EP03

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[music]

00:00:23 [Host] **Caroline Segerstéen Runervik**
So welcome to the third episode of the Keys to Intelligent Industry. And of course, today I again have the pleasure to co-host with Fredrik Gunnarsson, our Centre of Excellence Lead for Intelligent Industry in Nordics. Welcome, Fredrik.

[Host] **Fredrik Gunnarsson**
Thank you and great to be here in Gothenburg again recording this third episode. Last time we mentioned briefly that you, Caroline, is taking a new role as the CEO for the Capgemini in Nordics. Again, big congratulations.

[Host] **Caroline Segerstéen Runervik**
Thank you, Fredrik. It's kind of cool. I had the pleasure now to travel across all the countries. And you know, I think really, again, it's so much about how do we unlock the potential, combining our knowledge in data, engineering and technology. And that is what intelligent industry is all about, right? And today we have a dear guest of us who is actually, you could say, Mr. Intelligent Industry in the group. So welcome, Pierre Bagnon.

[Guest] **Pierre Bagnon**
Thank you, Caroline. Hello, Caroline. Hello, Fredrik. And congratulations, Caroline.

[Host] **Caroline Segerstéen Runervik**
Thank you, Pierre. Thank you. So, you know, intelligent industry. Tell us, what does it mean for you?

00:01:29 [Guest] **Pierre Bagnon**
Well, I will say intelligent industry is the new wave of digital transformation. Digital transformation has started 10 years back. Primarily looking at the customer experience, how we transform the core functions of the enterprise, whereas intelligent industry, A, sued by an avalanche of new technologies, B, is really addressing the core business of our clients, meaning the way they design their product, the way they operate, the way they manufacture, but also the product itself. And here, data and sustainability are the two main pillars, actually, of two main enablers of this new industry that has to be intelligent and sustainable.

[Host] **Caroline Segerstéen Runervik**
So I truly agree. And one of the places where we really can learn more about intelligent industry, and you could say maybe it's a bit of the Mecca of intelligent industry, is Hannover Messe. So I know both of you had the pleasure to be there, but Fredrik, what is so special with Hannover Messe?

[Host] **Fredrik Gunnarsson**
Well, Hannover Messe is really a huge event, with hundreds of thousands of visitors, where a lot of different types of industry players come together, showcasing and discussing the latest developments and trends from manufacturers, auto brands, software companies, high-tech providers, network providers, consulting and engineering companies like ourselves. So it's very inspiring and really a place where we truly experience and discuss key trends and topics. We from Capgemini and I had a packed agenda with a lot of interesting demos and presentations down there.

[Host] **Caroline Segerstéen Runervik**
And looking at Hannover Messe, Pierre, you've actually been there many times and you have a long experience from Bosch where you worked for 16 years. Maybe some comments from you on how Hannover Messe has evolved and also something more about your key takeaways.

[Guest] **Pierre Bagnon**
Yes, well, indeed, I've been attending many times, and more interestingly, Industry 4.0, what we call intelligent industry, has been announced 13 years back. I remember the first presentation on Industry 4.0, and at that time, I think we were, you know, questioning whether it was a fade, a buzz, or truly something that will change the industry. This concept of physical and digital, what would that mean? Would that be something fundamental? And I think 13 years back, the answer is very clear. It does change. The manufacturers, industries, you know, have been more efficient today through digital. I think also all the offering, and this is what we see at Hannover Messer, has changed. How, I will take 3 examples, how industrial companies that traditionally have done PLC automation are today leveraging data, trading, connectivity, are embarking software in their products. How software companies, and we can take example from your partners, SAP, Dassault System, Schneider, or Siemens, have truly evolved around a digital offering, addressing the specificities of digital manufacturing, not to forget the

hyperscaler, which 13 years back, you know, we are not as far as I remember, and not so present, actually, in the central part that they are playing actually in this ecosystem, investing the data, the innovation, I think we'll be discussing about Gen AI. And this is a reality. And what I find particularly interesting is this convergence between digital and physical that is evolving today with the sustainability agenda. And we see in the new industries, there were many examples this year around battery, around hydrogen, on which there is a big hole, showcasing basically also the future of industries.

00:05:21 [Host] **Caroline Segerstéen Runervik**
So on top of that, of course, are industries which are very relevant for us here in the Nordics and where we see actually massive investments as we speak, right? So, we had the opportunity to actually talk to a global player, Volvo Cars, on site at Hannover Messe. So, Fredrik, you had the opportunity to get some feedback and input from Volvo Cars. Tell us.

[Host] **Fredrik Gunnarsson**
Yeah, no, indeed. I had a conversation with Paddy Jacobson, the Head of production digital at Volvo Cars. So, I thought we could listen to that interview, actually.

[transition sound]

00:05:51 [Guest] **Paddy Jacobson**
Overarching data is an increasing trend, and I think also we're starting to see some practically usable applications of Gen AI into the manufacturing shop floor, which is quite exciting to see. The capabilities and how we make things connected and create digital threads of, be it the product or the production process or the customer journey, but also leveraging data in that to guide and optimize the way we work.

[transition sound]

[Host] **Caroline Segerstéen Runervik**
So of course, he's coming back to the data topic and the importance of the digital thread and really connecting the data end to end. Now looking at where they are heading and looking at their bold commitment when it comes to electric vehicles, we know they're also doing some really interesting investments. So let's listen to that.

[transition sound]

00:06:40 [Guest] **Paddy Jacobson**
We are centralizing the compute power in the car, making the car software defined, but also transforming the way we are producing the cars in our factory, more and more defining the factory based on data and transparency of workflows and optimizing the way we produce and improve the production. A big milestone for us will be the new factory in Kosice, Slovakia, which we will have the first car rolling out the production line in week 46, 2026. Sounds far off, but for me and the team, we are on a tight time schedule to make that the best factory ever.

[transition sound]

00:07:18 [Host] **Caroline Segerstéen Runervik**
Building then the best factory ever. However, the time period is quite short. So Pierre, looking at these greenfield factories, which we see everywhere right now, these important investments, what are your recommendations and key advice to the stakeholders who are now looking at these investments and how actually to make their right choices? What's your recommendation?

[Guest] **Pierre Bagnon**
If we step back first, indeed. We spend a lot of energy making first the brownfields, more efficient and digital. And all these learnings we're capable now to take away or bring back to the greenfields. And rightly, Caroline, you mentioned, they are in certain industries a lot of greenfields mushrooming. And here the good news I will say is those greenfields, and that would be our peer recommendation, do not have any legacy. Legacy that has hurdled, in many cases, the scale up of those factories. And they can therefore embark a new approach, leveraging simulation first, for example, being able, so before commissioning, to get a digital twin of the product, of the process, of the factory. And this is all the topic about digital twin, which helped them to tremendously accelerate not only the setup of their factory, but the ramp up and the replication. Data-driven manufacturing is a second topic. It's been a challenge for many of those manufacturers to access the data from the equipment. And when they have the data, they have interoperability issues. This comes the topic of connectivity. And they are capable with a right greenfield approach, provided that they have the right vision, but a stage approach to build this right from the first time. Now it's not an easy game because they still have enough to face the daily challenge of building or managing the construction, of building equipment, of hiring. So what is this key is basically putting in place the right foundation. Not only from a physical, but from a digital standpoint. And ensuring so all the digital continuity, the ontology, the

semantics that they will need in order so to have their digital ecosystem evolve as their industrial projects will evolve.

00:09:36 [Host] **Fredrik Gunnarsson**
Paddy mentioned that he's really excited by some of the use cases related to Gen AI for production. We are also experimenting and building proof of concept where we, for example, work with the PLC programming where you can generate code blocks and even test vectors and for testing with Gen AI. We see automatic generation of training documentation, quality documentations, defect classifications where you can easily connect all the data coming from different sources and really analyze much faster. So we share the excitement of that in this area and that the Gen AI use cases related to production will be truly very interesting to see in the years to come.

[Host] **Caroline Segerstéen Runervik**
And Pierre, building on that then and on these use cases, are you seeing more that there is a scaling process happening now and the companies are really, basically picking up and scaling up?

[Guest] **Pierre Bagnon**
I think, and coming back to, we could see a lot of copilot mushrooming, still at pilot phase, and so I don't think yet we're in a full scale-up phase. I think we're still experimenting, we're still understanding, you know, the technology. What is clear is the value and the multitude of use case indeed that it brings. And Hannover Messe was a great place actually in very few days to be able to experience where we are collectively, the industry and the about problem solving typically and being able to generate innovative solution on complex manufacturing processes. The ability that those solution will have to suggest to improvement on existing workflows and processes or create simulation of different scenarios to predict outcomes. So it's a step beyond what we used to have with data. And on the anomaly detection front, it truly helps to identify deviations from normal operation conditions, help to search for root causes, which is new, evaluate risk and adaptive learning, and this is probably the area where we've seen the most cases of pilots, how natural language interactions will enable the natural interaction with the worker, make it for non-technical users to the capability to leverage AI and also to consider the contextual understanding of the process of the equipment. So that's basically a new avalanche of use case that will be part of this new generation of intelligent industry.

[Host] **Caroline Segerstéen Runervik**
And by the way, we had an interesting discussion in our last episode with Åsa from Stirna Recycling, talking about that it's not so obvious always, to leverage Gen AI with things that are so much intuitive and built up by a human for years and years. So it's an interesting discussion and an interesting episode to listen to if you want to learn more about basically automation and Gen AI.

[transition sound]

[Host] **Caroline Segerstéen Runervik**
Now, listening more to what we found and what we heard in Hannover Messe, the IT and OT convergence. And we did get some reflections on that from SKF, right, Fredrik?
00:12:58 [Host] **Fredrik Gunnarsson**
Yeah, I had the opportunity to talk to, among others, Jan Ek, IT OT solution architect here in the Gothenburg factories at SKF. And here's his response to the question why he's at Hannover Messe, what he's looking for.

[transition sound]

[Guest] **Jan Ek**
The most interesting part, convergence of IT and OT, I would say. There are more and more IT in OT space. That are an area that I think OT need to spend more time on and investigating and developing solutions for. So we can merge IT and OT and not be two different organisations and competence areas.

[transition sound]

00:13:35 [Host] **Caroline Segerstéen Runervik**
Pierre, what we just heard is we see more IT in the OT world. Any reflections from you on the IT-OT convergence subject?

[Guest] **Pierre Bagnon**
I will say that the topic is not totally new. Part coming from Hannover Mesa, it's how Edge brings now the next level of interoperability. And I will have here a concrete example with Margot. It's Margot was launched during Hannover Mesa. It was co-founded by automation leaders like ABB, Schneider Electric, Siemens, but also Microsoft and Capgemini, and this initiative is looking at defining the mechanism for interoperability between the edge application, the edge devices, and the edge orchestration software for industrial environments, which will help us

truly... to be able to scale and solve indeed this frontier that has been around the IT part and the OT, which is much more real time, and be able to develop all those use cases that we need.

[Host] **Fredrik Gunnarsson**
Thanks for that perspective. We also had the opportunity to discuss some concrete use cases. And I have, for example, had a talk with Ben Rosenhoff coming from Unity to Capgemini with the acquisition of Unity Industries recently announced by us at Capgemini. So he showcased some really cool use cases now coming to life related to operational digital twin and how to leverage this technology in the factory. So let's listen to some reflections from Ben from the Unity.

[transition sound]

00:15:05 [Guest] **Ben Rosenhoff**
So what we're trying to do show is the visualization of a operational digital twin. Machine from Bosch, which is streaming data of how it's working as a robot to the cloud. We then consume that on a Vision Pro to show how we could visualize it. We then have an exact replica of that robot that will act exactly like the same one, simulating how this would work if you wanted to do remote monitoring of machines, remote monitoring of your warehouses. We also have a tabletop view where we've recreated this entire booth to simulate your manufacturing floor, your oil rig, so that you can have it in the corner of your room as you're working and have real-life telemetry go through it and do it. We have a third view of this, which is an overlay to the actual battery machine that we're using here. So if you go in front of it, you can now get information points, you can see telemetry, you can see a dashboard, all virtually, so that you can walk through your shop floor, look at your machines, make sure you're healthy, make sure all healthy, look at all the maintenance points to them.

[Host] **Fredrik Gunnarsson**
Now when I tried it, and it's really fascinating, one of the use cases you had in the end where you're. Walking through the shop floor and you see all the data being sort of visualized in the glasses.

[transition sound]

00:16:15 [Host] **Caroline Segerstéen Runervik**
So Fredrik, I had the opportunity to meet you just after you've been there, right? And to be honest, you were a bit like a child when you had experienced this demo. So tell us, how was the demo?

[Host] **Fredrik Gunnarsson**
No, it was really cool. And I mean, to start with, the fundamental technology here is actually not new. So we have had virtual reality and augmented reality. What's really come to life now is with good, next level of sort of good devices like the Apple Vision Pro, in combination with, the gradual ramp up of some of the fundamentals, like the modeling, the connectivity on the shop floor, the digital twins now gradually coming to life. We really can harvesting some of that groundwork, which has happened over the last years. And we talked about this last podcast actually with Åsa Fast Berglund, who made the parallel of the first virtual reality use cases they tried, where they had a backpack and a 5 kilogram computer with the glasses. Now it's really getting so much more intuitive, so much easy to use, and just the feeling when you work through the chop floor and you see the data being displayed, you can really experience and also act so you can remotely start steer the production, then you really get the feeling that, wow, this is that digital physical connection we talked about before is really coming to life. The groundwork again has happened, and now we can start harvesting some of the values. Really, really interesting.

[Host] **Caroline Segerstéen Runervik**
Truly so. Pierre, anything you want to add to this? I mean, you may be experienced this demo yourself.

[Guest] **Pierre Bagnon**
I did, and to connect back this on the industry metaverse topic, because we discussed a lot about this last year. It was introduced actually in Nano Remastered last year. And this year, I will say we've seen a lot of concrete application. Looking at the Capgemini booth with Unity, what Siemens was showcasing, Nvidia and Universe. So it becomes much more concrete. And building on Fredrik’s point, it truly brings, you know, dynamic, photorealistic, blow-minded, actually, 3D rendering that can describe complex products, a ship, a car, a factory. And we had example of this that will not only enable simulation, but enable simulation in a real physical space modeling. And so it's the complete environment that can be simulated, which allows for better production and an immersive product engineering experience. So that was really interesting to see this coming to reality.

[Host] **Caroline Segerstéen Runervik**
I also need to ask, do you see any industries that are more advanced than others when it comes to this?

[Guest] **Pierre Bagnon**

Clearly, industries engineering complex products, so auto, the different space, are more advanced, also because they're more technically wise constrained. But we see this moving then gradually to other industries. CP Industries, for example, is starting to look at the application of digital twin and the value it will bring. But yes, the IRO defense and auto will be more advanced.

[music]

00:19:31 [Host] **Caroline Segerstéen Runervik**
Another key theme at Hannover Messe was the re-industrialization. And basically the fact that we now see many companies are actually bringing home their productions and they want to have the more of a local supply chain. Because we did some research where we actually interviewed 1000 different clients across the globe. But Pierre, maybe you elaborate a bit of this concept and what were some of our key findings?

[Guest] **Pierre Bagnon**
Indeed, it's a trend. We've heard about it. We've read about this. And we wanted to shed light a bit of whether, you know, it was a business reality or a myth. So we launched that study a few months back, which was published so recently. And we covered 11 countries in Europe and the US, asking companies to do about, you know, what would be their strategic industry plan and what would be the definition that they will bring to this, you know, broad-minded reindustrialization. And so to come first to a definition, it's about reshoring, meaning so bringing back production capacities that either were transferred or outsourced to the countries of origin in their final market. It's about nearshoring when we move production capacity to neighboring country. And it's also about modernizing, so investment in modernizing existing factories and plants in order to augment their capacity, but also diversify their productions. With this definition in mind, what this study shows is, and that's an interesting figure, it's 72% of the companies we've asked, and companies that were across industries from process to discrete and all generating at least 1 billion euro of revenue, 72% of them have indeed started to design a strategic plan about reindustrialization. So it's a start. It's a signal we have to hear. Actually, 1/3 of them have already started some implementation. And the second figure that we found quite interesting is that asking them, you know, how much spending on investment in CapEx and OPEX they will plan for that. Cumulatively, we came to 3.4 trillion, which means 18% more than the previous three-year period. So, again, that's a signal that shows that, yes, we will see some more and more production in a way coming back into Europe or the US.

[Host] **Caroline Segerstéen Runervik**
But if you then look at the key drivers and why they are doing this, you see some clear themes.

[Guest] **Pierre Bagnon**
Yes. Well, traditionally, organization have outsourced supply chain or manufacturing to reduce cost. Everyone was looking for efficiency, cost advantage. Now those very cost advantage have readily eroded and the economic conditions have changed, escalation, there was wages escalation, transport and import duty. So when we ask those manufacturers to understand, you know, what will be the reason or the drivers, what came across is the first topic is about resilience, supply chain resiliency. The COVID pandemic has exposed, you know, many supply chain vulnerabilities and has forced organizations to rethink their industrial footprint and their sourcing strategy. The second aspect after resiliency is about sustainability. And I'd like to take a short moment on that. But it really came as the second reason. And indeed, so long supply chains involve carbon emissions and resource depletion. And we tried to understand actually what would be the impact actually of the sustainability effect. And we should bear in mind that 21% of the global emission in 22 were actually linked to long distance transportation. It doesn't mean that it's all industry related. Actually, the freight international transport represents 8%. And this is the part of the emissions we'll be able to reduce. And the second aspect that we have conceptually, so positive impact on the sustainability is by shortening those routes, not only we reduce, the emissions linked to the transportation, but we enable a circular model of it's a circular model around the material. And today, actually, it's 50% of the global waste are coming from the industry and only 8.6% actually recycled. Which means that we will be in a better position actually to create this material closed loop and this circularity around material components.

[Host] **Caroline Segerstéen Runervik**
So this is good, right? It means that there is also a very positive impact for the sustainability. When you actually done this research, but also when you meet clients across the globe, do you want to share some good examples of companies that have come far and have had good progress?

[Guest] **Pierre Bagnon**
Yes, they are, and it varies from industry to industries. But life science, life science, and the driver for life science has been a lot about manufacturing sovereignty, and everyone wanted to have some grasp on its vaccine production. So we've seen, to take a French example, with Sanofi, the start of Greenfield, a new concept called the evolutive facility, so which will embark basically all the digital data components to make this new production capability much more modern and much more agile, actually, in comparison to what they had.

[Host] **Caroline Segerstéen Runervik**
Sanofi is a really great example, of course. To do a bit of a conclusion, what are, according to you, the key success factors to succeed with re-industrialization?

[Guest] **Pierre Bagnon**
One of the obvious ones, we have to be competitive in terms of cost. And it cannot be obviously on labor costs. So this is where advanced manufacturing technologies applying to the supply chain, but those factories, all basically the topics we've already discussed, you know, absolutely key in order so to fully embark digitalization and automation in order so to compensate some of the cost gap. So techno is one thing, but not only. I think there will be also three key success factors to look at in addition. An obvious one is about the workforce. There are still many industries, we can take the example of climate tech, hydrogen or battery, highly relevant by the way in the Nordics, on which we have to upskill or reskill some of the workforce in order to be able to have those dedicated skill that we don't have anymore. A third aspect would be being able to be acute and leverage all the government incentives. There are a lot if we are looking at the US with the IRA, but also in Europe with the Green Deal typically. And finally, no one will succeed alone. It's about creating new value chain. So partnerships and working in an ecosystem is absolutely key.

[Host] **Caroline Segerstéen Runervik**
And I need to build on that because we didn't talk so much about it. But of course, what you all got and what you all really love so much with Hannover Messe and what is so important for all of us and of course the global companies attending is of course the networking and the fact that we are building a strong ecosystem, because we know that is so important to be successful. We had another interesting topic in discussion. So when Fredrik and I are discussing digitalization and how we can actually accelerate further, a very hot topic today in the business community is, of course, that when you look at US, you look at China, you look at India, the comment is clearly that we are actually falling behind. We're not fostering enough an innovation culture. We're not necessarily working closely enough with the academic world. We're also focusing a lot on regulation, regulation. And we sort of asked you, what is your view? And you had actually a very interesting perspective on this. So are we really falling behind when it comes to digitalization and the intelligent industry topic?

[Guest] **Pierre Bagnon**
That's interesting because we truly, when I say it's Europe, we've created industry 4.0. And we've been leading, if I look at the topics around digital continuities, smart factory. Nevertheless, Asia is catching up. If I look at the investments that are made in China, the greenfield, they embark those technologies. And you brought a very interesting point. It's about innovation. It's about the appetite to take risk. And to do this, you need the right foundation. And regulation here is a topic. And indeed, there are places, looking at the US, that will be more inclined, actually, to encourage those innovations, being a bit less regulated and encouraging also more with investment.

[Host] **Caroline Segerstéen Runervik**
And then, of course, building on that, if you look at Nordics, where is actually Nordics ahead of the game and where are we leading?

[Guest] **Pierre Bagnon**
Nordics, clearly, it's part of the game, looking at your industries, the automotive, the manufacturing goods, you know, those are the industry that have been leading the path. I will add on top of this that you've been very vocal about your ambitions around the climate tech. The Shiga factories are taking the prominent example of Northvolt, and that it's not a one-off, also industries, traditional industries that are fundamentally changing. If I look at what's going on steel, going to green steel and leveraging so what hydrogen means, so the Nordics are truly so investing and setting the path about this new industry which we refer to in the introduction, you know, which is not only intelligent but sustainable. So this is where truly the Nordics will have a stronger edge to play.

[music]

00:30:06 [Host] **Fredrik Gunnarsson**
We talked a lot about the Hannover Messe and also you made an interesting perspective over looking back 10 and 15 years of Hannover. If we look ahead, what do you believe you will see in Hannover Messe or would like to see in Hannover Messe 10 years from now?

[Guest] **Pierre Bagnon**
You know, I think in the history of the industry, there are evolutions. So what we see today will be amplified. Technology will continue to evolve and that's a good thing. The driver of the motivation will hopefully no longer but be efficiency. The overall topic of sustainability, carbon neutrality has just started. And we see the pressure that Scope 3 will have in many industries. So here I will imagine, you know, a Hannover Messe 10 years down the road, even much more about sustainability and with the same avalanche of innovation that we've seen, not only in digital

but sustainable. And looking ahead also, the merge of physical and digital will go a step further and the biological world will kick in. And that's probably the area of new development that we'll be able to observe in a few years.

[Host] **Caroline Segerstéen Runervik**
I'm really looking forward to actually have this discussion with both of you in 10 years' time. And looking back on the discussion we had today, thank you, of course, my co-host Fredrik, and thank you, Pierre, for joining us. Just exploring, you know, a bit more what is intelligent industry for us and for other global companies, getting a bit the buzz from what is Hannover Messe and what was discussed, but also discuss the re-industrialization topic, and that is more of an evolution, but it is happening across industries. And one of the final takeaways for me is we can learn so much across industries. I think that's what we see and learn and explore the more we deep dive into this subject. Right, Fredrik?

[Host] **Fredrik Gunnarsson**
Absolutely. Naturally.

[Host] **Caroline Segerstéen Runervik**
So thank you, Pierre. Thank you, Fredrik. And stay tuned for the next episode, which is coming soon.

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