The Future of Supply Chain

Orchestrating the next-generation supply chain with KPMG

Stefan: For me, the future of supply chain is basically a new level of efficiency. So supply chains are going to be the backbone of our wellbeing, of our economy worldwide, of our development, and with AI technology we have the opportunity to take it to a new level of efficiency and with that, of course, also of an outcome and wellbeing for all of us.

Richard: Welcome to the Future of Supply Chain, a podcast where we discuss the latest trends, issues, and opportunities across the global supply chain. My name's Richard Howells, and as ever, I'm joined by my wonderful co-host Oyku.

Oyku: Hello everyone. I'm Oyku Ilgar. I'm a marketer, blogger, and of course podcaster in the supply chain in ERP space here at SAP. In this session, we will talk about a clear shift from experimental gen AI toward industrial embedded AI driven by agents, governance, and execution at scale. We will explore how [00:01:00] the shift changes of supply chain operating models, moving from isolated optimization to network level orchestration. To do so, we are joined by Hernan De la Torre and Stefan Seitz from KPMG. Gentlemen, glad to have you on the show. Could you please introduce yourselves and your role at KPMG?

Hernan: I'll go first. Hello Richard, and Oyku. Thank you for having us. My name is Hernan De la Torre, and I'm a Partner with KPMG US focused on supply chain orchestration and the future of supply chain using SAP technology. I have over two decades of experience leading global business transformations for large enterprises and organizations across finance, supply chain, and customer, and I'm excited to have this conversation today.

Stefan: So, then me second. This is Stefan [00:02:00] here from KPMG Germany speaking, Director, KPMG, industrial engineer by trade. But for more than the last decade basically working in large scale IT driven transformation, and in that area, basically supply chain, it's likely impossible to move anything without IT. And to be honest, with the AI revolution oncoming, it'll be impossible to move anything in the future without basically the support of AI change. Quite happy to talk with all of you about it.

Richard: So welcome, first of all, great to have you on. The title of this episode is Orchestrating Next Generation Supply Chains. So maybe we can start with a definition, because orchestration can mean different things to different people. So, what does KPMG mean when we talk about orchestrating your supply chain?

Hernan: When people hear orchestrating your supply chain, they often think that we mean [00:03:00] integration. We don't. Integration connects systems or modules or functions together. Orchestration is about synchronizing decisions. Think of an orchestra, a musical orchestra, many instruments, one score, one conductor, one tempo. The supply chain works in the same way, so plan, source, make, deliver, return will all be acting under the same signal and at the same moment. So today, the conductor is human, and in the next generation of supply chain, AI will be sitting right next to a human helping read the score in real time.

Stefan: And maybe to add to that, I think we haven't reached that level yet. So even orchestration in today's [00:04:00] understanding, talking supply chain monitoring, supply chain event management, helps giving it transparency, but nonetheless we have limitations to what a human can understand and read and how fast he can react. And I think that's what you were

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saying, basically the AI sitting beside the human. I would say AI is basically helping the human to take better and faster decisions. And by that, then achieving exactly the orchestration we're talking about.

Oyku: I am dropping the ultimate buzzword in the first three seconds of this podcast, AI. And it's clearly dominating all this conversation across industries, right? I cannot even remember when was the last time we recorded an episode here without using that buzzword AI. But many organizations are still stuck in pilot phases and experimentation of AI and Gen AI, right? So how can organizations move from these proof-of-concept initiatives to industrial embedded AI driven by agents, governance, and execution at [00:05:00] scale?

Stefan: From my perspective, it's a two-pronged approach. On the one hand, of course, AI needs to demonstrate its usefulness. That's exactly where those use cases are coming in, typically in tasks no one likes to do. Okay, rewriting package lists 20 times a day. Or tasks that are manual, labor intensive, reading supplier invoices and trying to find the right chart of account bookings for that. So those will be the very first, that's what everyone is experimenting with. But the important part, the technology is so powerful that it requires a rethinking of how the approach to supply chain management will be going forward. I kind of was explaining before, that's what we're calling orchestration. So really allowing the AI to do what it can do best. That is processing a lot of [00:06:00] even contradictory information at the same time. And then preparing decisions that are more interdependent, more complex than human beings can easily bring forward. And that requires, from our understanding, really an AI strategy, really an AI vision. Certainly, let's call it target design, 2035 or 2033, depending on what our expectation of development is. And from there, then that's the second of the approach, then really developing, designing how our vision of a future supply chain should look like.

Oyku: Hernan, do you have anything to add?

Hernan: I will add to Stefan's comment. I completely agree, some of the biggest proofs of concept are still in the works. However, I see huge potential around certain functions or certain types [00:07:00] of even jobs where AI makes a lot more sense than others. And one of those applications is physical AI. And so, when we think about what are the use cases that will start taking more of a prominent role, it could be those that may help replace or make certain jobs easier that are currently risky, or roles that are endangering humans. That is a great application of where some of these concepts could continue growing.

Richard: To that point, Hernan, as well. With that, physical AI will not only do more dangerous jobs, and it can help augment an often shortage of employees in certain areas where you can't recruit people to do certain roles, jobs, and functionalities.

Oyku: This agent-based AI concept is gaining quite a lot of attention, [00:08:00] but still not fully understood by many. Maybe you can give a quick explanation of what it means in the context of supply chain operations.

Hernan: We have a few great examples of how this orchestration is helping organizations. There's a couple of areas that I believe are important to distinguish. One is examples where we see better planning and better understanding of external signals and solutions and helping interpret the world in a more simplified or synthesized way to our supply chain professionals.

The other large area where we see a lot of impact is on execution, where we see AI having a primary role in helping take decisions and transform those decisions into actions on behalf of

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supply chain [00:09:00] professionals. A good example is on the planning side, where we see a lot of disruption from external sources like oil prices or tariffs. We are using agents to help our clients have a better understanding of what those changes in prices are, and what those risks are, and sense earlier the variances of prices. On the other hand, on the execution, we may be able to model what are the possible outcomes of such price increases.

For example, if we see transportation costs go higher because of oil prices, we could model different routes or build different scenarios around how do we transport certain goods or how we deliver goods using different suppliers or different complete end-to-end routes. The orchestration portion [00:10:00] comes in when you are balancing those two potential agents together, that is having an anticipated and a more informed intake of data that tells you here's where prices may be in the future. Marrying that with what to do about that. So, what can I do in my supply chain to balance those out, or to maintain your transportation lines steady and lower your risk of transportation. And that's what we refer to as an orchestration layer, where we're connecting both sides of the equation and you are driving your supply chain forward in the real world.

Typically, those are done by two different functions, two different departments, two different groups of people. In an orchestrated supply chain, these two functions that are across multiple SAP modules or multiple technologies even are coming together and you're executing and driving them together.

Richard: I think that becomes [00:11:00] more and more important as well as the clock speed of supply chains gets faster and planning and execution get blurred. Having the ability to have those simulations, like the three or four alternatives that you could take, and then the human in the loop makes that decision based on the information in front of them, the trade-offs, to actually execute that, that's a great example of orchestration, Hernan, I think. Stefan, you were going to add something.

Stefan: Exactly. So I was wanting to mention, Richard, the speed of decision. And that's something that we are seeing from AI where it's just superior to the human. So doing various simulations, and that's for me basically agentic. So being able to act on its own, of course in a control cycle, in a control loop, but nonetheless, deriving decisions or possible decisions, deriving simulations, and then presenting the pros and cons, and then a human is taking the final call. And that, with AI support, can [00:12:00] be done by far faster. So, reacting on the current geopolitical situation is quite an obvious usage of that.

Richard: That's something that may need to happen on a daily, if not hourly, basis based on the environment we're living in.

Stefan: Exactly. And we at the moment are having customers that are asking us, hey, so do you think next ship still Suez Canal? Is it going to pass? Is it not? So how would we react? So, do we send a second ship then to do the cap on, or don't we? And that kind of information, that kind of uncertainty, that's something that AI is still developing, but it's better at basically evaluating that large set of data that is needed then to take the best, or to offer the best decisions, than for a human to take. And that's for me then agentic. So preparing decisions, not taking the final decision.

Richard: A little earlier Hernan gave some examples with the SCOR model processes. You mentioned source, plan, make, deliver, [00:13:00] and we can optimize those processes. We

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can optimize the procurement process, the manufacturing process, the logistics processes in isolation, but sometimes at the detriment of the whole organization. So, what are the main benefits that you are seeing of moving from isolated optimization of those departments and companies as well, to a network level orchestration across the supply chain? Where are you seeing the benefits of that shared visibility and shared decision making?

Hernan: Sure, there's tremendous benefits. I will call them in three main areas. There're benefits around faster decisions, as Stefan mentioned earlier. Lower total costs are another important area, because you have things like less buffer inventory, you have less expedited freight, you have less rework. [00:14:00] And in the third I will call out is we are seeing a lot of improved resilience.

There are trade-offs always made in the supply chain network, and those are not only inside one function, but if you're connecting them all together, you can have a better appreciation of those trade-offs from an end-to-end orchestration. And therefore, that is one of the areas that we see as a huge benefit. Obviously, there's no perfect plan or perfect warehouse. So, a lot of this is bringing greater visibility, and a lot through how decisions can be made and how we can attain those benefits, whether it's decisions, improved cost, or just simply better resilience as you're making those choices. [00:15:00]

Stefan: Exactly. I think that equation of the perfect cost of supply chain as a trade-off between, for example, transport frequency and stocks and so on, that's, I think, as old as supply chain management. But with AI, we are getting closer to that optimal location. And again, the main topic here is reactiveness. So, speed of reaction, speed of decision making, which we see for companies that are using AI in that control loop, that they are basically more resilient and acting faster on the changing environment. And I think it becomes crucial over the next, at least three to five, six years of how the world is becoming at the moment. But then as a general, that will likely be a competitive advantage that it would be crazy to not grab, this new technology.

Richard: We've been talking about the benefits of AI. But the benefits of AI only come in if the information that AI is leveraging is [00:16:00] correct, that the data, that foundation of information, is accurate. Because otherwise you're just making faster, wrong decisions. So how does the clean core principle of governing data support the effectiveness of agent-based AI moving forward?

Stefan: So, from my understanding, Richard, it's crucial, like you were saying. So, AI has a tendency to hallucinate, so I think everyone that has tried out the technology and played around with it a bit have encountered that already. And they are hallucinating quite convincingly. That's one of the challenges that you have using AI. So, it's most important that you adhere to relatively strict building rules like the clean core. So, what is immutable, let's say this way? What is the core of a system of record? Because if AI is helping us take decisions, we might want to keep track and look at those [00:17:00] decisions. And additionally, the clean core principle and the data model behind this helps basically to guide the training and the decision making of AI or helping of decision making that AI can provide. So, it's absolutely crucial, those principles.

Hernan: I completely agree with Stefan. If you think about how the role of data is so important, and we hear over and over that your AI will be only as good as your data. The other important consideration is that data in the agent space takes on a whole new meaning, as you're also leveraging external signals, external data. It's not just your core data that you have, but also how do you augment that for better decisions. That's how humans make decisions, it's not just

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based on [00:18:00] what's on the screen, but also the contextual information that you gather. This also goes to ratify for me, and for us at KPMG, the importance of ERP. We're far from the end of the ERP era, as some analysts may like to say. I believe we are in a stage where we have to double down on the importance of a strong core system that contains our primary sources, that contains and keeps the information of our operations, of our customers, of our suppliers. That's an important feature of this agent execution, to really continue being governed around and safekeeping the data that moves the enterprise.

Oyku: With all of these technological shifts that we have talked about, it's natural that the roles and the ways of working will evolve as [00:19:00] well. Stefan has already touched on this a little bit earlier, but how do you see the roles in supply chain change with the introduction of AI and agentic AI? And also, maybe we can talk a little bit about what role does human in the loop control play in ensuring resilient execution and faster decision making?

Hernan: Again, a bit of a twofold answer. I think, especially talking not just agentic but also physical AI, we will see jobs that no one likes to do today disappearing step by step. We will see an increased level of flexibility. For example, we are helping a company at the moment innovate and modernize their warehouses, so making them more reactive, more flexible, basically allowing the different storage areas to move around. That's one part of what we are going to see, the environment helping us more, let's say this way, even the physical environment.

Stefan: And on the second layer, so talking now planning, [00:20:00] talking for example, Hernan said before, rerouting. So really planning operation of supply chain. Basically, the AI is faster than us, and it can process more information. We need to strictly guide what it's then coming to a conclusion. But if we do that correctly, we would be, so Hernan, you were saying before in regard to the orchestra, we would be the one that is basically telling the orchestra.

Richard: The conductor.

Stefan: The conductor, exactly. So, we would be telling them more or less what music to play. So, the role becomes more, from basically a planner, a re-planning of each operation, to basically helping to steer the army, maybe of agents, collecting information for us, helping preparing the decisions. And from there, it becomes really more like a conductor role for. [00:21:00] the supply chain planner in future.

Hernan: Yeah, I will add, Stefan, the roles and what it means to our workforce is one of the biggest topics. I have seen different models that range from the inverted pyramid to the hourglass, and so many models of how the workforce will be transformed. I do think there's a couple of important things too that I'll say will not change. One is, if you look in supply chain, that level of insights and expertise, or roles that require negotiation or collaboration with external parties, that will not go away in my mind. The expertise that a buyer brings, for example, or a sourcing professional will always be required, to that human element of agreement.

But certainly [00:22:00] the technical execution part of those roles can now be outsourced to AI. And so, a lot less on the grinding of transactions, because AI will do that for us. My one concern will be, how do I become a sourcing professional, an experienced planner, or an advanced transportation manager, if I haven't done my homework as a junior associate, a junior entry level that has done all the heavy lifting and the grounding in the system. How do I get that experience that allows me to become a leader in this space? And that's one of the bigger questions that we need to sort, and that's why I believe the human in the loop is actually, in some areas, a little

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artificial. But for the human in the loop, artificially or forced, for [00:23:00] the benefit of the education of those future planners or buyers.

Richard: That's a great example of how you get into the role to start with if some of those early jobs are automated now. And I think that's something that we'll be talking about for the foreseeable future. One of the things that I wanted to give you an opportunity to talk about is, I know KPMG have been talking about the concept of neural supply chain orchestration. I know you've trademarked the topic, so maybe you can explain what you mean when you talk about neural supply chain orchestration.

Hernan: Sure. Neural Supply Chain Orchestration means our blueprint for a supply chain that thinks, adapts, and acts as one network. It is a concept that rests on three things. Intelligence, where AI and humans are making decisions together. Trust, [00:24:00] where data and governance make those decisions safer, that human in the loop as well. And execution, where those decisions move from screens into factories, warehouses, and trucks. It's built on SAP and it's governed by our KPMG Trust framework, and it covers the full arc from plan, source, through make, deliver, return, also to sustain and innovate. Let me give you an example of this. A closed-loop disruption is a great example. Say, we were talking with Stefan earlier about disruptions, for example, at a port. In the old world, planners will spend days thinking how to reschedule or reroute shipments. With NSCO, agents are the ones that are replanning [00:25:00] the supply, rerouting freight, and adjusting production within minutes.

So, every decision is locked and governed and anchored in SAP. At the end, humans will get this report, whether it's potentially just through a chatbot or an LLM interface, and they will be making the approval so agents can execute. The view of this is very different, because that execution occurs in the background and the end user will not necessarily need to jump into Fiori or into a transaction, but they can make decisions more from a natural language domain. And so that's really what's different, is how we interact with supply chain. This also allows for concepts like autonomous functions. So, for example, autonomous procurement, where sourcing and procurement is [00:26:00] running in full processes and we as humans are interacting with it on an exception or consultation basis.

To close that thought, what we've done at KPMG is really thought through all the layers that are required to execute this, to bring this to life. It's not just agents, it's not just the orchestration level, but it's also how you think about the governance layer, the context and signals layers. What are the foundational systems that are required to connect? And finally moving into spatial intelligence, physical AI, and robotics. NSCO for us is the framework that allows us to bring true orchestration, including all the various levels required in the operation for this to succeed.

Richard: Great summary. That's an all-encompassing explanation of what companies [00:27:00] need to do. I was gonna ask how KPMG can help, but you've just answered that question for me.

Stefan: Maybe, Richard, just two phrases to the explanation. What is important, and what Hernan was saying, you heard at least three or four times, SAP. So what we realized is basically that we will need the ERP systems, the system of record, and their specialties and their capabilities to make a concept like that work. And basically, on our understanding of how we implement SAP, how we do a digital transformation, that's basically based in our framework, where we then see the capability of AI developing. And analysts are dreaming of the end of the

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ERP era, and in our understanding it's the other way around. Basically, ERP coming to its full fruition, to its full capability, with the use of AI.

Richard: I'm so glad you said that, as I work for SAP. [00:28:00] I totally agree with you though. You need that foundation, you need that core business data, and it's gotta come from your business systems, your ERP systems, your supply chain systems, et cetera. Gentlemen, we are at the end of the podcast. And we ask one question to our guests, and it's usually a bit of a challenge because we've talked about a lot of stuff in the last 30 minutes. But I want you to try and summarize it in a sentence or two. When I ask you, what's the future of supply chain?

Stefan: So maybe I start. So for me, the future of supply chain is basically a new level of efficiency. So supply chains are going to be the backbone of our wellbeing, of our economy worldwide, of our development, and with AI technology, and for example a concept like Hernan described, we have the opportunity to take it to a new level of efficiency and with that, of course, also of an outcome and wellbeing for [00:29:00] all of us.

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Richard: Hernan, that has set the bar very high. Can you match or beat that explanation, because that was pretty good.

Hernan: I agree with Stefan. Look, Richard, in five years supply chain will not be a back-office function anymore. The disruption, the volatility, is just the new normal, and it will be to react and adapt to that. It will be the most intelligent system in the enterprise. The companies that learn to orchestrate first will define the standard, and everybody else will have to follow.

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Richard: That was just as good. Thank you very much. Stefan, Hernan, and Oyku, thanks for a great conversation. That was really interesting. I'm sure that our listeners have learned a lot today and will want to learn more as a result. And thanks everyone for listening. Please mark us as a favorite, you can get [00:30:00] regular updates and information about future episodes. You can also learn about KPMG in our show notes. I'm sure we'll be sharing some links. But until next time, from Hernan, Stefan, Oyku, and I, thanks for discussing the future of supply chain.