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Inside SAP S/4HANA Episode 95: The Power of Advanced Variant Configuration with SAP S/4HANA



Markus: Hi everyone and welcome to our podcast Inside SAP S/4HANA. There is no customer success without product and project success. In this episode, we talk about the topic of variant configuration and to answer all your questions around this topic, I have Marin Ukalovic, Chief Product Owner for Digital Configuration Lifecycle here at SAP, on the show today. Marin, welcome to this podcast.

Marin: Hi, Markus. Thank you for having me!

Markus: Marin, the pleasure is also on my side. You are renowned author of SAP press books and an engineer at heart. What got you into the subject of variant configuration?

Marin: Yeah, that's a long story, Markus. Before my SAP time, I was an engineer, so a mechanical engineer, studied that. And when I joined the company which was the end of the 90s in the last millennium, my mentor was run this topic. He handed it over to me from the early days. So I started from the beginning of my SAP career with this topic. And since I never got into this, now I know everything mode. I'm still with it and I'm continuing the topic now in the different role. I'm not longer in the sales area and pre-sales area. I'm now in the product development, product management role and I'm still happy with it.

Markus: Great to hear, Marin. Here's a little secret of myself: my second job at SAP was also in pre-sales. But let's focus on the today's topic. And the variant configurator, advanced variant configurator is a direct successor to the LO-VC application component. And can you maybe explain why the SAP Advanced Variant Configuration solution was introduced and what makes it stronger in comparison to the old LO-VC solution, actually?

Marin: Good question. So, you know, when we started or when SAP started the overall S/4HANA story, we started also to investigate into variant configuration the LO-VC how to move it to S4 and if it makes sense or no. And we spent close to a year together with well experienced partners and customers, if this makes sense. And after this year we saw that it's not the best way to do it. And we decided, together with the huge investment case from Broad Area to invest in a completely new, from scratch based, G-code based engine, together with the Fraunhofer Institute. And reason was yeah, all the LO-VC was old, was not integrated that good, was not the best engine. And when we started doing it, we of course focused on several areas. The one is on the user itself, to better guidance for sales user for example, usability, how to use it. We have a Fiori now pure Fiori UI. We have filters for him to make the configuration easier. We have undo redo functions as you know it from Microsoft applications in Excel or the PowerPoint. So the guy who is using it was in focus of course. And then most important, even more important, the modeler, the guy who's building the product which needs to be configured. So we, you know, we have two user types to one extended user, the one is the professional user. The professional user is the guy building the product. We use to him a new trace much, much more better than the old one. A new inspector showing every object he wants to change.

Marin: And new syntax is possible now, we have new tables. You can enter wildcards, negative tables. You don't need to maintain everything what's possible, you could focus on the minority, meaning what is not possible, and then let the engine run. And of course, we focused on the business processes behind variant configuration. Steps, which would help the user to get faster the result, for example, creating material variants, is now possible via one click in the sales order. You can say, hey, this is often sold, let's make a metal variant.

It's just one click. You can start with configure to order and then move also by one click into the engineer to order process. So if you find out that the customer is asking for something which is not possible in the current model, you can then start ETO the process hand over to engineers. Then they build something on form level or routing level, then switch back. We have integration to planning advanced ATP, product applications running. We have now quite this year or would introduce this year a solution order and solution quote integration. So we offer capabilities which run into the solution business meaning configuring product, services, subscription and other objects combined into one. We are part of the two-tier scenario for customers running S4 private cloud and public cloud and hand over objects here. And we have for example cross plant procurement also for configured products. So a lot more than that, what I just showed or explained, I said it's enough to fill a book.

Markus: Thank you, Marin! That sounds great! I was able to test the new trace functionality as well, and I have to agree, it's awesome. But let's move away. Maybe from the technical aspects, the improvements we had on that side, and maybe we go more into the business world. And here what I see in the market that organizations are currently facing trade offs between standardization and also customer individuality. So last time I configured a car and I was able to choose a tremendous variety for a combustion engine car, but for an electric car, my options were very limited. Where do you see the market going in terms of varying configuration? For me, it's not clear and probably for you. But do you also see artificial intelligence or machine learning business cases in certain industries popping up or coming along?

Marin: Yes, indeed. Just an example. Recently I visited Daimler in Sindelfingen and the new factory 56, where they built the S-Class and the Maybach, and we had a whole several sessions regarding AI and machine learning integration into supply chain processes. Invited by a group of people called operations research driven by universities in Stuttgart and Munich was really nice to see really, really experienced people, very intelligent people. And what came into my mind when you asked this question is that especially this topic was mentioned by OEM, how can we change? How can the seller change the behavior, the buying experience, the behavior in these times? And he especially mentioned Covid because a lot of things change during Covid. You know, we had the impact in the supply chain. Not everything was deliverable. They had a lack of material. They needed to tell the customer, hey, you cannot get what you want. You need to wait. Maybe you will not get it. And then they found out that they maybe need to change a strategy. For example, especially regarding electric cars. They now implement this more and more as they move away from this huge variety you just mentioned. When you can click on everything and start focusing, start guiding, create selling bundles as you know, the package X, Y or whatever, you know, bundles of take this and this and this. The business bundle we also know from SAP cars, reduce complexity is really important. Not everybody is longer interested in having these huge sessions in configurations nobody wants to configure, by the way. And moving away from just selling cars, meaning in numbers, sell as much as you can, moving towards sell the margin related features. Sell the more expensive parts. Guide the customer towards what you want to sell, not what he wants to buy. And do this so intelligent that he doesn't recognize the way you're doing. So this is what I learned. And it was really impressive because it was not only one company, it was two and three companies telling exactly the same thing: is how to use AI, because of course you can write rules and say, if you click on this, then take this. If you take red and choose large, whatever. But use AI technologies to find out how the customer will end up with the order when he started in this specific way.

And this is something where we need AI support and machine learning, and this is where we also start investigating.

Markus: So in my case, the machine already knows what kind of car I will configure in the future, right?

Marin: Yes, you should start with the biggest engine and you will end up in the sports, right?

Markus: Great. When I talk to customers that use configurable materials, I usually hear that lifecycle management is very important to them. It's the first point that usually comes or questions in that direction. And here I'm talking about changes for example to characteristics or attributes, rules, prices and as well as parts list or routing structures within an existing data model. What is your advice on a best practice approach to handle this, so that organizations stay or become actually competitive?

Marin: Yeah. Very good! As you may be noticing how you introduced me. You know, my title is called Digital Configuration Lifecycle and not variant configuration or advanced variant configuration. The reason behind we have an investment case called exactly the name digital configuration lifecycle is the importance of this viewpoint you mentioned. We're not talking about the configurator. We're not talking about a specific way an engine runs. For example sales configuration engine does sales configuration. So he sells something. He maybe derives the right pricing and that's it. Right? Then you have a list of characteristic values, and you could hand over to printed out document to production and say please produce. A BOM exploding engine explode BOMs. Then you have a max BOM, for example, and you have roots behind every item. And then based on the configuration engine result, you have a BOM for your specific car, for example. Calculation of routings is made also in the so-called low level area. And what's important, and I think this is the differentiator of SAP to other competitors, which focus on one level, what I have just mentioned for example sales, is that we connect each other, and that's really crucial to see the topic where in configuration as a process, not as an engine.

Marin: Of course you need an engine, but more important and more value is coming out if you understand that this is a process which starts from the very first idea: you want to create a new product, a new feature, a new option, introduce a new pricing, introduce a bundle combination, whatever. This first idea needs to be incorporated, for example, by requirements management into the product model. Then you need to take care about the product, the material master. You need to add the description. You need to have pricing. You need to have BOMs. You need to have a routing costs. You have marketing. So it's all a lifecycle. And then you will decide of course this product is no longer available. So you need to set it out of the market. This is the reason why we call since I joined SAP, I think this is really old, this mantra is: model once, configure anywhere. See it as a process, model it one time, but add everything, every user, every consumer needs to run this lifecycle process and not calculate an engine.

Markus: Great, Marin. I like your mantra: model once, configure anywhere. And I think that my next question goes a little bit also in that direction. We all know that inefficiency or inefficient offers lead to lost customers and lost revenue. And personally, when I want to receive an offer, I configure products on a website or even an app. And sometimes I get frustrated as a UX is horrible or the configuration is not working properly, whatever it is. And

so how or what can SAP do to make the quotation, configuration process a very good user experience for our customers?

Marin: Yeah. Coming back to this model once, configure anyway and like it also this mantra, this concept. Yes, of course, we if possible and I would recommend doing this, do it one time. Use the same data all over because then you will get rid of any error and you will not sell something which cannot be produced, and you will not offer something which has a bigger costs than revenue. But of course it is super important that not that there's not one UI, not one UX. It always needs to be targeted towards the user of the application. So if you have a back end user, this guy wants to run really, really fast through a configuration. He wants to have fast data entry, for example. He wants to be able to switch immediately between CTO and ETO stream. He wants to incorporate the engineer into the whole process and so back and forth, and he needs a special UI for that. So this is in S4. But if you are a sales user, for example, and you just do sales and you have maybe CPQ application, then you run, you would like to run a CPQO or a configure price quote oriented tool and UI running on the same master data, but having a different UI, different behavior. And even more important, what you mentioned is if you are an end customer, a B2B consumer on a e-commerce platform, have no clue about the product itself, you don't know which rules are firing, you don't know how many characteristic values you need to enter. You need to have a guidance. So what I want to say is even having one model, it's super important not to have the same UI for every user. You need to address every user differently. And this is, I think, a task we solve with our different offerings in this life cycle business.

Markus: I have worked with a client in the past, and they have seen that they have a very complex varying configuration setup and mainly self-developed for many, many years. So that means they have a multi-level bill of materials with configure to the 25th or 26th level even. And here the challenge was that often customers were asking for changes in configuration till the last moment. So the saying in the company there was till the machine is actually on the truck. And what do you think is the best approach? I mean, we have seen the AI case you described before where you go sort of like into the product recommendation area. But what would be your advice, especially for this company, if they say they cannot reduce the complexity, how would you handle late changes and variant configurations?

Marin: You know, this is, from my perspective, a typical German statement. Yeah, we change the piece on the track, even if the foil is on it and it's colored and the customer calls, I want to have it differently. It's not easy to answer, to be honest. I know because I'm that long with the company and the systems. Even in our three times we had solutions helping to solve this issue, it was called, so-called audit change management, meaning simulating a change, see what the result of this change would be and then decide maybe by rules or maybe by human interaction. If you go with the change out of the sales order, the standard behavior is still the same, meaning that before you save or after saving the configuration and sales, you will open planned orders right, with the subsequent documents and objects like BOMs and routings and planned orders. And in the moment you switch them to production orders and you fixate them, then they are fixed, right? Until then it changes. Not an issue. After that point, it's getting hard and it's said not so easy to answer. So I would say if you have a specific customer in mind, we should start talking, maybe in a different meeting to find a way how we can solve that. And maybe AI or machine learning could help, because I have a case in my mind where a machine learning has helped to explode BOMs differently and routings and calculate routings. And maybe this is a chance to change last minute stuff,

but it's independent from configuration, by the way, it is always hard to change when you started producing.

Markus: I can tell you how they developed it on their own. How they solved it. But painfully. But let's come back maybe to the SAP product recommendation. Product we just released here at SAP. Do you foresee other use cases for artificial intelligence, maybe also in the field of varying configuration? You already talked about a couple, but maybe you can also touch more on the SAP product recommendation. Also explain that a little bit, because I don't know if everybody out there knows what we really mean with that.

Marin: Yeah, that's the first one which we release right now. And absolutely. Yes, we all heard all in approach from SAP. We are in AI and I see a lot of opportunities, especially because of this complex process, variant configuration, to help customers and just to name a few, which we started doing by mock ups and proof of concepts is maintenance rules, right? Nobody wants to maintain rules. Why not asking AI or ChatGPT and say, hey, I want to have a rule making this and that and it works. Machine learning based calculations in the BOM areas of routings, we have partners already delivered solutions to calculate routing times based on machine learning, because you don't have time to make a fast quote and the customer doesn't read the fourth quote. The first one is sending a quote and it needs to be really accurate. And if you have a complex product, you would need to have a lot of calculations, machine learning can help here. So it's a lot of things we are starting to investigate and product recommendations also to find out the right way through the configuration to get you to the right product. Based on machine learning experiences. You can, as said, you can do a lot of things with rules, but you will end up in huge lines of coding and maybe you're going to the wrong direction. And why not asking the experience? Machine learning is nothing else than experience. It's like you would ask a thousand people what they experienced in the last five years, but now you have an engine giving you an answer in a second or milliseconds. So we see a lot of opportunities, especially in variant configuration in back end, low level, high level, commerce integration, CPQ, even in 3D visualization, how to visualize something. A lot of things are ongoing, and I hope that we will deliver more in 2024, which fits into the all in approach with SAP and AI.

Markus: Interesting times and let's stay with the times. What are your plans or SAP's plans for the future roadmap for Advanced Variant Configuration or other configuration products we offer?

Marin: Yeah, that's, of course, a long list. I just had today a meeting because we started portfolio planning for 2408 for next year. So just to name a few, we have besides the mentioned AI, which is one hot topic right now to find applications, use cases which we could make to a product or include into products. Is we open S4, right? We make it accessible. So we have a lot ongoing. So you can write and read data like classes, characteristics, values and rules and back and forth. So we open us towards partners which build applications on BTP. We are working on the UI again. The Fiori UI of course has had limitations to include things. Now we offer changes that you can include pictures or icons, make it more visual in the standard. We are working on process integration topics like the multilevel set scenario. If you have a set meaning three four components based on one configuration as an extract, you can now do this multilevel, which wasn't possible in LO-VC. So we have now, we're now setting the stage towards processes which haven't been there before. As for an ADC, because we don't want to do exactly the same what we had in LO-VC. We are targeting

every release, some pieces of new syntax. And the reason behind this approach is that we have a lot of customers which want to move from LO-VC ERP to S4 AVC, and they tell us, hey, we had a lot of developments because we were missing this and this and this, and so we build it on our own, just to name one. That's called pi functions, which we don't support anymore. And that is. It's hard for us to move if we can't survive these functions time. And we would like to get back to standard. So we asked them, what do you need and if maybe syntax is missing, we deliver and this is what we do continuously. Then this bundling app we will now ship in the beginning of next year, is to offer a customer the possibility to bundle product service, subscription offerings, service orders into a solution called solution order. And don't use the classical modeling in the back end because it's an expert level and the bundling guys are most often in marketing, and they don't want to go that deep into the topic of modeling. So we offer them now a bundling app based on BTP, which is easy to learn. You just need an hour to understand how it works. And you can create a bundle and then sell solutions to your customers. So the roadmap itself is a huge list of topics. We move from year to year, and we pick based on, yeah, different activities outside the market. We listen still to the customer co-innovation group where we are working together with them, partners and customers to target our customer, to ask them, hey, what do you think about this idea? What do you think about that idea? Would you implement this if we deliver so a ton of ideas, we could spend an hour talking about roadmaps.

Markus: I would like to talk with you for hours. A lot of information for our listeners today, Marin. Unfortunately, yeah, we are already at the end. Marin, thanks for being on the show today. It was a real pleasure having you!

Marin: Thank you for having me! And if I could add an information which is important for the community and for me personally and for my colleagues is, as you stated at the beginning, we are authors or co authors of books, and one of them is the SAP Advanced Variant Configuration in S/4HANA, which was released in the summer this year or in March April, which was in German. It was, by the way, number one on SAP press bestseller list in the German version, and it's still in the top ten as far as I know. And we released the English version just two weeks ago. And it's also, I had a configuration work conference with 100 customers, and every book I had with me was sold out immediately. So if somebody wants a signed version, let me know. I think I have only 1 or 2 left, and if one of the listeners has interest, yeah, just write an email to me: marin.ukalovic@sap.com.

Markus: Brilliant, brilliant and great marine. Congratulations. I will bring my book to Walldorf. And then maybe if you're there, you can also sign it there for me.

Marin: Yeah. You're welcome. Okay. Thank you very much.

Markus: Thanks to you again and all the best to you. And as always, feel free to drop us an email via insides4@sap.com and let us know which topics are of your interest. Tune in next time and be Inside SAP S/4HANA.

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