TABLE OF EXPERTS

The Impacts of Tariffs on Business

BY BONITA TILLMAN

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ALL PHOTOS BY MICHAEL THOMAS

Everyone from high school students to Fortune 500 board members have been discussing the potential impact of tariffs on trade over the last few months.

How far down the supply chain will the cost go? How will tariffs affect consumers? How much will tariffs eat into business profits? Should people or even businesses purchase big-ticket items now to avoid paying increased tariffs? Will tariffs help the country compete better on the global stage?

Three professionals who deal with the eventualities of tariffs recently discussed what they could mean to local businesses and how those companies could address the tariffs, including supply diversification, improved demand forecasting and "tariff engineering" to mitigate the impacts.

Robert Bobroff, publisher of the St. Louis Business Journal, navigated the discussion with:

- **Todd Hass,** Partner, Consulting Services, RubinBrown;
- **Tim Williamson,** President, Service Metal Products; and
- **Dr. Haitao Li,** Professor and Chair, Supply Chain & Analytics Department; and Founding Director, Laboratory of Advanced Supply Chain Analytics – College of Business Administration, University of Missouri St. Louis.

THE EXPERTS:

TODD HASS
Partner, Consulting Services
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Todd Hass is a Partner in RubinBrown's Consulting Services Group. He has over 25 years of experience as a practitioner working with global, complex organizations leading large-scale implementations of comprehensive, organizational restructures encompassing people, processes, and technology. Todd is a Veteran who served in the United States Air Force and Air National Guard.

TIM WILLIAMSON
President
Service Metal Products

Tim Williamson is President of Service Metal Products, a third-generation, family-owned industrial distributor. He holds a BA in Literature and an MBA from Washington University. He brings a creative, strategic approach to leadership and is passionate about long-term value creation and privately held companies. Outside of work, he enjoys time with his wife and five children, yoga, skiing, and boating. He serves on nonprofit boards, including Visitation Academy and the YPO Manufacturing Excellence Network.

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Haitao Li is Professor and Chair of the Supply Chain & Analytics Department, and Founding Director of Laboratory of Advanced Supply Chain Analytics (LASCA) at University of Missouri – St Louis (UMSL). Dr. Li's research interests focus on optimization modeling, algorithm design, and their applications in the broad domain of supply chains, including supply chain network design, supply chain configuration, resource allocation, project scheduling and vehicle routing, among others.

BOBROFF: Who pays tariffs?

TIM WILLIAMSON: Tactically as the good gets imported and crosses the border, the importer of record pays the full tax amount to Customs and Border Protection. In my seat, we understand that that tariff has to be paid and those are real funds that are going from the importer to the U.S. government, but you then have to take a step back and review the relationship and the full market and strategic impact of that tariff. Most of the time, I see the cost of these tariffs fully passed down the supply chain. If it's a 25% tariff, the master distributor typically raises their price 25% or more if there's high demand and that flows down to the end user. But there are scenarios where the market won't bear the full amount of the tariff increase.

There are also times when an imported product has a domestic alternative that may only be 5 to 15% more than the imported alternative. In those situations, we often have to have a conversation with the foreign manufacturer to discuss cost sharing of this new tax. But we have to take each scenario one by one and really understand the full market, how it operates and who the players are to ensure we are offering the best product, import or domestic, to our customers.

DR. HAITAO LI: It's interesting that you would go back to the exporter to see if there is room for them to lower their price. In general that situation could certainly depend on the specific industry and the relative power between the seller and buyer.

WILLIAMSON: Absolutely. The way that margin works, it really depends on who's going to end up seeing the markup, right? We're very industrial. What we do is far removed from a consumer and it gets much more sensitive when the markups flow directly to a consumer who's thinking, I paid $12 for that last week and now it costs $15. We're typically supporting a large capital expenditure, and these costs flow into big projects. Now there's certainly still a risk that these projects could become too expensive, and they have to go back and rerun their numbers to make sure that the projects still make sense because we've seen prices jump up 15%-25% on big multimillion dollar projects. So it's definitely a world where it depends on who the end user is, how sensitive that user is to the cost impacts. The industrial market accepts price increases more easily than the retail side.

BOBROFF: How can companies focus on improving more of what can be controlled to help manage tariff volatility?

TODD HASS: Everybody's trying to figure out tariffs because they are changing by the day, creating volatility that is hard to manage and plan for. It's hitting bottom lines and tying up a lot of cash. The best approach is to basically go after what you can control, like supplier diversification strategies. If you single source or multi-source with your vendors, you have to understand where the options are as far as what levers to pull on some of the processes you control.

As an example, a lot of companies say they do sales and operations planning, but do they demand plan as well as they perform supply planning? They need to give the full S&OP process the due diligence it really needs as each step is critically important. You're going to have inventory, overtime and labor capacity planning all going on, but it typically falls on the supply plan. This is the time to start thinking about demand planning. How can you understand forecast accuracy and truly what you need as a company making purchases world-wide? If you can figure that out, it doesn't matter what the tariffs are or how they fluctuate, you're staying ahead of it already by better managing overstated forecasts. You also start looking at landed costs and total costs. The metrics you use should start to adjust as well because people typically use the standard costs for a particular part, but the reality is there's a landed cost that's not being calculated as commonly, which could provide better insight on company procurement practices. That's how I would focus it a little bit more.

WILLIAMSON: That's a great point. The first thing we did was make sure that we actually calculated what the landed cost change for our products would be because if it's a 25% tariff, the landed cost impact will be less than that. You're only paying the tariff on the value of the goods not on other costs associated with importing like the freight. So you have to really make sure you understand what your impact is so you can have a real conversation with your supplier about what costs are being passed

on. We're also finding these price shocks create bull whip effects. We're getting people who are panic buying our products, which is forcing us to defensively raise our prices above and beyond what the tariff is to slow down panic buying.

LI: Volatility, which means significant changes in a short period of time, also implies uncertainty we're experiencing right now, that is, we don't know how it is going to change or how much it will change. So with this type of uncertainty, demand forecasting is absolutely important. In addition to that, I see better demand forecasting in conjunction with planning, what we call decision making under uncertainty. There is some specialized methodology in operations research and business analytics where we can address the specific operational and supply chain-related decision-making needs of the company and address them under this explicit uncertainty.

HASS: That's where you start to see everyone talk more now about the Baltic Dry Index (BDI) and just following the global trends. You can see it's good for recessions and those indicators coming, but you can also start to anticipate impacted shipping costs. That's the stuff they're using it for now more and more. BDI has been a metric around since the 80s but still provides relevancy now.

BOBROFF: Why is the increase of tariffs related to supply chains and how?

LI: A typical supply chain consists of different functions, including buy, make, delivery and sometimes return, and then overarching function of planning encompassing the entire end-to-end supply chain. Depending on where the tariff is imposed on a specific product or the positioning of that product in the supply chain, the effect can be very different. For example, if a tariff is imposed on finished goods, we can imagine the immediate impact on the market is going to be that the consumer will have to pay a higher price almost immediately. But if the tariffs are imposed for input materials, raw materials, parts or components, the immediate impact will be to manufacturers. It is very important to understand because the relevant mitigation strategy will be different. So if you are a retailer or wholesaler, you're probably going to think about how to better optimize your

product offering. If the margin becomes very thin, perhaps it's not economically viable anymore, but for a manufacturer, the decision they're going to think about is going to be very different.

For example, should a manufacturer think about multiple sourcing versus single sourcing? So the supply chain is very relevant to tariffs, and there are a lot of interesting questions from the academic perspective and research down the road to be addressed.

WILLIAMSON: The goal of these tariffs is rebuilding an industrialized America, which is something most of us can really get behind. Our company is built to support industrialization in the United States, and we keep American manufacturers, energy producers and farmers competitive on a world stage. But it gets a little complicated when the government steps in and starts picking winners and losers. So a U.S. manufacturer can be paying a 25% tariff on a steel or aluminum input into their process, but they could be competing against a Vietnamese or Indonesian manufacturer who isn't paying any tariffs on their inputs. And then perhaps they're making something that really falls into a different category on the importing side, and they could only be charged a blended tariff rate that is much less than 25%.This actually puts the domestic manufacturer at a bit of a disadvantage. All this complexity creates a billion different game theory scenarios that everybody's trying to sort through and figure out who came out ahead with that last change. It's not always who we want to come out ahead, and that makes it much more complicated. Then you have change on top of change, which alters the entire analysis every time it happens.

HASS: People didn't even realize that these are stacked tariffs and how that even works from a calculation standpoint. And everyone's asking if they're already paying this tariff. I think people have become very creative with some out of box thinking as they try to figure out how to put a plan together because it's hitting cashflow heavily at the ports.

BOBROFF: What are some good steps to understand how to improve supply chain synchronization to better manage tariff classifications more upstream in the end-to-end process?

HASS: There are two ways of looking at it. Your typical nodes for supply chains are plan, source, make and deliver. Sometimes we even hear people say "value chain." So then from a value chain standpoint, add innovation on the front end and commercialization on the back end. It's really going for how you get people engaged from the innovation, planning and sourcing nodes ahead of the manufacturing and distribution piece, because a lot of companies normally work on operational efficiencies from setups to changeovers to quality. This is time to think further upstream with process improvement.

The reality is that companies probably need to be looking at it from more of an end-to-end perspective by looking at the maturity levels of each of those nodes I mentioned. You might find out you're very mature in manufacturing processes within the make node, but in the planning and sourcing nodes, you might need to pay some attention to it. So let's not focus so much there and start talking about what we can do here, which is trying to synchronize them. At the same time, you've got people doing tariff engineering for instance. This might be the product you normally make out of paper, but what can we make it out of now? You're challenging your innovation side of the house more.

Manufacturing is shifting forward, it's what's happening and it's becoming far more valuable because they're able to basically start to look at the size, where it ships, the components, the build material structure, you name it from the innovation side. There's a big push for that and it's a smart move right now.

LI: Another practical way for companies that have been implementing this strategy is the so-called vertical integration to really think about the comparative advantage of a company from the perspective of bill of materials. That's a very important approach because a bill of materials allows companies and decision makers to look into all the components, inputs or operations that's needed to manufacture the product.

HASS: As an example, a company might have a shoe that is manufactured traditionally out of a certain material and they're considering what they can make it from now. Essentially, there are different classification requirements for different materials, so companies are exploring more options.

LI: For each node in the bill of materials, the company could have options to make or source determining whether making house or outsource. And if it's outsourced, then what are the alternative sourcing options?

BOBROFF: Let's discuss compliance issues and risks companies face related to tariffs.

WILLIAMSON: Simply put, if you're an importer of record, you need a plan to mitigate risk. There are serious issues when it comes to importing because you're essentially liable for any wrongdoing that doesn't exactly follow the letter of the law according to Customs and Border Protection on anything that happened prior to those goods coming across the border. Those could be financial, civil or

even criminal penalties if Customs and Border Protection thinks you're doing something illegal. And it's not exactly a court case; Customs has broad authority to impose fines and penalties for what they consider bad acting.

So as an importer, you have the responsibility of classifying the product down to a specific description under the Harmonized Tariff Schedule (HTS) code, which is how Customs defines those products. Then you need to declare the good's value and the country of origin. That part is not as simple as you may think. There is extensive case law about the country of origin because the rules for one country and one product can be different than the rules for another country and the same product. It gets very murky, so you have to be really careful.

You also need to make sure you've got a really good trade attorney who has experience dealing with Customs and Border Protection. Most importers eventually are going to get an inquiry about either a shipment or a manufacturer, and most of the time it's fully innocuous. But sometimes it's the beginning of a larger investigation because there's been a claim of wrongdoing somewhere. We have a very robust supplier verification process, and Brad Schneider, my vice president of operations, spends quite a bit of time overseas ensuring that our manufacturers are doing everything by the book.

Beyond having an attorney, it's really important to have what's called an import compliance manual, a written document showing the processes and procedures you have for vetting suppliers and all the paperwork to show you're following the letter of the law. Beyond that, you need to regularly ensure your compliance manual is up to date. We do quarterly document checks where we randomly pick 10 or 12 shipments each quarter and make sure every file has everything it requires. It's like a proactive Customs audit on ourselves to make sure all our processes are working.

We also do internal training of our warehouse receiving department to make sure they know what to look for to root out anything that may indicate wrongdoing. Especially when there's so much uncertainty and so much shakeup, it's easy for a Malaysian manufacturer to get overbooked on their manufacturing capacity and think they could just slip in a few crates of Chinese fittings and throw them in with their own Malaysian fittings to support their customer. We have to be explicit in our communications with our overseas manufacturers about our expectations to be sure they know we will only accept material that meets our standards.

We have to be trained to be proactive and make sure that if we find anything suspicious, we address it immediately. So we try to make sure that it's an internal competency across the organization because being an importer is a big responsibility.

HASS: The country of origin is the one area you can't stress enough. Everybody is trying to figure out if they can go build something in a particular country, but then you get into whether there needs to be substantial transformation in the product and how does that new product classify. Some think they can just repack their products as a solution, but there is a lot more to it.

WILLIAMSON: Just assembling the parts doesn't necessarily meet the standard either.

LI: That's very much a danger nowadays with all these significantly higher tariffs. I actually heard on the news a couple of months ago before the significant increase of tariffs that a manufacturer in Pennsylvania who made Christmas bouquets found out some products came in through Mexico but were originally from China. They tried to change the country of origin, but without significantly adding any value, that apparently puts our domestic manufacturer at a big disadvantage.

WILLIAMSON: When that happens, you're responsible for the full tariff on the China products. When Customs comes in and says, "I don't think it was all made in whatever country," they can just apply the highest rate, even the super high 145% that recently was being kicked around for China which has been paused. There are lots of other types of tariff rates that could be applied to products like anti-dumping or circumvention duties that can be 200%, 500% or even 1000%.

These are punitive duties that are added to certain products from certain countries based on whether Commerce or Customs did an investigation and decided they are bad actors. You can be responsible for that 200%, 500% duty on everything you've brought in from that manufacturer for up to five years retroactively, and you have to pay it immediately. It's not a fine, it's just a tariff so it's really important that people act responsibly, understand the risk scenario and who their overseas partners are. There is an appeals process, but it is not designed to be importer friendly.

HASS: The internal audits are so critical. You don't want to try to work around anything like that and you don't want to be sneaky about it. People are trying to come up with plans, but sometimes they push the limits. If you reclassify a product, the government may look at it and decide to dig a little deeper and open up a lot of additional questions. That's why it's better to just play it safe when it comes to the classification of your products.

WILLIAMSON: If Customs does come asking questions, it helps to tell them that you have a proactive and robust importing process. "Playing by the rule is very important to us, and it meets our core values." Customs wants to see that you are trying to be a good actor in the importing space.

Yesterday I got our quarterly audit email with the results of 10 shipments we audited. Two had the wrong address on the invoice, so we called the supplier and got it corrected. It's a very detail-oriented position in our company.

BOBROFF: What are perceived/expected impacts of increased tariffs in different sectors like manufacturing, transportation, healthcare, et cetera?

LI: It's a very profound question. The impact is going to be very different because different industries and sectors have different characteristics and challenges. Let's think about the two general purposes of imposing tariffs – either increasing government revenue or encouraging domestic manufacturing. If you look at the new Trump administration, I think both incentives are there. But when the tariff is significantly increased, let's say for manufacturing, we take another look at bill of materials. If some of the raw

material becomes much more expensive to import then potentially that will create an incentive to manufacture those products domestically so you can see there's a potential incentive there.

But it could be very challenging. One example is in active pharmaceutical ingredients (API) manufacturing. This is a type of raw materials needed to produce pharmaceutical products, for example, generic drugs. We know our country has been relying on API imports for decades, and this has created significant national threats of public health even before the pandemic. Now if the tariff on general pharmaceutical products goes up by 25%, then the question is back to our earlier discussion – what specific products will those tariffs be imposed on? Because if those tariffs are imposed on the raw materials and excipients that are needed to manufacture API, that may not help because to reshore API manufacturing domestically, we may still need those raw materials with higher cost due to tariffs.

So you have this potential incentive. We want to reshore API manufacturing, improve national public health and address this national threat, but on the other hand, there are lots of challenges. We're talking about rebuilding the manufacturing infrastructure that the U.S. has not had for decades. The good news in this case is that we do have state-of-the-art advanced manufacturing technology available for API called continuous manufacturing. It's highly efficient and is available, but again, the challenge is still the supply chain and where would those raw materials inputs be sourced. Overall, how can we reshore API manufacturing, but in a cost-effective way so that the generic drugs we manufacture in this country are still affordable to the consumers?

WILLIAMSON: There's a real risk that some of the tariffs can hurt our manufacturing efforts.

LI: This is why I have been thinking, I just don't feel one cut in the tariff rate for that industry is the right way to do it. It really needs to be more carefully designed. I hope tariff engineering can also mean that we carefully determine where along a supply chain to impose tariffs so that we can achieve what the positive purpose we want to achieve while minimizing the detrimental impact.

WILLIAMSON: The products we bring in have gotten significantly more expensive since March when these tariffs started being paid. That doesn't help. And my products go into U.S. manufacturing facilities, so if the idea is to build factories in the U.S., the tariffs have made it more expensive to do that.

It can create some collateral damage, negative externalities, whatever you want to call them. These tariffs can make it more difficult to achieve the result of the policy that we're trying to get. But again, I think many of us support the end policy goal of a more industrialized U.S. We believe it's good for the country overall.

BOBROFF: What are some potential procurement strategies/inventory management practices to consider?

HASS: Most companies are comfortable with measuring days on hand. From a maturity level standpoint, the opportunity is to use some of the technology you have. For instance, if you've got an ERP system in place, you should be doing a data dump, optimizing by some levels of classifications and looking at where your money and volume are divided. It's a very easy approach to use a 12-month historical view and get a good picture very quickly.

But now let's assume that you have a lot of excess inventory. The question is what is the inventory excess for? Is it anticipation stock? You've got something coming up, you can see it coming, you're buying in advance, whether it's prices, whether it's demand of the economy. Are the safety stock calculations incorrect? Is it a reduction in needed cycle stock? Is it frozen stock sitting on ports or sitting in quality departments because it's going through some check?

You have to be able to look at your inventory in a different perspective and see different strategies. How you could handle anticipation stock is a completely different strategy than how you handle cycle stock or frozen stock. You can couple this information within product families. You should be trying to group them together and determine if you have good demand power and good supply power. If you do, maybe you should be looking at collaborating and building partnerships with some of these suppliers.

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> Service Metal Products

But if you got low demand power and low supply power, then it's about spend reduction and there are different strategies for that. The idea is to look at your inventory and not just buy materials how you naturally buy them, but to deploy strategies that make sense based on when you start to cross-reference it with demand power and supply power to get a better perspective. It is not just about reducing inventory; it's about balancing it.

LI: It can also impact the way orders are made, the order quantity strategy, how much you order and the frequency. We've recently seen companies pausing their orders, which has led to a significant reduction of ocean freight in the past several weeks. Then this week, the China tariff went down significantly, everybody started ordering again and all the shipments were starting again. This is some sort of panic buying, except it is not done by consumers but the manufacturers. That creates lots of challenges and ups and downs to the transportation industry, especially on port operations.

WILLIAMSON: There are few lines that we still buy out of China, and it's really hard to find manufacturers for certain things outside of China. Often times, to resource a product from a different country you have to help develop a new competency with a new manufacturer. We're going through this process now. Our products handle high pressures and it's important that they're made well by a reputable company. We utilize onsite

inspectors to make sure the product is high quality. But to your point, Monday I sent a 6 a.m. message to get products shipped from China during the tariff pause because we have to get them in to satisfy our U.S. industrial customers who are upset; they don't want to see a 70% price increase. We want to get them our products at a reasonable cost so they can be successful.

We've been diversifying outside of China for eight years, but it gets complicated. You can diversify to Vietnam, but many times you're still doing business with a Chinese-owned manufacturer located in Vietnam. When you start picking winners and losers between countries, you're going to get a 25% for one country and a 10% tariff for another. The goods are going to find their way to the lowest tariff rate country for export. We actively fight against this with our compliance processes, but that's what they found last time with section 232 with all the exemptions and quotas. When the tariffs blanket all the countries, it actually makes it simpler and there's less motivation to cheat the game.

BOBROFF: In practice, how would the effects of tariffs be different for finished products versus inputs, raw materials, parts components into end supply chain?

LI: If tariffs are imposed on finished products, then the immediate impacted targets would be the markets that the price consumer will need to pay higher. Then retailers and wholesalers probably ought to think about alternative sourcing, but what if they don't? One way they can think about it is to streamline and better optimize their product offering. They don't have to sell everything they used to.

I recently visited a small company in the beauty industry called Beauty Supply Refresh in Florissant. I met the owner, and it is amazing how much inventory and SKUs they have. They sell hair products, cosmetic products, and for the same product, they have different styles and configurations and to meet the customer's unique tastes. The owner said 80% of their products are sourced from China so this is going to be a huge impact. And when I ask them about alternative sourcing, they actually don't know. They will need to start really looking for some possibilities in the so-called "near shore sites" like Canada, Mexico or even some countries in Europe.

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At the same time, I suggested that they think about reducing their product offerings and perhaps focus on something that's really unique to them to differentiate themselves. One of you mentioned an alliance, which could be a great idea for them. This store could work with other retailers to find a more viable supplier and have a better position in negotiating a purchasing price on the finished products.

Now raw materials have a very similar situation, but the decision is going to be different because the manufacturer will have to think about whether to produce in-house versus outsource. Now we are talking about some potential incentive to reshore manufacturing, but it may not. There are several challenges. Number one, it will take time if we don't have the manufacturing facility and it has to be built. These are all significant investments. So several examples in addition to API. Everybody knows semiconductors. The chip ads have been there for many years, but they're still very slow. This is the reality because it's not easy to rebuild the U.S. manufacturing infrastructure.

I also want to mention the workforce, which is actually another challenge. Do we have the talent, capacity and capability we need for all the new manufacturing? The workforce is definitely related to what I do think about education, supply chain and analytics and also to the academic institutions such as UMSL and several universities here. As we are moving forward with reshoring API, how can we all work together to achieve what is positive for our nation collectively?

WILLIAMSON: The workforce issue is very interesting. I've spoken to some manufacturers in the last 60 to 90 days, and I expected them to be worried about the labor side, the people on the factory floor. But they're more worried about the special skilled middle layer of manufacturing engineers and people like that, making sure there are enough of them available to work those roles. That's really where they see the bottleneck. So I am glad that people can be trained for these roles at UMSL or somewhere like that.

BOBROFF: What else can you share about the uncertainty and relationships with foreign suppliers?

WILLIAMSON: Most of it is communication. If I'm confused by the U.S. news cycles, my foreign manufacturers are certainly confused by them. They don't know what's going on either and they're worried. The U.S. is a huge market for most of them, and they can have 70% or 80% of their revenue coming from the US. So it's really letting them know that we still see them as a key partner and that we also believe their products, even with the tariffs that have been put in place, fit in the U.S. market. And in most cases in my industry, most of them do.

I carry imported products and the same product with a domestic flavor. The domestic version is a bit more expensive, but there are people who choose domestic for government projects, which typically require domestic products. So it's important for us to communicate to our foreign manufacturers and keep them on the same page. Sometimes if I also need them to take some of the tariff burden, I have to convince them the U.S. is still the right market for them to target and make sure they're not going to go find a different market for their products. But those are probably longer-term decisions.

It's still really complicated to figure out exactly what the goal of the new policy is. How much do we want to manufacture in the U.S.? If you're raising revenue, there have to be imports to pay a tariff on, which means you're still importing something. And if it's to encourage domestic manufacturing, then theoretically, imports would be dropping over time. But that's

the long-term play we've already discussed.

HASS: Your point on communications is spot on. Where you might normally do a quarterly update, you're now doing a monthly update. Or if you're traditionally doing a monthly, you might do a weekly now. My rule of thumb is the whole PESTLE acronym so if you've got any changes in politics, environmental, social, technology, legal or ecological, it's probably time to think about your communication plan. Think about how many of those tariffs touch and now it's elevated even faster.

BOBROFF: What are some options to consider when working with licensed brokerage partners?

HASS: There are a few that people need to think through now like foreign trade zones (FTZ) where it didn't necessarily meet a certain business model in the past because there's an administrative burden to establishing one that some companies wished not to explore. It is very hard to set them up and involves a huge financial commitment. But if you're in the business of bringing products in, manufacturing them, and you have large amounts of scrap, for instance, that would be an example of when FTZs might work well for your business. Or if you do a large number of exports and you can get some drawbacks, it might make sense to think about exploring the FTZ option as well. It's normally a couple step process, so you can even apply for it just to get the ball rolling even if you later decide to change your mind. But if you've never thought about it in the past and you've got that company profile that's heavy on scrap or exports, it's a big one.

Also, if you look at your customer profiles and you have a large global footprint, you want to see how you can work with them to essentially understand that drawback opportunity. You're bringing it in, but you're sending it right back out so there's a difference in the math that they can help you with. Someone mentioned total valuation earlier and that is a perfect example as well. The tariffs are based on your valuations, so they can help you understand how to really calculate that total value. And if you're not taking advantage of those right there, they may offer some good opportunities to start to explore.

BOBROFF: What advice or recommendations do you have for companies and organizations to mitigate the negative impacts of increased tariffs?

LI: I would first emphasize the use of data. I see no better time than now for companies and industry to really take advantage of the vast availability of data. How can we use all this data about the market demand – on the demand side and supply side, information we get about the policy side and these uncertainties together with the use of advanced analytics for making better business decisions.

A good way to approach data analytics is really from the user's perspective. What do we use data and analytics for? People generally use data analytics for three purposes – descriptive to describe what happened using nowadays; and data visualization and predictive forecasting, which is where machine learning AI can be very useful.

The third component, which is called prescriptive analytics, is about optimization. Prescriptive analytics using optimization is really what the company needs when everything boils down. We can have very good quality forecasting with the state-of-the-art machine learning AI techniques give us good prediction of the price of how the tariff is going to go or the impact of tariff. But the key is how to use that forecasting and prediction to make better sourcing decisions.

For example, we talk about multiple sourcing versus single sourcing, right? There is a tradeoff, right? Single sourcing is usually more cost effective, but it's vulnerable. When you increase that redundancy using multiple suppliers, we're increasing the resilience and potentially the robustness. But of course you see the tradeoff. This is where optimization becomes really important because in my view here I see for our industry and companies, it's really important to understand now when they're making decisions, they really need to think about multiple and often conflicting performance metrics.

I think cost remains important. When we do alternative sourcing, we have to think about cost quality and lead time. Anything that can be sourced near shore or through a domestic manufacturer has significantly less lead time. A longer lead time actually is costly, especially when you talk about pipeline stock. Anything that ties in during the transportation lead time is actually work in process inventory. So we have a tradeoff between cost, lead time, quality and resilience if you want to add sustainability.

All these performance metrics should be considered using optimization to address these relevant decision needs. For example, sourcing. How do we redesign the supply chain? Seek alternative sourcing. How do we redesign the supply chain to achieve these multiple, often conflicting, they're not only multiple, many of them are also conflicting with you, with each other, they have tradeoff.

How do we achieve that? And of course, in addition to these, I think at operational level now, it's also crucial for the company to be more efficient. We talk about their production planning decision order quantity and order frequency decision. The order can be changed nowadays given the velocity and risk and uncertainty situation we're facing right now. But I see this most from the positive side. It can be done. And to me, whenever we have a challenged company or an industry facing a challenge, these can be handled well and sometimes it can turn into an opportunity.

HASS: Data is the new gold for sure. And the interesting thing is when you think about even the ERP systems everybody is using it is typically only leveraging structured data and doesn't address the unstructured data side of the house. Your structured data is maybe only 20% of that so you've got 80% of the information businesses are trying to better understand now as well along with enhancing the structured data at the same time. Cloud based data platforms are being leveraged more to improve data governance over the more recent years. It's a great point.