accenture

INDUSTRY X, PRODUCTION & OPERATIONS, NEXT GENERATION MANUFACTURING SYSTEMS ARCHITECTURE FIRESIDE CHAT

VIDEO TRANSCRIPT

Claire Blair: Industry X at Accenture uses the power of data and digital to help our clients redefine the products they make and how they make them. My name is Claire Blair, and I'm Marketing Manager at Industry X. We'd like to welcome you to this session where I'm joined by my colleagues Pascal Brosset and Thiago Martins. Pascal is Industry X Production and Operations Global Lead, and Thiago is Managing Director with responsibility for MES and MOM across multiple industries. Today, we answer some of our clients most pressing questions around digital transformation in manufacturing, and more specifically, the role of technology and data and how MES and MOM can be leveraged to play a major part in the overall success of transformation outcoMES. So Pascal, I'd like to put the first question to you. Right now when we hear about digital transformation, the term digital twin is used repeatedly. What exactly is your interpretation digital twin? And what does it mean for manufacturers today?

Pascal Brosset
Thanks Claire. Welcome, everybody. So what we see across industries is a pretty similar pattern. You know, our clients have started exploring the possibilities of leveraging data to improve their operations. SometiMES with data analytics, sometiMES with AI, and they've explored you know, making everything they could do on one asset or one line, with fairly simple analytics and it's for instance, predictive maintenance, some simple predictive quality.

Now they need to go look for the next you know, the next opportunities, which means they need to move along two axis- first. It's not just optimizing one machine or one line, they need to go at the factory level. And then the next thing they have to optimize for sustainability so they need to go the supply chain level, so the scope of what it has to manage is getting bigger. Likewise, so it's more data, more diverse data, most you know, more sources of data. The second they have to do more and more sophisticated things with the with this data. It's not just you know, simply diagnostics but they want to go into predictive and prescriptive and then the famous autonomous operation. So all in all, more more data, more sophisticated usage of the data. So the digital twin is just about taking all the sources of data and bringing them into a unified model that can be understood by people and that can be then which you can do analytics. So it's not the you know, the 3D vision which you can navigate with AR/VR that's nice, that's the icing on the cake. The cake is this ability to take massive amounts of data, contextualize it, and make it available for a variety of use. cases. And that's why it's transformative, it will allow our clients to get to the full benefit of the transformation and scale use cases across factories.

Claire
Thank you, Pascal. And so Thiago are these outcomes not already achieved or achievable by existing MES and the data it provides across the systems landscape?

Thiago Martins
So Claire, good question, and I hear this all the time. I think the short answer is partially, right. So if you look at the traditional MES ERP LIMS, Historian systems that exist out there, for the most part, they provided a description of what happened. So some of them has some report that allows you to predict what may or may not happen, but it's a tool that is limited. It was designed it was designed to solve some specific use case not necessarily the case that Pascal just described now. And the other thing to consider is that most clients that have adopted traditional MES, they have not deployed MES everywhere, right, because it's complicated, it's expensive, requires a lot of integration requires time. So you see that MES, is changing. It's becoming simpler. It's still the core of digital twins core of the integrations. It provides the context of information that we're extracting from the machine. But it's becoming smaller, it's become the core of this not necessarily all the reports, all the screens, all the customs everything would be in the MES anymore so it's adapting.

Pascal
Absolutely Thiago what we see it's not MES versus digital twin, its both, MES will remain the indispensable execution engine and digital twin which is you know, bigger and more flexible, more extensible platform will allow our clients to do you know, decision support will give them a safe area to optimize to try new things. And then what we see is when something is not demonstrated on the twin, it will naturally flow for execution to the MES so there is this complete complementarity between those two.

Claire
And so what are manufacturing leaders options? And can you take advantage of digital twins without having to replace all underlying solutions considering the investments they've already made?

Pascal
Yeah, absolutely. And I'm sure Thiago can give an example. What we see is that the two really work together and we see usually three phases, okay. First is going to be what we call side by side where you will have your classical MOM stack, which we still need to help clients, as Thiago said, simplify, streamline get back to standard so that it's less costly, more nimble to evolve. And then the digital twin will initially be getting data out of out of this stack and new data and mostly be here to support decisions, alright, so it will support people. And this is already going to give you more visibility, more reactivity, and will allow, often a few percent more efficiency few percent better quality, with no interaction with the present stack just by decision support. Then we start selecting where to go closing the loop, where the twin you know, we'll get more precise data real time data from the machines. We run machine learning algorithm and potentially the twin comes back and close the loop. And here we do de-bottlenecking of critical resources by consciously adjusting parameters. It's a bit what an SPC would do. But SPC we call it SPC square, where you have a second loop with machine learning. And then over time, and in some companies, you will take three to five years and it's absolutely okay. You're going to close the loop on more and more processes and eventually going to reach autonomous operations, where the two again are completely integrated into a seamless architecture where you can see so much a difference between the execution engine of the MES and the you know the optimization part of the digital twin and we are working with our clients to invent those progressive roadmaps that will further and further combine the two, Thiago does that make sense?

Thiago
Yes, let me give an example. Not trying to be super technical here but one thing is to extract some some information from machine and then you see for example, if the machine is working or not if it's running or not. Well, there's only so much you can do with this information, right? You need to know what product was running on that machine when it stopped what raw material you're using. You need to compare different shifts. Maybe the problem that's happening there is not a machine specific problem like the operators in a given shift they're running the machine in a different condition, etc. So contex is key for this. So you'll never be able to build this digital twin if you don't have context of what's happening. So you have the information about what we do with that piece of information. So going back to your original question. Do I have to rip and replace all my IT assets? No, no, definitely you should not do this. The thing is, do you have the right IT assets to provide information that you need to digital twin tools.

Claire
Another question being asked is around MES vendors in the market and how they position themselves now when you consider that there are already major cloud platforms and IoT players out there. How do you see these vendors aligning themselves going forward?

Thiago
There are multiple answers to this question, but what I'm seeing happening the most is MES vendors, they are adapting to these and working together with Cloud hyper scalers, like the Google AWS and Azure in the market, so some MES vendors are going straight to the cloud say, I have everything in the cloud. So from the cloud, I can interface with multiple solutions I don't have anything on prem. Some MES vendors, they have a hybrid approach, they will keep something running on Edge something running on Cloud, some of them are still running on the old model 100% on prem. One important thing to consider is that MES is extremely important when it comes to this next generation architecture that we that Pascal described at the beginning because again, MES will provide the data and provide the context you need to have them yes, but if MES is expensive, MES is complicated, if a typ complementation takes months or years, etc, then it's not super easy to adapt, right. So a lot of MES vendors where they're doing now is to simplify the way you're adopting MES so I remember 20 years ago MES was mainly like a custom, like 10 years ago, we had we had a lot of mature options in the market like monolithic applications, expensive, hard to implement toolkits that could be whatever you wanted on top of those. If you look at MES market today, you see very mature solutions, proving like hundreds of 1000s of different plants, focused on some subset of use cases, but then the season is extended with low code no code, so now you don't have to do a lot of customization in your MES anymore. You can do this outside some analytic tools, so don't have to build hundreds of 1000s of reports for different plants. You can defer this to something outside of the MES and also IoT solutions, really, if the problem that we're trying to solve is just to take some piece of information and calculate a KPI maybe don't even need an MES you can do this outside of the MES. So more and more Im vendors focusing on what they do in clients by not only MES but MES low code no code, analytics, IoT and combine these things together to solve the problems in a cost effective way

Pascal
And Thiago I think what you say is the cloud is the big unifier, right? Because indeed, as the MES vendors are opening their solutions, bringing them into the cloud to take advantage of the power of the power of the cloud, some clients will say you know I'm going to keep evolving my MES vendor and selectively select cloud like he said, low code no code cloud tools for extended, some clients will say I'm going to keep my MES more simple and I'm going to invest in digital twin, but the big unifier in the way of bringing those two into unified architecture will be the cloud, so I think our class will have multiple options to take advantage of of those technologies and every client will have a different recipe of combining them.

Thiago
Absolutely Pascal, just to add a little bit more since we're talking about cloud the manufacturing here, so I remember 10 years ago, this was considered impossible - too risky, we have latency issues, I don't trust the data center where I put my servers, etc. If you do a search today to see how much it costs to have a redundant link coming from your site, how much software defined network will cost even if you consider a hybrid solutions, Azure Stack or Amazon outposts where you can run part of the cloud inside your own data center on prem, you'll be surprised with how cheap these things are. So if you're still considering someone watching this, if you're still consider that a cloud is too risky or too expensive, check it again. I think the last two three years a lot of new offerings from the hyper scalers came up and yes, it is cost effective today. And if you talk about security, several studies that show, it's probably more, it's probably safer to have your data in the cloud provider well configured in your own data center relying on the plant guys to go there and take care of it. Cloud is not a problem anymore. Cloud is an enabler cost effective enabler that allows all these things that we've been saying here.

Claire
Thank you both. This has been really insightful. Pasal, perhaps you can share where viewers can access more information on this topic and get in touch with us?

Pascal
So if our viewers want to know more, they can go and check out Accenture.com/Industry X and they will find either Industry X general or more indepth MES and also our point of view on cloud and how.. sorry..on digital twin and how to implement it. And also background on the cloud. Also, you can visit my LinkedIn page and I'll be happy to take all your comments thank you very much for your time looking forward to fruitful conversations.