I'm your host today for this podcast, which is with The Michigan Opportunity. And today we're very fortunate to have one of the leading professors on supply chain Dr. Steve Melnick. He is a professor of supply chain at Michigan State University. And I know you've got other titles I remember at your thing, but is that, welcome to the show, doc.



Dr. Steven Melnyk 00:56

Thank you very much. I'm glad to be here.

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Ed Clemente 00:58

And you probably have some other titles, but I know you've published at least 20 books, right? And are assuming I didn't read them all, but I'm assuming that all of them are either to do with like supply chain logistics, borders, intermodal things, those kinds of things.

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Dr. Steven Melnyk 01:19

Most of them are dealing with, I began somewhat differently for many for many of the people you've talked with in the past at State, my background is from the operations management side. And I wound up coming to Michigan State at the time when supply chain management was literally coming off the ground. So I've been here since the very introduction. And over that time, I've changed. I've gone from being a manufacturing operations management person to being a supply chain person. And I've gone from being very academic to being very practitioner-orientated.

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Ed Clemente 01:52

Yeah, that's interesting, too. Because you know, the research I'm sure you do. And one of the questions I asked you ahead of time, and I think you gave a decent definition of the two but the difference between kind of supply chain and logistics, and you kind of hit on it a little bit of just what you said, practitioners I think, too, but go ahead.

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Dr. Steven Melnyk 02:10

Well, what you really asked is a good question. Because often people tend to confuse it. I've had arguments with people in the field, who've said that supply chain management is a subset of logistics management, or is the same as or whatever. And so what I'm going to tell you is, the way we view it at State is the following. We've used supply chain management as the broad umbrella. It deals with everything that you need to do, from designing the product, to sourcing for it, to transporting it, to building it, to moving it, selling it and now to taking it back. But that's not all we do. Increasingly, we're starting to recognize two other dimensions. The first is the strategic dimension. What we found over the recent time period is that supply chains are not tactical, they're not cost-based. Rather, they exist to enable companies to better compete. And in the marketplace, what you find is the companies that have been really successful, the Apples, the Red Bubbles, the Amazons, it's not been an accident that they are masters of the supply chain. So the supply chain is the broad base and logistics deals with issues, such as you know, movement, storage, last mile. It's shared a lot with because of a lot with supply chain, because it was the first area that we really start to see the customer-centric perspective.

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Ed Clemente 03:53

Well, it's funny you said last mile too, is because I think most people might not know that right away, but all of us now probably get some products in the mail now, which 10 years ago, we didn't, but it could come in like four different modes of vehicles for you know, and that's kind of what you're talking about could be USPS. Could be UPS could be FedEx. So is that what you're kind of talking about?

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Dr. Steven Melnyk 04:19

It's the notion of how do you get the product from the company to the customer's hands. And that's one reason why recently, Amazon has moved from USPS from the United States Postal Service, they've moved to their own fleet. They want to have control over that last mile because it's essential to how they compete. But that's one other thing. The other part I just want to re-emphasize is that it's been logistics that's introduced supply chain to this concept of being customer-centric. Logistics in logistics that's been traditional. In fact, I talked to my colleagues in logistics, and they talk about how they're looking at the customer. And that's now becoming a really important issue. So what you're starting to see is two things as we discuss number one, the broader base, the expanding nature of supply chain. And number two, the fact that the boundaries that used to separate supply chain from marketing, and accounting, and finance, are disappearing. And we're starting to find that the most effective supply chains are the ones which directly interact with the customer. And the ones in which the people who interact with the customer understand that they represent the company to the customer. And that's supply chain.

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Ed Clemente 05:38

So that could be even the AI that the company uses to identify your patterns. So when you get those little list of other things you might want to buy if you like this kind of thing.

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Dr. Steven Melnyk 05:48

Exactly. So for example, you're on Amazon, and Amazon will suggest recommendations. Have you considered this? That's an issue, but it's also recognizing that at times, you've got to tailor your message. This is almost like a side, side comment. But I'm convinced that most companies don't understand being customer-centric. And the best example I can think of is the the mail the telephone trees you have in most companies. I'm convinced they were created by some kind of a sadist, working in a hovel somewhere in University of Michigan. And I've got to say that, because it's on my contract.

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Ed Clemente 06:26

Um, speaking of MSU, you're in the Broad School, correct? (That's right.) Is that basically the business school now for MSU?

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Dr. Steven Melnyk 06:35

Its is, its, Yeah, and that's important, because the other thing that you're picking up is, there are two traditions now in supply chain, there's a very mathematical tradition, which is why, at Michigan, the supply chain program is in the engineering school. Whereas over here at State, it's in the business school, because we see it as a business function. And it's a context, it's an environment, it's also a discipline. And it's also why we're so well known, because we don't look at supply chain from the theoretical perspective, but we look at it from both the theoretical and the practitioner perspectives.

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Ed Clemente 07:16

And it's basically it's a new ecosystem, because of the fast, rapid rate of internet and everything else, right?

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Dr. Steven Melnyk 07:24

It is. And in fact, that's why we're so important. Universities are important, because if you're at the front lines, you're too busy trying to figure out what's going on. And you need someone in the back who makes sense of things. You need someone who can answer questions, for example, issues we've never even thought of. A couple of years ago, I was approached by a branch of the military. And they were faced by a problem where over 10 years that the Department of Defense has lost 27% of their supply base while their budgets have gone up by 39%. And the question that they were saying is that this is not good. And so are we a good customer? Now think about that? Have you ever heard supply chain people asking that question? (No.) It's a critical question. I'll give you an example, and this is just for you to think about. April 12 2021, an article is published in Businessweek. And the article talks about the chip shortage, and it talks about how Toyota has been able to overcome it. And it's done it because it's gone beyond the first tier. And that's another dimension. In the past, we used to end that the first tier, now we're recognizing we got to go all the way through. And they're working with their third and fourth tier suppliers and guess what? They're winning. And at that same time, that article comes out Plante Moran, which does their annual working relationship index, which is really asking the auto suppliers, to what extent are the big six good customers, and guess who winds up on top? (Toyota) Toyota, and I'm going to argue that Toyota is able to work with its fourth and

fifth, the third and fourth year suppliers, because it is a good customer. And yet, that's a dimension we haven't thought about until recently.

E

Ed Clemente 09:23

Well in Michigan State is known around the country, obviously for supply chain logistics and packaging and everything else. But is that a lot of due to because of the automotive industry being here for so long? Or is that like a normal field that you would see in a lot of universities or is it more hyper because of our location too?

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Dr. Steven Melnyk 09:43

Well, it's several things. Number one, we're in a very unique position because a lot of manufacturing activity takes place around us. We don't have as close relationships with the auto industry as some of the other universities but what we do have is we have a very broad base of relationships. Our alumni are almost across the world. And the other thing about us is our heritage. When we began supply chain so many years ago, we had people like Don Bowersox like Phil Carter, like Bob Maaske and John Hoagland. And they were big on working with industry. And what they taught us and what they taught me, many, many years ago, when the dinosaurs roamed the earth, that I've been to around here too long. It's that, in the supply chain field, the practitioners are the real innovators. And if you work closely with the practitioner base, you start to understand where the field is going. So what we were able to do, which is really unique, is we aren't the most rigorous. I mean, Indiana University, for example, is a phenomenally rigorous school. We have good rigor, but what's always made us unique is because we work at an intersection between theory and practice, we were always able to identify new developments before they became mainstream. And that awareness has always been why schools, why companies and people come to MSU. We're not going to tell you something that's three years old, we're going to try to tell you something that's really current.

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Ed Clemente 11:18

So instead of like supply chain Darwinism, the survival practitioners are the ones that probably make the quickest and leanest decisions.

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Dr. Steven Melnyk 11:27

Yep. And it's also the fact that they you can't afford to learn through experience. I mean, let's face it, experiences are, is a beautiful teacher, the only problem is, it's very painful, (and expensive.) And so in many cases, what you need is someone to help you understand

the essence to get to the essence. And that's what we do. And what we try to do is we distill things.

E

Ed Clemente 11:54

I was gonna ask, I wanted to jump on two points before we get too far. Um, I think the biggest risk sort of and you touched on it with your defense contract issue, but cybersecurity. People don't like I was talking to somebody just the other day and I said, yeah, I was gonna be interviewing you and I said, supply chain cyber security. They said, well, those two are different subjects that I got Not at all. And I'd like you to explain why those two are so integrated nowadays.

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Dr. Steven Melnyk 12:21

Okay. Well, let me let me take you some Let me take you back for a minute. Recently, the southeast and eastern seaboard got hit by the Colonial petroleum cyber attack. That is a supply chain attack. What we're starting to find is that people have thought of cybersecurity as a information and computer technology issue. And now we're starting to recognize it's not, it's not that at all. It is the fact that we're living in a very interconnected world, and that you are sharing information and flows across the world. And when you're working in that world, you are only as strong as your weakest link. And those weakest links come not from you, they come from your first, your second, or third tier suppliers. And the funny thing is, it's not that's not a new realization, 2008 Mattel Toys in November announces to the world it cannot fulfill it's going to pull product just before Christmas. Why? Because in June of that year, a third tier supplier located in China, introduces lead paint, or paint with too much lead. And by the time Mattel became aware of it, it was November, too late. We're starting to find ourselves in the same position. Some of the biggest recent breaks we've seen, have been through the supply chain. Solar Winds December 14, 2020. The NSA announces that there's been a massive breach that affects some small departments of the government, the Pentagon, the Treasury, you know, really small groups. And it comes because Solar Winds is provides updates. And in June of that year, the update was corrupted. A major party and the information that we've gotten now is coming from that it was Russian. Sophisticated tech loads a back door, and suddenly 18,000 companies are impacted. In 2017, the G the GSA or the General Services, one of the organizations in the government makes an observation that most of the attacks occur through the supply chain. If you think of it, if you're working in an interconnected world, most of the companies the large companies you deal with, you know the GMs the Fords, etc. They pretty well got everything together. If you're going to attack them, you don't attack them head on, you look for the weakest spot. What's the weakest spot?

E Ed Clemente 15:09
Tier 3.

D Dr. Steven Melnyk 15:11
Look for a small supplier who basically is hooked up to their systems and go through them.

A Announcer 15:18
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E Ed Clemente 15:35
I wanted I didn't want to go too far without at least mentioning too and part of what you just said. And I know this is difficult, but can you just give like a 10 second definition sort of what blockchain is?

D Dr. Steven Melnyk 15:47
First of all, blockchain is the critical tool in supply chain cyber security. It is essentially a multi-ledger system. And the way you can best understand blockchain is when we're dealing with contracts, etc. There's an opportunity for you, for some parties to change it. For example, let's say I gave you a check and the check was for it's a digital check and the check is for \$500. Supposing what's to prevent you from taking that cheque and changing it from \$500 to \$5,000? Well, what a blockchain does is it has multiple distributed ledger's, so that you, you just don't simply have one copy of the check, you've got multiple copies, so that you just cannot if you want to take that, if you want to be able to be successful with that attempt, you've got to now not only change my, your copy, but the other copies. So it's an attempt to prevent that. And it's a proof. It's an attempt, which recognizes the fact that we don't have trust, or we want to basically recognize that people will work around trust. But the problem is, I'm just going to have you think about the following, blockchain is important, but blockchain is not enough. Blockchain is good, if we're dealing with IT, IT issues. Where blockchain falls down is if we're dealing with issues involving intellectual property, and operating technology. So for example, if I want to get into your equipment and disrupt it, supposing I was to get into your computer, and basically lock it up. Or supposing I was to get into your master production schedule and randomly change

the entries. Or supposing I was able to download your cost structure, so I knew who was buying from you, how much they were buying, and what your costs were, what your fixed costs, variable costs, were. Blockchain doesn't help you with that. It's an important element, but it's not enough to do it by itself. And that's why, and here's something to think about. March of 2020, there is a report that comes out of the federal government, it's a bipartisan report, which is a rare entity like a Dodo. And it's on, it's on, it's called the Cyberspace Solarium Commission. And what they come out with is that their first statement is, if you look at this as an issue of technology, you will fail. It's a business issue. It's a systems issue. And therefore blockchain is part of the answer. It's not the whole answer.

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Ed Clemente 17:03

Is it could also be human error, right? As people enter data, like any other input output information.

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Dr. Steven Melnyk 18:41

Not only is it a human error. it's whether or not I decide to really want to do it. Supposing, let me give an example, you're a supply, you're a customer and you tell me and, I'm a supplier, you will do this, I look at it. And I say to myself, my gosh, it's going to cost the contract is, and this is an actual case, the contracts gonna cost me is giving me let's say, \$3 million a year, it's gonna cost, it's gonna cost me \$800,000 to meet your requirement. At that point, I don't care about blockchain, I'm going to look at you and say, bye, I don't have to serve you. And as soon as I do that, then you have a problem. And that's one of the challenges people don't understand, is the challenge is the problem has being created by the small companies. It's being paid for by the large companies. And you cannot just simply look at the small companies and say, do it. Because in many cases, qualified small companies have the ability to turn around and say no. So how do you deal with that? That's a business issue.

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Ed Clemente 19:43

Well, I'm down to like three questions just to let you know. (I'm sorry.) No, no, no, no, don't worry. We I love this and I'm sure a lot of our listeners are going to probably have a million more questions too after they hear it. But but I think that I think we should also address this quickly, the fact with China Belted Road and how they've really doubled down on at least their supply chain, what they think is going to be supply chain for their products. And you pointed out something earlier to me that they're no longer suppliers. But he said their competition.

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Dr. Steven Melnyk 20:20

Let's understand something, many Americans, many listeners to this podcast are going to walk away thinking of China as being a country where it's essentially poorly paid workers, working long hours, for very minimum wages. And I've been to China several times, and that's not the case. In 2018, I had a chance to visit Haier Corporation, and that's spelled H A I E R. Haier is located in Qingdao, China. And it's currently the owner of GE appliances. They are one of the largest appliance manufacturers in the world. And what they've done is they fundamentally invested enormous resources to change how they plan schedule, produce products, so that now their goal was by 2020, that they were going to be able to offer you a customized appliance. Your color, your features, delivered to you in within the same time and at the same cost as a standard appliance. And they're not doing this through adding resources. They're doing it by being smart. Isn't that amazing?

E

Ed Clemente 21:27

Yeah, it shows you how we will you know how we're going to adapt to any of these because I think America sometimes just forgets, you know, some of the things that got us to where we're at and how we got to be like you were saying earlier, reinventing ourselves goes to the Darwinistic sort of people that think about it, who are practitioners, that's how they get things done.

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Dr. Steven Melnyk 21:50

Well, it's more than that. It's the recognition that if we're going to compete against China, we have to understand we're competing against a country, which has a great deal of resources. There's not as much accountability to the stockholder. For example, China right now has announced a big initiatives that they're going to become a major player in making chips. Just, you know, if you look at what happened to the United States, in February and March of this year, in the auto industry, when companies like GM, Ford, Subaru, Honda all announced that they had to reschedule their production because they couldn't get enough chips. And China is recognizing this and saying, we have to do something differently. And then take a look at what's happening in United States, we have looked at ourselves and said, we have Intel. That's changed. Why is it changed? Well, first of all, Intel is now under competition. Look at what Apple has done Apple's introduced Apple Silicon, in what Apple Silicon is a very different approach. And the thing that people are talking about is their chips are based on a different architecture. And they're just knocking, Intel back. And Intel is now looking at itself and saying, Oh, my gosh, maybe, you know, maybe we'll outsource without realizing that outsourcing of that capacity is critical to our national security.

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Ed Clemente 23:21

Right, and that gets back to your defense folks, back then. Well, I got to get you down to the last couple of questions. But this one, I think you can knock it out pretty fast. What field of industry would you probably req. if you were speaking to like a commencement class? What would you tell kids to get into based on all the knowledge you have now?

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Dr. Steven Melnyk 23:42

Okay, first of all supply chain. And I'll tell you supply chain, because what's happening is as more and more people get into supply chain, they're recognizing that it's becoming broader, and B, it's becoming more diverse and more strategic. And but the second issue is when again, the supply chain understand they have to invest in themselves. And if you're going to invest in yourself, then think about, there's two developments taking place in supply chain. You're either being trained to fill a role, or you're being a generalist, in which case, you're being trained to work across fields. We're seeing a lot of universities out there which are creating specialists. But when I talk to practitioners, the real demand is for the generalist, the person who can work with different groups, the person who can work at the edges. And what does that mean working at the edges? It means working with marketing, it means working with engineering, working with your suppliers, working with your customers, working with finance. So the first thing is that I'm going to say is number one, get in that area. Number two, understand the new areas that are emerging as being critical. Supply Chain Finance. We're starting to understand the importance of Finance and supply chain and how it's becoming a major issue. Cybersecurity. Why? Because organizations now are realizing it, recognizing it. In remember the Cyberspace Solarium report I referred to, over 80 recommendations, over half of the recommendations, are supply chain specific. Get involved in issues like sustainability, transparency, get involved in issues where the focus is not reducing costs, but being responsive. So those are the areas and the final thing I would, I'm going to make a suggestion, not only to look at the field, but look at yourself. Supply Chain, in many ways is like engineering. In 2008, the federal government did a study and they found out that a typical engineering students after they finish four years University 50% of their knowledge is obsolete. (50%?) Think about that in supply chain, we're seeing almost the same phenomenon. Which means as soon as you get out, what was 50% of everything you've learned is obsolete. Now your challenge is, how do you reinvent yourself. And that means keeping on track. Those people out there who reinvest in themselves by going, joining a professional society by taking courses from places like MSU in the executive program, or through the Masters of Science, those are the people going to have the advantage.

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Ed Clemente 26:29

Well, and I'm being a generalist, I really like your first point, I'm sort of A.D.D. as it is, so I really use that as a superpower. Sometimes, to not get too bogged down with details. Sometimes you just got to keep moving.

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Dr. Steven Melnyk 26:45

What you've just raised is so important. One of the most important questions I found, one most important abilities I found which has served me so well, is to understand what the desired outcome is. Too often we train our students to focus on the solution without understanding the problem. And what a generalist does is they define the problem. And too many schools create people who solve the problem. Kettering who worked with Alfred P. Sloan, and was this engineering genius, once said 'that a problem well defined is a problem 50% solved.'

E

Ed Clemente 27:22

Because you've already done some of the deductive reasoning. Right? So your last one, and I know I'm gonna give a secret about you. You were born and raised in Canada, but you became an American citizen. So what do you like best about living in Michigan, you lived here a while.

D

Dr. Steven Melnyk 27:39

I kind of like, to be honest, the variety you know, it's it's it is an interesting state. It's got varieties, its got places that I can visit, getting being able to go down to Marshall and visit National House Inn, or Win Shuler's, being able to travel to Grand Rapids, and visit the Meijer Gardens, going up north. I was just up north all of last week to do some writing. And I have, it's a beautiful place and the variety, the lakes, the places to bicycle. It is a state. It's one of those states, there's only a limited number of states, I would live other than Michigan. And I enjoyed and I also like, in general, the attitude of the Michiganiaan, they tend to be common sense. They tend to be down to earth. They're not pretentious. And what more can you ask for? It's just a great state to be in.

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Ed Clemente 28:37

Wow, that's very kind of you. I appreciate that very much. And once again, our guest was Dr. Steve Melnyck, Professor of Supply Chain at Michigan State University. This was an excellent conversation and I really do appreciate you taking time to talk to us today. Hope we can cross paths again in the future to



Dr. Steven Melnyk 28:54

Makes two of us, this was a pleasure. And as I as I say to most people, have a good day and also keep safe.



Ed Clemente 29:01

Thank you.



Announcer 29:04

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