The Future of Supply Chain: Episode 123: The Circular Supply Chain: Sustainability and the Future of Business

Katja: [00:00:00] The future of supply chain when it comes to sustainability, I think it's a circle. Supply chain will not be able to continue without sustainability. And sustainability is a big player, not only in supply chain, but it has a deep impact on supply chain or circularity.

It's not only a chain, right? It's always a circle. Sustainability will turn supply chain logistics or supply chain into a supply circle.

Mathias: it will be, let's say, a bright future of digitization. That's the first thing. Why? Because you have to track and trace everything. It'll be the guaranteed supporter of big data and big data collections and data lakes, and it'll be the enabler for questions to structured questions to this big data effort by AI. I do think that [00:01:00] will be the next digital supply chain future for me.

Richard: My name's Richard Howells and this is the Future of Supply Chain, a podcast where we discuss hot topics, best practices, and the latest innovations in today's global business. And I'm joined by my wonderful co-host Sin.

Sin: Thank you so much Richard. And hi everyone. My name is Sin To , and to jump right in with a reference to the latest report of the World Economic Forum, sustainability is and will remain a hot topic in the future. And we're excited to welcoming two of my very famous Hamburg colleagues to today's podcast episode to talk about this important topic.

So it's Katja Keller and Mathias Kaldenhoff. So let's start with you, Katja. Can you please introduce yourself and give some insights into your role at SAP?

Katja: Yes, sure. Thanks, Sin and Richard for having me here. So my name is Katja Keller. And, I'm based in Germany, market [00:02:00] unit lead for sustainability solutions, in Germany. And I actually support all colleagues in sales and pre-sales, when they request demo for a customer or any kind of support for deals, for sustainability solutions with SAP.

And I also do this for partners.

Sin: Great. Thank you so much. Over to you, Mathias.

Mathias: Thanks Sin and thanks Richard for having me here. I am Mathias Kaldenhoff and I am with Sustainability at SAP since let's say 10 and a half years. Starting let's say one colleagues of mine who was in, Mediterranean, research and was building the first corporate carbon footprint management report for SAP as well. So, I am also responsible for educating [00:03:00] and supporting our sales in any question of sustainability, as well as for some business development and demand generation sustainability for SAP under the roof of sustainability in Germany where Katja is the lead.

Sin: So then we have two experts in this round. That's really great. Let's start right away with the first question. How exactly do you define sustainability in the context of supply chain?

Either Mathias or Katja, who wants to start?

Mathias: I would start. But at first we have to talk a little bit about the phrase of the aim of sustainability. That's not a brand new thing happening in the sixties or seventies of the last century. It happens, since I guess, and I have to run my memory, some literature I have read. It was first mentioned in the forest regulation of Saxony in the [00:04:00] 17th century in Germany.

And when we're talking about sustainability, we are always talking about forest because the sustainability term was also used in the Sweden forest regulatory in the 19th century where they're mentioned whenever you will cut a tree, you have to plant two.

So sustainability is not new, but it was not a threat in the former times, but now it is. And when we're talking about supply chain we have to talk always about material in the supply chain. And how to get the material inside the supply chain, how to measure, weight and count its carbon in the supply chain, and how to track and trace the material always in the circle of usage, production, transport and logistics. And so the term [00:05:00] sustainability has changed from, let's say, environmental safety to economical terms.

That's the big difference today when we're talking about sustainability. So it's an absolute and economical factor for all industries whatever any politician is saying about, omnibus or something else. Okay.

Katja: Yeah, forget about busses. So what I would, just say to for, like very simple, equivalent for sustainability. I think Mathias talked a lot about this forest regulations. You can say you can only take out as many trees of the forest as you can put back again. So that there is no, lack of trees and that they can grow in a specific time.

And when it comes to supply chain, it just occurred to me to say, okay, and then you have to find out how many trees you [00:06:00] need for replenishment when they have to be, in what forest. And what kind of trees and what quantity and what exact time. And you need someone who brings them there. You need someone who orders them there and you need someone who plants them there.

So this is the combination of sustainability and supply chain in very simple words, I would say. I like it though. You don't have to, but I like it.

Richard: I think, for most manufacturing companies, when you look at their sustainability initiatives, supply chain sits right in the middle, whether both as major contributor to the problem, but also a major opportunity for the solution.

And many of these initiatives are driven by regulations. And there are many different regulations, regarding sustainability and they vary country by country, region by region. For example, as we're all Europeans talking on this podcast, [00:07:00] the EU CSDDD prescribes binding due diligence obligations, but the UK and the US focus more on transparency and prohibitions. So does this mean for companies that operate globally? How do they manage these different regulations that vary country by country, region by region,

Mathias: Richard think the answer is very simple, but sometimes too complex for the company which deals with, let's say with ancient methods and informations. The answer is let's say absolutely data driven. The more you know about the material or let's say the stuff or whatever you will get where, the more you are independent from different classes of regulation, because there are only different perspectives on the same thing, data in the digital supply chain.

So, I do think that SAP has well [00:08:00] and good because they are able, to gather and to administer and to interpret this data from the origin into the three phases of material, which will be let's say at first in the upstream, second in the production itself, and third in the downstream. So the goal is just to collect the right data in these two, three phases of material.

And if you can do you are not, and I do think really not confrontated with different regulations. You just, let's say are confrontated with some software,

which is able to fill out the right template with your data, and that's what SAP is doing as well.

Katja: Yeah, I think that it is not so much about what [00:09:00] regulation is doing, what in which country for whom or. If not maybe, or do I have to accomplish to that calculation or not? If the data is available in the system, as Mathias said, whatever system it may be, it can be collected.

And this is actually, I had a very funny, meeting this week Monday with a big global customer. And and we were talking very good about sustainability and all this stuff. And then they came also, okay, how does the system fetch all the data? And then we said, okay. But, there are some little hints you should keep in mind when it comes to housekeeping of data and then we have one point.

The example I always like to tell about, for example, when they have products that come from certified, origins and from non-certified origins, and a lot of companies do use the [00:10:00] same material number for this. And when it comes to EUDR, this is simply not allowed. Yeah. For later for the reporting or not possible because they cannot divide.

And then they said to me, no. We don't want to change our processes. This cannot be the meaning. And I said, I think you have to. It simply, no, we have done this since 1850s, so we don't do it. Fine.

Mathias: Katja, this is my experience as well. I have been to a lot of customers who said, oh, I have to change my data precision. Why should I? I've done this for years. And so they have different types of, let's say, of material which they do have under the same ID, and they are coming out of the origin are different countries, different carbon measurements. So they have to be more precise. And that's also a chance not only a threat.

And when [00:11:00] you look at SAP and because that's what a phrase, or let's say a word or a phrase I have always in my mind is, that's not a question of reporting. Reporting is easy. It's a question of binding the right data to the right material in the right process because everything about economical benefits happens only to companies who are able, let's say, to forecast the data they will produce in relation between material production and processes. And not only reporting what they have done or what they have gathering. So let's say collecting of data, for me it's also from a origin to, let's say, production.

And binding this to all the other supporting functions of the production of the process so that you can administer the process or the production by [00:12:00]

different types of data, by types of financial data, as well as by types of carbon data. And that's the difference between SAP and let's say mostly all the others talking about sustainability and reporting, talking about sustainability and CSDDD and talking about risk management because why should I have some obligations in risk management for suppliers, which are not important for me? Or which have only a small portion of material in my whole process.

So it's also, sustainability is also risk management itself. Do the right thing at the right time. And the right time is not last year. The right time is now. Which material I'm using for which process now. And what is the cost, the financial cost, and what is the carbon cost.

So that's why we invented green ledger, which is now [00:13:00] called carbon accounting. Which is bind to the financial data and to financial accounting. So that whenever you are doing, financial disclosure, you are should also able to be a non-financial disclosure because they are bind into the same transactional brackets in material and processes or wherever.

So therefore, let's say the EU regulatory like CSDDD is also dealing with financial transactions. That means the goal is to have only one price for any item, which is called carbon price, which means the total cost of material as well as the total cost of environmental stuff, because environmental has also a financial impact.

Katja: I think what everyone is focusing currently, as you said, is they only focus [00:14:00] on, I have to do a report and that's it. So they're just focusing on there is some something I have to do because it's regulatory requirement.

Richard: So they're just ticking the ball.

Katja: Yeah. They don't see the chance. And this is exactly what Mathias said, because I always call it when people are talking about, for example, corporate or product carbon footprint calculation, they sometimes also talk about carbon accounting. And I said, no, it's not carbon accounting, it's carbon counting.

The good thing is coming from carbon counting to accounting, and this is what he has just described with SAP or with a system-based calculation and accounting. You have both, you can calculate your footprint, for example, so you can do an emission calculation and then you can combine it with the SAP solution, formerly known as Green Ledger, now called Carbon accounting, for example. You can put these data in [00:15:00] sync so you also know what exactly happened in the logistical steps because for every logistical step in the

system, you have a post which leads to a financial profit center or cost center or whatever.

And this is exactly where the companies customers are not yet there, or many of them are not there yet because they only see this, I have to do something and they don't see the chance what they can use with this data, what is the purpose and the possibilities, especially for risk steering.

Because when you think about supply chain, you always have to think about, do I have regional distribution centers, for example? And for some areas just see what happened in Switzerland. Yeah. This flood that just simply took away a village or in the US they have floods there as well. Flash floods.

Yeah. And what insurance company will say, okay, build there a new distribution center if you want. Doesn't [00:16:00] matter. No. No one will, and this is what they just currently do not have in mind. So they don't see the connection between financial risks, for example, insurance risk and all this stuff, which has clear impact also on supply chain, et cetera.

Mathias: So working out that from Katja now, that sustainability and especially in the digital supply chain has a lot to do with financials. Financial accounting, we should be a little bit more precise how SAP supports the circle of evidence for all the things. And I think we should start with the, material from origin to production. So from upsteam to production.

And there are two main solutions of SAP will take place when we're talking about origin and the way material is transported and yada ydi. We have to talk about Green [00:17:00] Token and we have to talk about what Green Token will do for all the customers for the digital supply chain. So green token, let's say, is a little bit complex to explain, but you can imagine a Green Token digital twin of the composition of material.

So if you have, let's say a plant of palm oil and you have a second plant of palm oil and you have a third plant of palm oil, or you have tons of meat and another ship with tons of meat, you have different producers for the same stuff.

And when they're harvesting, they put all this stuff together to one palm oil can or barrel or whatever you like, in your transport management. But every little piece of this [00:18:00] composition has got a green, has got a token, blockchain token. And all these token together are the barrel. And that's what Green Token is for. It's a digital twin of all these Green Tokens and follows and track and trace each step of the transport.

So when you got a Green Token, digital twin of tokens for blockchains in your company. By, I don't know, by any measurement, by litters or by gallons or by PG or by pounds, how many stuff from this harvesting, how many stuff from this harvesting and how many stuff from this harvesting, that's what we call a mass balance. And that's very important for each company because they have to divide, as we mentioned, and Katja as we mentioned before, we have to divide our material into different origin or to different suppliers, even if it's in one composition.

Or the [00:19:00] second thing we are delivering for measurements, or let's say for reporting and for all the processes is, sustainable data exchange where the supplier itself is able to bind the carbon to its material. So some of the big data spaces in Europe are using this, sustainability data exchange, for instance, in automotive is CatenaX or in Aerospace X.

So these data spaces using SDX for the exchange of carbon data for material for each supplier. They have one hub in the middle where any of these participants of the data space is able to read the carbon, the actual carbon data for each material of each supplier, which also participates in this data space.

[00:20:00] That's let's say is innovation to what we have done years before when we were talking about databases, which are the rule by thump for carbon data and material, not actual and always, let's say average data, right? So let's say historical average data, whereas sustainable data exchange is actual data divided by supplier.

Sin: Mathias, you have talked about, or you mentioned a lot of different technologies.

You started with AI, then you went over to SDX for the whole data center. so if we, going back a little bit to supply chain and also to companies. So what do you think which of the new technological innovations can help companies to overcome these challenges when it comes to sustainability to the reporting, to the financial accounting, and also to get all this kind of carbon accounting for business?

Mathias: I [00:21:00] think as a good architect, I would start with the roof. The roof for all these technologies is, transforming your data to the cloud. That's the very first thing you have to do because only in the cloud you're able to gain traction. And the processes outside your company itself. So if you are, let's say in the cloud with some solutions, you are the first step ahead.

Then you have to think what I've mentioned before, divide all your activities in upstream production, downstream, right? Then it's very simple, which is supporting the upstream.

So counting, measurement and waiting of your stuff you're getting. So there are not a lot of technologies because they are all bind together in SAP's cloud offer. And there are only several products together and collect the data from [00:22:00] outside, which is maybe what we were talking about Green Token, which is just digital twin and blockchain. It is very simple.

And then we are talking about SDX, which is just a protocol and database driven. And when we are talking about database driven, we are nearby the cloud because by SAP Cloud. So that you have, let's say, surrounding and supporting functions in the cloud, which will deal with an enterprise centric approach, which is SAP also doing.

So all these functions and all these technologies are ending in the middle of your economical action, which is an enterprise resource program. We should call it enterprise sustainability resource programming. But this is an S/4 to be honest, because wherever you will having a bill, you are having financial data or something in, [00:23:00] you have the processes of S/4.

All SAP solutions in the cloud will interact with this enterprise centric approach of S/4. So that means whenever you will have something supporting, you can use it for your planning and your forecasting and your simulation. And let's say for what's also SAPs main topic nowadays for the AI approach on any process which makes your planning and your strategy better for the future.

And so our approach, let's say, is a shift from reporting of ancient data to simulation of let's say, future production and future material composition in relation to carbon, in relation to [00:24:00] financials, or both in one bracket. I think, sustainability is not something you will do as a sidecar effect. It's a main economical factor.

Katja: Yep.

Mathias: and that's the shift.

Katja: Yeah, it's a shift in thinking and, as you always like to say, Mathias, when it comes to losses, then it's always the social responsibility from everyone. But when it comes to profits, it's only the individual who earns the money. Yeah. which economically good.

And do you remember this customer? It was last year in spring. We were at a German manufacturer and they said, we want to steer our company by only sustainability driven KPIs. So they really did this shift. They did not only transform from an old ECC to a new S/4HANA world, but they're [00:25:00] also in parallel they tried or try to change their complete KPI system, for example. So they try to steer by sustainability driven KPIs, for example. Of course, they have to do profit but they use sustainability data for it in addition. And then sometimes a profit may look different than before. If you don't take sustainability aspects into focus, but I think that is what companies have to do in the future.

And therefore we provide a wide range of instruments at SAP. We do not only provide the ECC system, but we also provide, as Mattias mentioned any type of system to exchange emission data or a carbon data to do it in a profit and loss carbon accounting ledger based, thing, but also other tools we offer the RDP which actually tells you on how much plastic tax you have to pay in specific countries, which you [00:26:00] also have to take it into account when you talk about risk management or financial risks.

So if you look at it from a product perspective, then it's really clear that sustainability drives actually a new era of steering a company.

Richard: You're absolutely right because sustainability is now another decision making factor in the whole business strategy. It's always a balancing act of profitability, sustainability, and they're not mutually exclusive because making good decisions from a sustainability standpoint can also be a good decision from a financial standpoint.

And that concept of every transaction as a financial and environmental cost.

Mathias: Yeah. And to extend what we have said before. It's not only a question of financial transactions and being clean in your production or being friend of mother Earth. It's also a strategy to [00:27:00] over because when we are talking about, especially the digital supply chain and all the factors the digital supply chain will bring to us, we also have to talk about the reach or reach out for raw material. So we have to expand our thinking to a circular economy because circular economy in some industries is the strategy to get material.

And I think, in public discussions, we are always talking about rare materials like rare irons or iridium or something like this because in the headlines for

battery management. It's in headlines for all the stuff. But when we are going to the mass, we have to talk about steel.

Steel is still one of the main factors for buildings, for ships, for planes, for cars, whatever you like. Especially in [00:28:00] packaging. It's a main factor for every kind of cans and I don't know, in boxes or whatever you like. And we have talked, especially Katja and me, to some of the big ,steel producers in Germany, which is a big industry in Germany, as in some other countries as well. And they can't produce 100% of the requirements of steel or without having garbage inside.

Garbage is old steel, which will flame as well. So 30% should be old ones. So we have to talk about not only upstream and the production, but also what will happen to the material after it'll leave our enterprise.

So a new business model in the digital supply chain come up when you look. I will start with batteries as [00:29:00] well. When you see these French automotive industry, they are not only selling batteries for the cars. The big ones, the EVE, EVE used. They are also renting it because they want to have it back.

When we are talking of battery cycle management, they will want to have the material back because material like iridium and all these others are produced, let's say in the Ukraine or in Afghanistan, they are always produced in a risk. And you will see that the next discussions between some politicians take place for rare material, right?

So this is what will happen and to be on a safe way for your material. When we are talking about green token. We are talking about track and trace. And this will absolutely not end at the [00:30:00] gates or the doors of your enterprise.

When you are also in obligation for tracking the material after it leaves your halls or your ground because you want to have it back. And so we have discussed new business models, which means if you have a ton of steel, maybe only 100 pounds are in your responsibility. Let's say the beginning of the end of the steel. I don't know, to get it, to go it back.

So that's also the help from SAP to digital supply chain is also about regulating, let's say the different rules of carbon from different countries. That's what we call carbon border adjustment because when you get material from, let's say, somewhere outside in the outer rim of planet Earth and they have no carbon tax.[00:31:00]

The EU regulation of CBAM tells you have to think of customs declaration. Is there any carbon? And if not, you have to buy some certificates for these CBAM certificates.

So you have a trade system for that? No. If you not have a trade system for that, you are absolutely in the dark. So you have to think of origins. Who is the declarant, who is the operator of the material, of the customs declaration of all the data. And that's not for free. That's an obligation. And you have to pay tax for that.

When talking of regulations of EUDR. You have to pay I think 30% of your revenue share for each failure. If you are not a declarant for wood out of Brazil or whatever in the EUDR regulation. If you [00:32:00] don't think of wood please think of some other stuff, which is biological.

So it's always not only a question of responsibility for Mother Earth, it's not a question of financials and planning and structuring your business. It's also a question of don't pay penalty or taxes. So that's also a question of planning. That's also a question of changing the supplier. That means supplier management, which you have to be fit in when we're talking about all the digitization and the digital supply chain and where we're talking about sustainability is have different perspectives, which I hopefully mentioned in my last 30 minutes I was talking about this.

Katja: Yeah, it's actually supply chain planning. And then you also have the supply chain execution, which is more the transportation related, but it's also of course a [00:33:00] big part, especially when it comes to emissions. But which also is a different or another supply chain aspect is the reuse recycling.

So basically the circular economy part because when you as a company are in charge of what happens after the consumer has bought this nice iPhone, for example, or cell phone could also be Samsung or whatever. And if a company is in charge, then they are more interested in what is happening.

Do they throw it simply away in a rubbish bin, or do they bring it back into a refurbishment store, for example? So you also think more of what is happening to my product. It's not only in German, we say "nach mir die Sintflut" . So it's I don't care what happens when I sold it.

But you really have to think the complete lifecycle. So

you see.

Richard: It's interesting, Katja because that [00:34:00] brings the design phase into the whole discussion as well of designing with end of life in mind.

Katja: Exactly.

Richard: And I think that's a key thing that people need to consider.

consider

Katja: We had a lot of talks about stuff like using plastic bottles and all this stuff, and then you have this calculation, oh, plastic bottle is much more environment friendly than a glass bottle, for example. But you have to think how often can I use a plastic bottle? How often can I use a glass bottle? And all this stuff which you have to take into account.

And I also heard the term recently, precycling as a term for avoid w aste. And for me, people talk too much about recycling. Yeah because you can recycle everything when you burn it. Thermal recycling is always working.

But you have to think about what materials do I use or can I change some of the materials.

Because even when you burn the stuff, it's also [00:35:00] emitting not so nice things into the air, which is again a burden for the complete society globally.

Mathias: And this is also a regulatory now in the EU, it's called Extended Product Responsibility. And that's what Katja was talking about when she talked about precycling. Many companies are asking us, what should I do in product lifecycle management? How do I decide for the right material?

So, that's what the term is. The worldwide term is responsible design and production, which is for us at the moment, specialized into packaging. But when you're talking about responsibility, then in the design phase you have to have a look which material are you using and how often can it be used? And what is the repair friendly design [00:36:00] of the component you are doing? How to track and trace, how to repair, how to refurbish how to re-accomplish.

Richard: How to extend the life of it as well

Mathias: Yeah. And that's something which, which differs from enterprise to enterprise or from industry to industry. But everybody's talking about, design and the extended responsibility. And we have some companies in the last two or

three years who are changing their business models. They are not only selling new stuff, but they are also have a marketplace for refurbished stuff.

This is let's say a big question in fast fashion. Fast fashion is a symbol for burden the planet earth because 90% of all fast fashion will end up in Ghana or somewhere in Africa for burning down. We have some companies who took also Green [00:37:00] Token for having recyclates in their new fashion style of fast fashion.

So that 30 or 40% of all the material, or let's say the plastic inside fast fashion is old stuff or old material. And some of our customers are using this for 90%. There are good examples in, especially in Germany, and they're doing business with that.

Katja: Yep.

Mathias: So supply chain is also a question of, let's say marketplaces, secondary marketplaces. So when I was talking, especially with the Ministry of Research in Germany.

They asked us, "Hey, what will happen with extended product responsibility and repair management? How will the repair station get the right data of the product to decide if they want to recycle or [00:38:00] to repair? What is cheaper or what is better for the environment?"

So we are talking about business objects or data objects of the product, which inherits all the data of old things and stuff, which have companies or repair station has done. The service history, the material history, the let's say recycle history and on.

And I do think, and when we are talking about the future of these digital supply chain stuff and all the material, then I will think the next big thing which is coming up especially from SAP is the BDC, the Business Data Cloud, where all the data of these material or components or products will be wandering through the whole process of every enterprise as a data object.

And just reflecting your first question, Richard, your first question was what is the main [00:39:00] thing? The main thing is having right data.

If you right. And then the only thing is how to differ the relations between existing data to answer the questions. And this is why we, and SAP is also putting AI because this is not manual work. Why SAP is putting AI and

sustainability so close together to answer these questions. Because AI is able to have these different perspectives or answering different questions for the same spot, for the same data spot. And that's what's the future of supply chain, as well.

Richard: You've set me up for the perfect last question because we're reaching the end of the podcast. I know that we could talk for another, well, we could delve [00:40:00] into any of the topics you've covered in another podcast. And I'm sure that we will be asking you to do that, but we always ask the same question to our guests at the end of the podcast, and you just summed it up, what is the future of supply chain, especially from a sustainability perspective? So whoever wants to take that one first, feel free.

Mathias: Okay. The future.

Richard: I. Yeah. Famous last words. Okay. Famous last words for supply chain are.

Mathias: It will be, let's say, a bright future of digitization. That's the first thing. Why? Because you have to track and trace everything. It'll be the guaranteed supporter of big data and big data collections and data lakes, and it'll be the enabler for questions to structured questions to this [00:41:00] big data effort by AI. I do think that will be the next digital supply chain future for me.

Richard: Thank you. Katja, would you like to have a go?

Katja: Yes. The future of supply chain when it comes to sustainability, I think it's a circle. Supply chain will not be able to continue without sustainability. And sustainability is a big player, not only in supply chain, but it has a deep impact on supply chain or circularity.

It's not only a chain, right? It's always a circle. Sustainability will turn supply chain logistics or supply chain into a supply circle.

Richard: Thank you. Hey Katja Mathias, thanks for a great conversation. As I said, I'm sure that we could have kept talking for endlessly on this topic, and I don't think it's a topic. I know it's not a topic that's going away, and we will definitely be reaching out to you to learn more In the future. But thanks again and thanks [00:42:00] everyone for listening.

Please mark us as a favorite. You can get regular updates and information about future episodes, but until next time, from Katja, Mathias, Sin and I, thanks for discussing the future of supply chain.