Smart Talks with IBM: Rethinking Supply Chains

ANNOUNCER: Welcome to Stuff to Blow Your Mind, a production of iHeartRadio.

ROBERT LAMB: Hey, welcome to Stuff to Blow Your Mind. My name is Robert Lamb.

JOE MCCORMICK: And I'm Joe McCormick. We've got something a little bit different for you today. Today's episode is going to be part of an ongoing series called Smart Talks, which we're producing in partnership with IBM. So, in each episode of Smart Talks here on the Stuff to Blow Your Mind feed, Robert and I are going to sit down for virtual chats with people using technologies developed by IBM to deal with the unique challenges the world is facing today.

ROBERT LAMB: In this episode we'll be focusing on how consumers, retailers, and supply chains adapt in the midst of a pandemic. And for this subject we're going to be in conversation with Luq Niazi, the IBM global managing director for consumer industries, and Karl Haller, who is a partner at the Consumer Center of Competency at IBM. If you'd like to hear more episodes of Smart Talks, the TechStuff podcast has already released the first four episodes of the series in its feed, or you can find them on the iHeartRadio app or wherever you get your podcasts. Just look up TechStuff and click on the episodes labeled Smart Talks. And stay tuned for upcoming Smart Talks episodes here on Stuff to Blow Your Mind, which will be published in our feed in the coming weeks. And now straight onto our conversation with Luq and Karl.

JOE MCCORMICK: Well, we really appreciate you joining us today. So, one of the main things that we were going to focus on today was supply chains and how supply chains are adapting during a pandemic. And so, to start off I think we should think about what supply chains are. They, they're one of the many features of our world that I think can remain mostly invisible to us until they break down. You know, it's only by your failure, or by their failure, that we
suddenly sort of notice them. Can you provide a little background on how, like, normal shopping behavior—like buying a frozen pizza or buying a pair of jeans—relied on supply chains?

**LUQ NIAZI:** So, so first of all, in terms of the fundamentals of supply chains—when you, when you buy something at a store, it's there because it's being distributed to the store. That means it's traveled from somewhere and it's got to where it needs to be. But behind that, it's been made somewhere. And that means that there's been a factory where it's being made, and to be able to make it, and—let's take that pizza example. Then the ingredients that have gone into that pizza have got to have been sourced. And so that's when we start to get into the kind of, the fundamentals of the supply chain, because that means the base for the dough, the tomato base, the herbs, the cheese, the toppings, they all need to come together from a range of suppliers. And those suppliers can be, you know, very broadly distributed.

And so, you're getting more into the unpacking of that product and then going further back. Well, actually all of those things need to be either produced or grown; if they're natural, they are grown. But if they are, you know, like artificial flavorings, then they have to be manufactured. And so that simple thing of buying a pizza and getting a pizza has to go through all of those stages of the retail, the distribution and the logistics, the actual manufacturing, all the way through to the sourcing of materials. And of course, if you then take something else, like a pair of jeans, it's the same concept, but of course all of the processes that make up a pair of jeans—and so you've got to get them to the store. They've got to be traveled. Often, they're traveling from very far away because they're made in the lowest, most-effective cost manufacturing, typically. And then when you think about everything that goes into a pair of jeans, well, there's all the cotton, but there's all of the dyeing that goes into it, and that's a complex process in itself, and you've got to take care of that in an effective way. And of course, then that goes back to the source materials. That's what we mean by a “supply chain.” But I'll let Karl explain a little bit about the complexities that are in supply chains in the retail world.

**KARL HALLER:** Yeah, thanks, Luq. You know, the thing that I think most people would agree with, they probably understand that, you know, the things that they buy are made by someone and grown somewhere, in concept, but they don't always understand how complex the supply chains have gotten. And whether we're talking about a food supply chain or we're talking about a fashion or clothing supply chain or a packaged goods supply chain, there are often upwards of a dozen different parties, maybe even more, who are involved in the work that happens—to go from raw materials, most of which, many of which, come from a farm, through the various stages of processing, manufacturing, distributing, selling, to get goods into, you know, a refrigerator or a pantry or a dresser drawer. And these different companies tend to involve multiple geographies.

Sometimes goods go back and forth around the world once or twice as they get from raw materials into finished goods. And that's usually done in order to get goods to consumers in the most efficient and lowest-cost manner possible. The thing that the supply chain relies on today is—it relies on a couple of basic assumptions. One, that goods and capital flow freely across borders. And second, that most consumers are willing to make the trade-off of really knowing
and understanding how, where and by whom goods are made, in exchange for getting the goods whenever they want, wherever they want, and a low and attractive price point.

JOE MCCORMICK: Well, that actually brings to mind a question I wanted to ask about: some of the ways that values guiding the formation of supply chains could actually be in conflict. So, the idea of, like, cost and convenience versus energy efficiency or sustainability or just-in-time philosophy. And if you can explain what that is versus, like, a supply chain being robust against interruptions. Could you talk about that a little bit?

LUQ NIAZI: Yeah, sure. So, there's quite a few parts to that, Joe. So, I'll try to unpack them in, in various pieces. So, the first thing is that, you know, if we, if we just cast our minds back over the last 20 years in the consumer industries, you know, particularly around food and fashion, we've kind of accelerated through an environment where people can kind of get pretty much whatever they want, wherever they want, any time of the year. And so, you can get fruit all the year round, and you can get your berries year-round. What's, what's occurring around that, of course, is that they're coming from many different places to be able to get those berries all year round. And we've, you know, through the digitization of commerce, learned to expect that if I want something that is shown on my tablet, that I can search and that I can get it delivered to my home at a, you know, a reasonable time.

And so, you know, what's undergone—the supply chains, of course, is a drive to efficiency and cost reduction and value delivery. And so, you know, we as consumers have been, honestly said, a little bit selfish in terms of expecting anything, anytime, anywhere in the world at the lowest kind of price point and without really having due consideration of the consequences of what it's taking to get that piece of food into the supermarket or that garment, you know, into the store that I'm looking to buy from online. Now what is interesting is that—and so, by the way, that's called convenience. You know, it's all about convenience retailing. And we've had decades of convenience retailing. What's interesting is that at the beginning of this year Karl and members of my team, working with the National Retail Federation and IBM Institute for Business Value, did a piece of research with over 19,000 consumers in, I think it was 28 countries.

I remember, of course, all the demographics, and we tried to understand what was occurring in buyer behaviors. And what the study showed—and it's available, you can download it—is that there were kind of three major categories. And the convenience category is still the biggest category; 41% of the respondents were convenience buyers who are looking for value, looking for cost-effectiveness, looking for that fulfillment wherever they needed at the lowest price point. But 40%—almost the same number—were in a category that we called “purpose-driven consumers.” These are consumers who care about where things have come from, the journey that they've been on, how they've been made, what kind of energy was used in them, what's the carbon footprint, whether they are sustainable in nature. And what we're seeing is this rise of the purpose-driven consumer. There are a couple of other categories, and the other categories are, you know, those that follow the, kind of, the brand and the higher segments, and they kind of are more aligned to the pure brand value.
But I believe in the 2020s, we are really at the point in time when we're in a decade where in the main, people are starting to care much more about where things have come from and how are they made and what are some of the implications to the planet and society around that sourcing. We're becoming more responsible in our consumption. So in terms of that rise of the purpose-driven consumer, what we're now seeing is that in the respondents that we surveyed, about 7 out of 10, are prepared to make choices and decisions that reflect their drive for whatever their purpose is: sustainability, lower use of plastic, evidence of reuse in their purchasing. And even more fascinating is that we're seeing that they're prepared to pay more for those companies that are able to demonstrate and prove that their products will be made in a more sustainable or environmentally friendly way.

The survey actually showed that people were prepared to pay up to a third more for that. What's also interesting is this trend of that 40% group is across age profiles. So, it's not just a certain age profile, it's, you know, all age profiles are showing that tendency. And it's not just a highly developed Western-economy type of perspective; it actually permeates across a global context and different stages of economic development. So we believe that we are absolutely in the era of what is becoming purpose-driven consumption. Now the third part of your question is, you know, the kind of, the dilemma that we find ourselves in right now. And obviously with the global COVID-19 pandemic, there was an immediate rush to people to kind of stock up and get basic goods.

It was food, it was grocery, it was sanitary products, it was kitchen toweling, it was bathroom toweling, et cetera. Massive push for that. And actually, if you kind of look at the results—and they kind of are publicly available in the stock market and other reports—that food and grocery and kind of basic sanitary health and wellness type category, that is continuing to have significant demand at the moment right now, albeit that the other categories of what we consider retail have clearly experienced a slowing in this environment, because of the fact that they can't get to stores and there's only a certain amount of the business that's online. And so, what is going to be interesting—and we can definitely unpack this a bit further—is what is going to happen? What are the implications of this pandemic continuing, and how it's going to change or alter different parts of what we see in the supply chain and whether the things that we saw, in terms of this convenience versus purpose—how is that going to play out over time?

**KARL HALLER:** One of the impacts that we see from COVID-19 is that place and people are both increasing in importance. They're all, as Luq was saying—that, that 40% who are purpose-driven are thinking about broader issues, and some are thinking about sustainability, and they're thinking about their own personal values. What we're seeing now is that, as safety and—personal safety, family health, becomes paramount, more people are concerned about how things were made, where they're made and who's touched them along the way, than they were just eight weeks ago. So, that's becoming something that is paramount—perhaps even for some of those people who were otherwise predisposed toward price and convenience.

**JOE McCORMICK:** Well, that's interesting. It makes me wonder about the unintended positive effect of even irrational concerns. Like I know that there were people who were concerned in the early days of the pandemic about products coming from China and, like, the idea that they
could get infected by the virus from that. Now, of course, like, that's not a real concern, you know; the virus, by the time people were concerned about this, it was all over the world anyway, and the virus wouldn't survive the shipping time. So, it was like a totally irrational concern. But could lead to people just generally being more aware of, like, “Oh, wait a minute. The products I buy do have to come from a place, and there's something behind them.” And normally, like, I mean, I can even admit this in myself: most of the time I just don't even think about that. You just buy it at the store like that. That whole history is completely invisible.

**KARL HALLER:** I think you're exactly right. Whether it's something we're buying in a, you know, in a mall store, in a home, something for the home, or something for ourselves, or whether it's groceries you're buying—and we're just so used to getting, you know, fresh tomatoes, fresh fruits and vegetables in the winter. We probably don't really think that all of those were grown and transported here. And now I would agree with you. There is going to be a bit more awareness of that across the board.

**LUQ NIAZI:** I mean, what of course has occurred with the pandemic has been a massive lockdown of people, pretty much around the entirety of the world, albeit, at a different time—and a lockdown of transportation systems. Initially people, but also harder controls around borders, much less flight transportation. And of course, every time a plane flies to a country, not only is it taking people to the country, but it's also taking some kind of produce, typically as part of the cargo. And so, one of the consequences of the pandemic is that the availability of supply in this globally connected network that we have that delivers us anything, anytime, anywhere has had to deal with this massive contraction in the practicalities of transportation and logistics and tightening up. And that, combined with the peaks in demand—and we know what kind of demand peaked early on.

We talked about the sanitary products, but also what peaked very early on were things like packaged products—you know, tins of soup, whether it's Campbell's soup or Heinz or whatever your preference is. And what also peaked is things like dried products, like pasta. Now I live in London and I live in Europe and most of our dry pasta comes from Italy. And of course, Italy was one of the countries that was locked down the hardest and impacted the hardest early on in, you know, Q1, and consequently—and it's still taking a little bit of time, you know, it took quite a long time for dried pasta to be readily available back on the shelves, because there was a disruption in that supply chain. Now what starts to occur is of course the supply chains are gradually recovering, transportation opens up.

And so, it's kind of less of that shock. But the other thing that's occurring is that if you've got demand for products, you know, and you are in the business of providing those products to—let’s keep with food and grocery—to your customers, you're going to start to work through alternative sources of supply. And so, what this has also driven is companies starting to look at alternative sources of supply so that they can meet their demand. And that in itself is driving, because of this constraint on transportation, shift from global demand to what I call kind of “global/local,” which is I need to be more balanced. And if I can get it locally, it might be more of a preference. Now at a very practical level, when you can see that if you’re, you know, going
out and if you're still buying food because what's occurring if you're going out to buy your food, is, not everyone is going to a supermarket or a big superstore.

What they're doing is they're combining that shop with a greater propensity to buy from local stores, whether it's the local vegetable store or the local butcher store. And so, what is occurring is a greater awareness of where things are available. And I think that's been driven very much by a kind of a need's perspective. But I think, over time, these two forces, this kind of longer-term trend that we talked about around purpose-driven consumption and people starting to be more aware of where food is coming from or where goods are coming from and what the alternatives are, is going to drive a different mix in that supply chain that we talked about to be more regional rather than global. And I think that might mean over time us ultimately driving a better, you know, a better carbon footprint for the food that we consume. But also, it might also help get a better redistribution of value in that food value chain to allow the smaller corner shop to survive alongside the big store formats. And I think that we're seeing, you know, some of those changes start to ripple through.

JOE MCCORMICK: So Luq and Karl, have there been any major challenges from, like, from food supply and demand, or in other industries, even things that would be considered nonessential, like clothing, that have been presented by the pandemic situation that we haven't talked about yet that you would like to address?

KARL HALLER: One of the things that we've seen with COVID is that the food business runs two parallel, but largely disconnected, supply chains. All the food starts on farms, not always the same farms, but certainly starts on farms. And then from there, part of that food runs through the supply chain that ends up on a grocery store shelf that we as consumers go out and buy and bring home. Part of that food runs through a different supply chain that ends up in either restaurants or food service. As food service and restaurants effectively shut down, you know, near 100% shutdown of most of those across most of the U.S., and frankly most of the world, that supply chain dried up. And we were left in a situation where the consumer supply chain had shortages. We had shortages of, you know, fresh goods and dried goods, shelf-stable goods.

And yet we also had situations where farmers and distributors to the restaurant and food service supply chain had an overstock of goods. And so that—one of the challenges has been “How can we figure out a way to better integrate those supply chains, or at least provide better visibility of what actual products exist where, so that there could potentially be some intermixing?” This is one of those things that the move toward efficiency over the past, you know, 20, 30-plus years at the expense of agility has cost us. I think what we see going forward is a little bit more balance between efficiency and agility, such that you can make, a brand manufacturer or retailer—you know, anyone involved in the supply chain—can make different decisions in a more dynamic manner and change things on the fly.

ROBERT LAMB: Because, because there are hurdles, I understand in, in the way of taking, say, pasta that was in the restaurant supply chain and switching it over to the consumer, individual consumer supply chain.
KARL HALLER: Yes, there, there are hurdles, there are some hurdles that—and it depends on the product category. There are some hurdles that are regulatory in nature. There are some hurdles in terms of, not as much the manufacturing process, but potentially the quantities and the pack sizes. There are some hurdles in the packaging and how those goods are aggregated together. I know, just, you know—my family, we purchased some fresh seafood from a seafood purveyor that normally sells to restaurants and it was excellent, but the quantity that you have to buy is not the normal amount that you might buy in a grocery store. So, you have to, you know—they've had to adjust. They're also not used to bringing things directly to consumers. You know, they are used to a simpler supply chain. They're not used to transacting by credit card with consumers, you know, so there are a lot of hurdles in the, you know, the making and moving of things. There are also a lot of hurdles on the transactional side.

JOE MCCORMICK: Hmm. So, this is interesting. Yeah, so that kind of thing—would that explain why we could see these strange disconnects where, say, I don't know, the dairy shelf at your grocery store might be very bare and yet you also see video online of dairy producers having to, like, discard unused things?

KARL HALLER: Yes, exactly. Exactly. And so there are shortages. So, the dairy shelves being empty also then drives up the price to the consumer. Because there is, as Luq was saying earlier, there's a big mismatch in supply and demand in one piece of the supply chain. Yet in another piece, the mismatch in supply and demand is the opposite. There's an excess of demand. So despite the higher price consumers are paying for milk, farmers are having to get rid of milk because they don't have anywhere to put it in—any, any place to sell it into, ’cause they may not have that same access to the supply chain that, that serves consumers directly. Actually, I've been very impressed with what some of the major grocers in the U.S. have been doing, where they're actually starting to now buy up excess supply and sometimes incorporate it into their own business. But other times, frankly, just donate it so that it's at least getting to needy consumers to help them get through this crisis.

JOE MCCORMICK: Great. It's also great, yeah, to see some of that waste being avoided. Luq, we were talking the other day before this call and you mentioned something about the, the sometimes kind of staggering amount of waste that already happens just as, like, an unfortunate byproduct of the way that supply chains exist today—before the pandemic, even.

LUQ NIAZI: Yeah, absolutely, Joe. And so, the industries that we're talking about produce a massive amount of goods that don't end up being consumed. Either you have, you know, food in the food supply chain that ends up being beyond its date and then goes to waste, or you have, you know, in the fashion industry, a lot of projects that are made and, even after discounting and multiple campaigns, are still left, and end up, you know, being effectively wasteful. And so, in its entirety there's about a third of the supply chains that are producing stuff that goes to waste. And this isn't because there isn't demand; there's demand around the world. It's just about where it's ending up at that particular point in time. And that waste is obviously a massive impact for the planet. It's the second largest CO₂ producer as a set of industries, behind the global energy system. And so if we can do things that make the demand much more connected to the supply in a more integrated fashion, then there's this opportunity
to not only fulfill people and give them important information that they want about where things have come from and, and how it's going to affect them.

But there's also an opportunity to get a closer integration of that demand signal back into the supply side of the world. And therefore, we can be more responsible in terms of how the supply chains come together. And I think it's going to take a decade to manifest itself. But I absolutely believe that technologies like blockchain, when connected to digital technologies that we interact with,—i.e., the smart app that's on your phone as you're buying the food or the data that you get when you're buying online, if you start to connect those choices, we can start to drive a much more holistic understanding of what's going on and ultimately a better use and a more sustainable supply chain. And so right now, you know, companies like Carrefour in Europe, if you go and scan the QR code that is on the organic chicken, you can see the whole history of where that chicken has come from and prove that it's organic, and you can see, you know, where the fruit has come from, et cetera.

Now, I'm not saying that every shop is going to scan every product, but it starts to—driving kind of a change in an understanding of where things are coming from. And that in itself can drive a more sustainable usage. So this problem is very substantial, but it's also one of the big problems that we see as being addressed in this decade because of the availability of the technologies that we see in front of us. And by the way, these technologies, you know, they are cloud driven and they are connecting different parts of the supply chain. Business networks are also some of the technologies that companies are using to reconfigure their supply chains right now, because they're saying, “Okay, I understand who's available in terms of what we produce in this region.” And they are applying that to get better supply to the demand that they have.

You know, similarly, I touched on what AI was doing in terms of the interim processes, and it's prevalent across the whole of the value chain. But, you know, that—AI is allowing consumer goods manufacturers to do optimization of demand and supply in terms of—they knew what they produced, and they know where it is physically in the supply chain and the distribution network. And they can sense at a hyperlocal basis where the demand is for those products and they can drive a better matching of that supply to the demand. That means that ultimately, the things that they produce are sold, and they make money. But it also means that less things go to waste. And so, these technologies that I touched on from my Robert's question, also have a very important implication in terms of driving better sustainability, as I touched upon, but also having a better optimization of the hyperlocal needs that we're seeing right now. And I think we're going to continue to see these waves of hyperlocal needs over the next, you know, 6 to 12 months.

ROBERT LAMB: Some of our listeners may have heard about the existential need for digital commerce 3.0 in order to keep the supply chain healthy, not only during but after COVID-19. Can you walk us through what digital commerce 3.0 really is?
KARL HALLER: I’ll take a pass at this, ’cause I think, I think when we talk about, you know, digital commerce 3.0 or retail 3.0, you know, we have to get at what a definition is. And I think, you know, that's really a term that we would use within IBM as an industry flavor of a broader umbrella term that we call the cognitive enterprise. And this is really an enterprise that understands, gathers information, creates insights, acts on those insights and learns over time. You know, an enterprise that has many more of the capabilities that we as humans have, rather than just being a great big machine. And I think many traditional enterprises right now are essentially great big machines and they've been tuned for efficiency. Just as most machines and engines are tuned for efficiency.

What we're seeing now—and I would say this is in digital commerce. It's in all commerce, because most commerce has a digital element to it. And it's really all the way upstream from the point of commerce for the consumer up to the point of growing or producing. What we’re seeing is a, you know, a greater need to sense and respond in real time, to better understand the variable dynamics in demand, and then match both supply to that and match frankly, all of your operations to those variabilities in demand. This has existed for the last 5 or 10 years, we've known about this. With COVID-19, it's really exacerbated things that we've known about but haven't always really needed to do anything about because the variations in demand were relatively minor—might be a couple of points up or down and might be happening on a small scale.

Now we're seeing swings in demand—50%, 70% up and down at a local level, depending on where outbreaks have been taking place, where countries are flattening the curve, where countries are getting back to normal, or even cities and localities are reacting and responding in different ways. So, it's now become business-critical to understand which parts of the United States or the world are open and are open for business in a more traditional manner, and which parts are still locked down. Because you're going to have such massive swings in demand that the success of your business depends on knowing that. So that's really this ability to really sense and respond in real time. And the ability to act on all of what you're sensing is really at the heart of, you know, retail 3.0, industry 3.0, however you want to phrase it.

The ramifications of digital commerce affect more than just the retailer. The ramifications are felt upstream to the consumer products companies as well, frankly. Because right now the business model at the retail level, certainly in groceries, is not supporting the growth of online shopping. The cost to pick, pack, fulfill and distribute those goods to consumers’ homes is quite expensive, and consumers, except maybe in a crisis period, are not willing to pay a premium for that. So, some of that will now move upstream to the manufacturer. And so, they're going to have to think about new routes to get goods to a pickup location, to new routes to get goods into stores. Potentially they might be drop-shipping goods from their own warehouses directly to consumers’ homes. That may also make them think about pack sizes in different ways—how they aggregate goods together.

Especially if you're thinking about traditional center-core packaged goods that have a longer shelf life. We may see something like pack sizes increased in order to make the logistics work out for consumers who are shopping online. We may also see consumers start to adopt auto-
replenishment methods to buy those goods, where they get a steady supply of things, you know, delivered to them every month in exchange for the convenience of not having to go to the store and buy those things and put them in your basket and load them in your car and drive them home. So, we're going to see a lot of ramifications of this upstream on the producer side and manufacturer side as well.

**LUQ NIAZI:** Yeah, if I can give a very real example of that to share, it's an example that was actually aired on our Think 2020 Digital event that we just had. And Mark Foster, our SVP of Services interviewed one of the SVPs from Frito-Lay and they talked about the digital transformation that they've driven to change their direct-delivery model, which is actually the biggest private fleet of truck deliveries, you know, in the U.S.: 25,000 trucks a day being optimized to get Frito-Lay products all the way through their supply chains into wherever they need to be distributed, whether that's at a store or at other locations. Well, not every CPG company has a model as advanced as that. And what Karl is alluding to is, well, how do you start to kind of plug in those kinds of engines that Frito-Lay has into my model.

If I'm a, a beer company and I'm used to just distributing to certain places and then I'm used to the restaurant companies getting them for those places and getting them to the end consumer as well--right now, that motor has died down significantly. So how do I get my beer products much more direct to the consumers? Not just relying on, only on what is coming through the supermarkets. And so you can see how, you know, a CP company, like, you know, a beer manufacturer, has got to think around next generation of digital for its B-to-B model, but actually they may have to get into next generation of delivery into a B-to-C model. And it's that kind of change that we're going to see being accelerated and that's companies having to adopt more “commerce 3.0” type capabilities over and above what they had previously.

**JOE MCCORMICK:** So, in trying to imagine how technology could help businesses and supply chains adapt and become more like a human, less like a, you know, an automated machine—something that, that is able to have some agility and an insight into the process overall, how much would this kind of a technology just be about, you know, seeing more of the data that's currently available at every step in the supply chain? Incorporating that, and adapting, and how much of it would actually be predictive? Because I imagine that big problems come through, and at each stage in the supply chain, where somebody sees, you know, they can't tell signal from noise—like suddenly the, the dairy shelves are empty one day and you don't know, like, is this part of a trend that I need to adapt to or is this just some weird fluke today?

**LUQ NIAZI:** Yeah, no, it's a really good question, Joe. And look, the data is there. If the data is there in each part of the process that we described, it's there at the point of purchase. It's there in the transportation logistics that get that product to that point of purchase. It's there in the manufacturing, it's there in the raw goods, produce. But each of those are many different companies and are many different segments of the industry, and therefore they're very siloed. And so even though there, the data is there and each of those subparts of the end-to-end value chain are being optimized in their own individual piece, what's not necessarily occurring is the optimization of the whole. And so, you know, the opportunity and that kind of visibility question
that you're kind of reaching out to, Joe, is, is how do you start to overlay these kind of broader platforms of enablement?

So, what do I mean by how do you get data together that's in disparate parts and in different companies where you can make it available into the cloud. How can you analyze data sets at scale that are, you know, massive data sets, solving really complex, highly—and deterministic problems? Well, you can chuck the power of AI into—first of all, what you do actually is you apply AI to the individual subprocesses and then you start to optimize subparts of the system. And then later on you start to optimize the fuller system. Not possible, by the way, for everything, but definitely possible for certain parts of it. And then, of course, you leverage this visibility platform—that is, I can track and trace anything through that whole supply chain if it's already in the blockchain. So, you can see how the connectivity and enabling technologies are starting to come together; that allows you to drive a much smarter way of running these businesses end to end and elevating beyond the process or the subsegment optimization that is currently occurring.

And it needs the benefit of this data to be shared in the way that I described for people to actually say, “Well, actually, by my sharing this data with—here, there's—some of the game gets better.” And that's the kind of things that we're working on. You know, I've explained—oh, I made reference to food trust earlier, around the visibility of food. It was started for safety, but it can track and trace pretty much any characteristic you want as food moves through the supply chain. That's going to be hugely important. A lot of the techniques that are being applied as AI techniques to, e.g., the energy industry. And there's a lot of AI that goes into that—and I've been involved with that in the past—can be applied to the AI of e.g., farming. And that's what we're doing with a Watson data platform for agriculture, that leverages our Weather Company assets and the ability to connect data from multiple data sources in different parts of the value chain. Well, that's where you need the ability to do things like multicloud management. And that's where our acquisition of Red Hat and the capabilities that that company brings starts to come to bear. So, we have all of the ingredients to start to solve this problem and ultimately make much better use of the world's finite resources, and therefore would reduce waste. But it's about applying these digital transformative technologies to the bigger parts of the systems, and this end-to-end, than just trying to solve the individual components.

JOE MCCORMICK: So, Luq and Karl, how do you see retail—in, you know, physical storefront retail and digital commerce adapting after COVID-19?

LUQ NIAZI: Well, I, I think, you know, some of the things that we've been talking about are going to continue to accelerate. I think this has driven a significant shift to recognize that there is an increased need to enhance the technology enablement of that end-to-end supply chain and retail experience. And this enhancement of digital capability. You know, people are going to understand that they can do more and buy more and experience more in a digital context. And so, I think we're going to see, you know, a step change occurs in this period of how much is able to be done digitally. And then, you know, right now people are just figuring out how to get it done and how to make it work and how to stitch it together—the fulfillment. But the next
thing that will come is “How do I make that a great and beautiful experience?” and “How do I drive loyalty and values?” and all of the other things that you want.

And so, I think there’s going to be a continuation of a digital experience enhancement, very pervasive, across multiple segments of the industry, continuing at quite some pace, post the event, post the crisis. I think it's too early to be able to be precise about what's going to happen, you know, to stores. You know, I think that will be a, a rebalancing of the kind of physical footprints that companies have because they'll be driving more digitally and therefore there will be some form of reduction in physical footprint. But again, when you have that physical footprint, you know, you need to make sure that it's delivering what the customer wants. And it's, you know, for some of the higher-end things that we do what the customer really wants—from a, an experience perspective. So, I do think the ongoing digitization of the store will continue, but it might be for fewer stores over time. And of course, you know, the things that we've talked about in terms of supply chain resilience, supply chain responsiveness, supply chain intelligence—well, that's going to be needed irrespective of where the channel is that you're fulfilling. And so, we're going to see that ongoing trend. So, I do think this will result in an ongoing and continuous level of innovation and enhancements in the various components that we've talked about today.

**KARL HALLER:** I believe, the COVID-19 crisis is extremely disruptive at all levels of the business. Frankly, whether you're an essential brand, an essential retailer, or whether you're considered nonessential, it's disruptive in different ways. And as we work our way through this, and as Luq said earlier, we believe this is, this is going to stay with us for a while. And there's going to be a continued variability, you know, high degree of variability of what's happening with consumers, which then impacts up through retail and consumer products, even up to farms, as this ripples through over the next, you know, 18 to maybe 24 months. We see that it's probably going to spur companies to do things that they know they should have done over the past two, three, four years, but have not always found the means or the impetus to take action on. You know, companies, when we talk to our clients, you know, they know they need to be better enabled with digital commerce, whether that's B-to-B or B-to-C, they know they need to enable customers to shop seamlessly across channels or touch points.

They know they need more insight and analytics on data that they have in their company and on data that's out, freely available or for pay available in the marketplace, but available data. And they know they need to be able to adjust their operations so that they can be more kind of intelligent and responsive based on all of that data. They've known they need to change their cost model. They've known they need to reduce costs; they know they need to balance agility and efficiency. But that's a difficult thing to do. It's a fundamental change to the way many of these businesses operate. And one of the things I think we will see coming out of COVID-19, and in the middle of COVID-19 even, is companies are starting to address these things that were important but not urgent. And now they've become both urgent and important. And that tends to spur our clients, or every company, into action.

**JOE MCCORMICK:** So, you've been talking about what you expect to see. What would you love to see? Like what kind of adaptations or changes do you think would be the most ideal?
KARL HALLER: So, one thing I would love to see is more conscious consumerism taking place. I think, as—again, as we've talked about a little earlier, consumers are being more concerned now about people and place and where things come from and how they're made. We have, we're in an industry that has a lot of waste to push goods out to consumers, and frankly, consumers contribute a lot of that waste themselves. I think if we overall start to adjust toward fewer things that potentially mean more to us, that would be a better thing for everyone.

LUQ NIAZI: Mine is similar, Joe. I mean I think we've been talking about a lot of reengineering of the capabilities that make up the enterprise. We've been—reengineering of commerce, reengineering of supply chain, reengineering of manufacturing and sourcing activities. We are going to go through a major period of companies reengineering themselves to respond to what the new normal looks like. Wouldn't it be great if the reengineering had kind of sustainability at the heart of that reengineering, so that we fulfill customers' needs and demands, but we're doing that at a much more responsive and a much more balanced, a regional - with balance to global - way? And we bring back that sense of understanding and identity about where things are made from and how they're consumed all the way through the value chain that we kind of lost in the last 20 years. Wouldn't it be great if this period brings that back into place because it's going to make ultimately a more sustainable society. It means that things will be better distributed to the broader population in the world and it means that less things will go to waste and that would be a fantastic outcome.

ROBERT LAMB: All right, so there you have it. Thanks once more to Luq and Karl for taking time out of their busy days to chat with us here. And if you would like to learn more, go to ibm.com/smarttalks. That's ibm.com/smarttalks. And if you would like to catch up on other episodes of Stuff to Blow Your Mind, you can find us wherever you get your podcasts, wherever that happens to be. We just ask that you rate, review and subscribe. Huge thanks as always to our excellent audio producer, Seth Nicholas Johnson. If you'd like to get in touch with us with feedback on this episode or any other, to suggest a topic for the future, just to say hello, you can email us or contact us at stufftoblowyourmind.com.

ANNOUNCER: Stuff to Blow Your Mind is a production of iHeartRadio. For more podcasts, go to iHeartRadio on the iHeartRadio app, Apple podcasts or wherever you listen to your favorite shows.