Jaco - **00:03**

Hello and welcome to the Human and Machine podcast. My name is Jaku Marquat. I'm your host on the show. I have, with me I have Leonard Smith or Lenny Leonard. Lenny Smith, my co host. The Human and Machine podcast is of course a show where we talk about anything and everything, industrial automation, industrial technology. And tying in with today's topic of digital transformation and all obviously with a lens on the south african space and the south african environment, in this week's episode, we're talking digital transformation in manufacturing and production environments. Lenny, I think it's a topic that we've been looking forward to for a few weeks now. Yes.

Lenny - **00:45**

Hi, everybody. Thanks, Jacuya. And taking back to last week's conversation we had around maintenance as well, with Kariso also moving into a little bit of a digital transformation space, or his company wants him to move into that space. And just a little bit around the myths where they think this thing can be bought in a box, you buy it from the shelf and you install it and there you. So I'm very keen to hear from know the process and what it actually entails to get this digital transformation journey started in companies. So I look very looking forward to the conversation.

Jaco - **01:22**

I love that comment from Cajiso last week. So if you missed last week's episode, we spoke with Cahiso from the Kellogg company, Kellogg's about some maintenance strategies that they deploying. But there was a comment that he made. He does see a lot of people in his office that sell him this box of digital transformation and it's not always as simple as that. But it is no doubt a topic where we've heard a lot of noise and challenge over the past years. According to PwC, out of a survey they recently done, out of 2000 manufacturing companies, 86% of those companies expect to secure gains from both lower costs and added revenue from digital efforts over the next few years. So it's definitely a topic, and not only a topic, but it is definitely a strategy with a lot of promise.

Jaco - **02:11**

And the term itself means different things for different folks, I think, Lenny, and we've definitely heard that over the past few episodes. And for some it's switching from manual processes to autonomous processes, while for others it's very simply just about getting insights from their data. And then the ultimate question, and it's a very broad topic, as we're probably going to find over the next few minutes. And the ultimate question is what can digital transformation are moving towards? Industry 4.0, if you want to call it that. If you want to call it smart manufacturing. What can it do for me as a manufacturer and for the industry? Salini, you gave away the name. Our guest for today is an experienced leader in the charge for change, if I can call it that. Valalam Swart is our guest today.

Jaco - **02:58**

Valhallam is the chief operational technology officer at Foresight holdings and also the MD or managing director, Blue Esp. And Valhallam will hopefully help us demystify some of the buzzwords and concepts. And yeah, Valhallam, welcome to the Human and Machine podcast.

Wilhelm - **03:20**

Yes, thank you Yaku, Leonard and Clarice for inviting me into the session today. Really looking forward to the session and to talk to you about how we see this interesting topic of digital transformation and four IR and all these buzzwords. And maybe just quickly, a little bit about myself before I hand over again. Originally a Captonian, grew up on the west coast and then studied stunnebush. You have to say that because we're.

Jaco - **03:52**

Always very proud to. You're not going to be popular with Lenny on that comment. Lenny is tux or.

Wilhelm - **04:00**

Know. I've been in lockdowns. I haven't been back for quite a while, but I've got something planned next month. I'm really looking forward to a wine farm being open and, I don't know, sitting there and just sipping on a glass of wine again.

Jaco - **04:11**

Oh yes, absolutely.

Wilhelm - **04:13**

Really, after that, I basically spent probably half my career in global vendors on and off, and also in startups. So I worked for companies like I started with Siemens in water and in oil and gas industries, and spent some time there and then also worked for other large vendors, snide electric, learned a lot about their global business and in various different roles. And the rest of the time I was really in startup companies. So companies like Zycom, which was a siteic distributor in the early two thousand s and also ISI and Si company and right knobs again, Blue SB and foresight. So I've been moving between these areas and mainly being like either five year type periods in these roles.

Wilhelm - **05:10**

That whole career has basically given me some exposure in things like medium voltage and low voltage type solutions and then secure power type solutions. But most of the time was always to do with either process automation or levels of automation and the software associated with that, and then also working in the core segments of mining. So probably mostly in mining because in this part of the world, mining is very big. But in the beginning I worked a lot in water and wastewater, water distribution type systems as well. Bit of food and beverages, a bit of oil and gas inside there as well. Now, just a little bit about blue sp right now. So it's part of the listed foresight group, and it's really an agile bunch of engineers. For the first time in my career, I'm working with multidisciplines.

Wilhelm - **06:04**

So in my team, there is chemical engineers doing various things, advanced process control, there's mechanical engineers, because when we get into this asset performance management, then you need the mechanical view. We have electrical guys, we've got data analysts. So really in all my other type roles, it was more one dimensional. But for the first time, we're working with the whole spectrum, even industrial engineers. So I lead that business, and really the focus of that business is an asset optimization business. And then the other part is I also lead the foresight ot cluster, which is a set of three businesses. And so that's an asset automation business, h technologies, with those guys doing Plc, ScaDA, Multivendor, they work with Siemens, Rockwell, Schneider, ABB Hype Technologies. And also another business that is in there is an asset simulation business, simulation engineering technologies.

Wilhelm - **07:01**

And really, like I said, 26 industrial engineers and focusing on warehouse simulation, transportation simulation, mining constraints, that's mostly constrained simulations. So you basically run various scenarios and see what you have to do and what's the best outcome that you want. And so the concept, like in my whole career, we often spoke about, oh, we should build digital twins and we should do simulations, but we didn't do it a lot. But now leading this group, they make a business out of it and they do it for a living. And so it's quite amazing. And yeah, so lots of hands on experience through these years. I do believe that you cannot lead teams like this if you haven't commissioned a site for a long time or if you didn't have the crisis or whatever.

Wilhelm - **07:52**

So through this now, nearly 25 years in the game, I've learned a few things, and so you have a bit of experience to guide this dynamic team that we are leading.

Jaco - **08:06**

Fantastic, Adam, thank you. I think your resume, if I can call it that, or your experience, definitely does put you in a good position to speak from a base of experience and understanding about just the myriad of industries and working with different people, how it has probably first of all, progressed and transformed over the last little while. And you can probably give us a very good prediction of what the short term to medium term future is going to look like as well, even post Covid-19 and I can definitely assimilate with your comment about hopefully visiting a wine farm soon. So we sort of now nearing the end of August, we've just, in South Africa, we've just done to move to level two of lockdown, which gives us some respite on a few areas.

Jaco - **08:54**

And hopefully business can return to normal and we can not only recover from some of the damaging effects that we've seen from economic effects that we've seen from Covid-19 but also help companies and individuals overcome that and bounce back. And definitely future proof as well, because we're definitely going to see some more disruption in the future. If there's one constant that we've seen over the last little while, it's disruption, and we're definitely going to see more of that in the future. But I wanted to quickly, I mean, chief, there's so many questions for you. Lenny, I'm sure you've got a million questions as well. We can probably start with some of the basics. One of the immediate things that I wanted to chat with you about is on the topic of future proof and digital transformation. Maybe we can start with digital transformation.

Jaco - **09:47**

It's described as many different things, that it has many different components for some of us that are maybe not as familiar with digital transformation and industry 4.0 and everything that it entails, what is it? Very simply put, if it's as easy as answering that.

Wilhelm - **10:09**

For myself, I think the simplest definition for me is like it's sort of a fusion of data, because data is everywhere in the whole story, within what do you want to do and how you want to do it and why do you want to do it. This is my simplest definition of it. When we talk about it to a client, we will always say, listen, what is the technology? So there's a huge amount of data that's been generated for the last ten years or 15 years industries all around the world, and very few, very low percentage of that has ever been used. And so now the latest technologies that's coming out, and we'll talk about that right now, gives us the ability to do something with it. But the technology is nothing if you don't figure out the why.

Wilhelm - **11:01**

What does the customer or the person or the people want to do with us? What value do they get out of that? And then I think the last bit is also what is the new business model that we're going to then achieve by applying these technologies to the data to provide a solution that brings value in a new form of business to a specific client. So that's really how we see it. So if I look at some of the technologies, things like also the cloud migration, and that's a very key topic right now, has given us huge processing power of this data. And then there's been quite a lot of advances industrial, Internet of Things and 5G. So the flexibility of linking to the data is much better than everybody. I'm going to go.

Wilhelm - **11:52**

But AI, machine learning, deep learning, some of these type of narrow or wide spectrum analysis that you can do on the data, advanced analytics empowered us with quite a lot of different things that we could do to bring value to the clients. That's how we see it. So we really see it as applying technology to data that really brings new value to our customers or to people in the form of new business models.

Jaco - **12:28**

Yeah, I know Lenny is a very big champion and he often references the business case, and I think that's always the starting point. I think a lot of these things exist, and whether it's labeled as a term or a philosophy, a lot of these things exist because there is a business case and a business need, and ultimately that is what has to be served at the end of the day is the business case, and it's all about delivering value and business value. So I like that.

Wilhelm - **12:57**

It's very true.

Lenny - **12:57**

Yaku, the whole digital transformation exercise, it must impact real business metrics. If you're not going to couple it to business metrics, now, that can be anything, it can be revenue, it can be profit, it can be reducing cost, or just get your customer engagement up. Retention, repeating, buying, it must have a positive manner or a positive impact on your business metrics. The key thing is that everyone that's in that it doesn't belong to the CDO. There's another three letter attribute. Now we have ceos, CIOs, now there's a CDO, the chief digital as well. It doesn't sit with them, it doesn't sit with these three lettered guys. It sits with everybody. And everybody must be clear on these metrics, what we need to achieve by how much right up front.

Lenny - **13:52**

And if you don't do that right up front work to determine those metrics, then the whole exercise is almost exercise, not worth doing for sure.

Jaco - **14:02**

But Adam, do you find that those business outcomes and metrics are often defined, and if so, are they well defined when any of these kind of projects kick off? Or do you still find that there are just cases of let's just do it because we want to be future proof and we want to do digital transformation without it actually being defined?

Wilhelm - **14:28**

A lot of the time right now, the first one is basically saving costs. So clients are trying to do a few things like either they're trying to push their productivity or make the workforce more effective, but a lot of that is about saving cost. Related topics what we normally do is there's a few disruptions that happened at the beginning of the COVID phase. So then suddenly there was much less people on site, so there was much less eyes and ears on site. And so people couldn't walk past a pump and hear, it's cavitating. You now had it to look through the skater or you need to do some analysis on the data to know, oh, there's going to be something that's wrong there.

Jaco - **15:19**

Sorry to interrupt you. We often tell the story about some guys have the ability, and you could probably attest to this, they just walk onto their site, onto their plant, and they can just year and point out to a machine and say something is wrong there without any kind of digital influence. Just through their years of experience, they can just hear that there's potentially something amiss with the piece of machinery equipment. Have you found that?

Wilhelm - **15:43**

Yes, but see, but those people are not there anymore. And also that's the whole, one of the driving forces of this digital transformation is the aging workforce. And those type people are in the late forty s, fifty s retiring. And the new guys that grew up with all the Apple technology and whatever, they don't want to learn, spend 20 years on a site to know and feel and touch all those things they want to basically their iPhone must tell them, listen, this is the situation. So as soon as the COVID hit, and that was an issue because suddenly people pulled huge amount of people off site. And so there was like, oh, we needed to. So that was like a driving force. And another thing before we go to how do we approach it?

Wilhelm - **16:31**

But there was also a piece where a lot of the mines, straight away, they either stopped production or they pulled back production. Quite a lot. Some of our oil and gas clients you saw right at the beginning there also the oil price went negative at some stage.

Jaco - **16:47**

Unbelievable. We never thought that we would ever see that.

Wilhelm - **16:54**

So you tuned these plants that was always built from maximum production down to nearly zero production. And then when it started changing again, you had to push them up again. So the requirement for agility to drop production and rise production and do that safely became quite a big thing. So really it comes back to this. When we engage with a client, it's always about doing an assessment of what is it that he wants to basically achieve from a business point of view. But if we come from an OT space, not from an it like, and I can talk from an it as well, but from an OT space, safety is always there. Safety you can never compromise. And then the three ds, the decarbonization and being greener, and those are always very important.

Wilhelm - **17:49**

So you're either talking from a safety or from a sustainability or a greener point of view. And, and if you pass that, then you either like those other two points that I spoke about, it's all about how do I run this? Because a lot of the clients right now, just off the COVID they want to now push up the OEe because now they've lost production. So how do I run the business all my operations faster? How can I push it? How can I get the overall equipment effectiveness up? How can I get the yield percentage slightly up? So those are the benefits that really they are looking for.

Jaco - **18:28**

And definitely theme of doing more with less is definitely a reoccurring theme that has come out of all of the conversation that we've had over the past few episodes is exactly that, doing more with less. I'd love to delve into some of the technology. Just very quickly were chatting with, again, referring to Cahiso's chat last week from Kellogg's, the topic of technology process. And people came up and the technology is, there's some incredible technology out there. I'm sure you're going to tell us a little bit more about some of the innovation and some of the tech that's available to the manufacturing world and how that improves processes.

Jaco - **19:14**

On the topic of people, Gariso brought up something that is not really spoken about that much, but super critical, if I could call it this tri view of technology process and people, which is human change management. And he referenced some of his own experiences around his people and his teams that he's leading and having their buy in and having their input as a critical part of the human change management aspect of any of these projects and any of these DX journeys, what has your experience been around the human change management aspect? And do you find first of all, what is your experience on human change management as part of these processes? And then secondly, you've referenced the guy that's been around for 40 years that says plant. He knows it very well without any kind of digital input. He knows it extremely well.

Jaco - **20:14**

Versus the younger workforce that's coming in, the millennials, if you want to call them that, and how they differ. What is some of your experience around the people aspect of digital transformation?

Wilhelm - **20:28**

I think before the pandemic, people was already very important because the success or failure of a project is very linked to, you know, if your, if your teams, if your people adopt the technology and use it effectively, and it's when they storm it at the MD's office and say, oh, I've just saved you 10% production, or I've just pushed, I just caught a $17 million potential failure with the technology, then you know, it's working, and really you need those people to do it. But what has happened in the midst of this pandemic is even people became much more important. We can talk through the change curves of what happened at the beginning of it as well. But right now we have huge amount of people which is unemployed.

Wilhelm - **21:27**

So in our industry, if you're in it or in digital transformation or in operational technology, then you've been blessed through this period because we could carry on working, we could work remotely, but a lot of industries couldn't do that. We see that people is now at the core of anything that we do into the future. And so in our foresight strategy, where we basically talk about the intelligent enterprise or enterprise five, we talk about people four, just as much as we talk about four. Ir and it for and finance four, and customer four. So really how to enable the human with the set of tools, with workflow tools, with enabling tools becomes a very core component and a success of any of these digital transformation projects.

Wilhelm - **22:25**

We can maybe talk on just the effect of the people at the beginning of the pandemic, and then we understand the human aspect of it, more of it right at the beginning, when we started hearing about it, like the engineering, we started doing these trends and, oh, it's going to look like this and it's going to accelerate like that. And then later on. But all of us went through sets of shock and then resentment and anger and negotiation, catholic change curve. And whenever you bring new technology anywhere, it's the same thing. Oh, this stuff, it's here to take my job or I don't want to work with it or what is it doing? So just like we dealt with the pandemic, we deal with this technology as well. So that was one of the key things. And then maybe just touch on that.

Wilhelm - **23:15**

And then we started with a theme where we say, oh, really? Coaching the guys. If I go to the pandemic, we spoke to them, okay, do the right thing, stay healthy, stay focused, get an exercise routine. Make sure that your state is in a good state, that you're in a positive state. And be very aware of what story you tell yourself about this experience that you're having and the same, you can apply it again to when we do a digital transformation rollout, what is the perception of the teams associated to what is happening in the operations? And also what do they tell each other when you're not there about this, what you're trying to do there? So we are very aware to monitor what that is. And a lot of the time it's better to do that.

Wilhelm - **24:05**

In agile teams, we communicate during the pandemic period also a lot of like spend time on yourself, invest in yourself, do a lot of continuous learning. And so that's the norm right now. And what we've seen is most of our clients picked up virtual training and elearning immediately and they emphasize this as well. So part of the people transformation is that like, oh, so yes, I'm giving you a technology or I'm enabling you with a technology to enable a new business model, but we're also continuously investing in your continued development. It becomes its core.

Jaco - **24:49**

No, I love that. And we've definitely seen that here at element eight. If anything, this period that we've just been through and continue to go through has been an incredible opportunity for people to learn and develop their skills, hone their skills and just become better at what they do every day. We've seen, for example, on the, if I can use a very simple example of ignition certifications as an example, we've seen the number of certifications and the number of sign ups to the university and wanting to learn that skill. It has increased significantly over this period. So there's definitely a very big benefit to what we've experienced over the past few weeks and the effects, the positive effects that has had on self learning and self development. So that's a big positive. And I love what you've said about the role of humans.

Jaco - **25:47**

We definitely also believe you had element eight, that people are the true innovators. You need people to have the vision, you need people to understand what is required to innovate and then bring the technologies together to make that happen and improve the processes. So we can definitely relate to that. And I love what you've just mentioned on that.

Lenny - **26:11**

Yeah, I think a lot of the time people also think exactly like that digital transformation is about a business model or it's coupled on revenue and cost saving. But there's a massive component of digital transformation that's around the people, the culture and obviously the type of talent that you want to attract into your business as well. If you want to keep growing as a business and you're not up in the game with the digital transformation, are you really going to go and employ or get the right talent or the right people attracted to your business to actually start working there and growing their business? So, yeah, it's very key to take in consideration that digital transformation also breeds a new type of culture and talent that you can attract into your organization as well.

Jaco - **26:59**

Definitely.

Wilhelm - **27:00**

I have a comment on it. When went through the 2008 and 2010 challenges, business challenges, what we've learned from there is that the companies that embrace digital transformation came out tenfold, ten X, sometimes more ahead of those ten years later than those that didn't embrace it at the time. So companies, you have to do it, but 100%, you have to take your staff with it and you have to use the technologies that you have available to basically enable them. So we did things like social virtual hours and storytelling and experience telling on Zoom or teams. Those are very important. But you have tools like SharePoint or Trello or whatever that you can also focus on to get that team collaboration working between them. We spend a lot of time on also that adversary of.

Wilhelm - **28:03**

Whenever this change, there is a level of uncertainty, or when we had the pandemic, it wasn't even uncertainty, it was proper adversity. Like everybody was challenged right to their core. And to a certain extent, it humbled all of us, and you had to go back and you started realizing, oh, but it's with great gratitude that I can continue with my job and still deliver output again. Those are the core fundamentals that people run on. If you walk and you focus on that, we spend a lot of time. And also as an individual, you can go maybe fast, but as a team, you can go further and you can collaborate much more. So the transformational tools enables this collaboration also much more so that we can collaborate more between ourselves, but also with vendors and also suppliers and with the clients.

Wilhelm - **28:59**

So it's amazing how many projects we continued doing remotely in this whole period.

Jaco - **29:05**

Yeah. And forced to do so, we became very agile very quickly. And I love the two things that you mentioned. I think if there's two things that we can take with us from this period that we've just been through is gratitude and patience, I think it's definitely another one. We've become a lot more patient with people's circumstances and what they experience and what they're going through at working from home. But you made a comment just before went live with the podcast, you made a comment about working together as a team and seeing each other face to face. There is definitely so much value in that. And we've been able to bring some of that across into working from home.

Jaco - **29:51**

But just the ability to see each other face to face, being able to pick up on people's moods and body language, there is a lot of that does go amiss with working from home. And for leaders, that is probably a lot more challenging than what it is for the teams that they lead in how to work around that. And this period has been quite challenging, I think, for leaders, especially without having those small little signals and things that they can read on. So marrying the two has definitely not been easy. But you're right, there is this phenomenal tech available out there today that's helped us immensely with bridging that gap between.

Wilhelm - **30:33**

The two worlds on that office. There's quite a lot of topics at the beginning of the COVID we thought, oh, we'll never go back to big offices, and everybody's going to continue working from home. But I'm on quite a few forums right now. Exactly. That if I'm a young guy and I want to have a promotion and I cannot learn from my peers, then working from home is not a good space. I need to mimic somebody. I need to learn from somebody else. And the same with, if I never see my manager and I want to have a promotion, well, that's going to be a bit hard. Okay, I can see him on a video.

Wilhelm - **31:04**

But somehow from initially thinking, oh, we're going to have a lot of commercial real estate open now we're again starting to think maybe we're going to need it again, but people are going to be sitting further apart and so, blah, blah. So you'll have less people but bigger offices, but the need for it is still there. So it's amazing. I'm a little bit of a futurist. I'm always trying to analyze, okay, what's next? Or how, but how the change curve.

Jaco - **31:31**

Is shaping that tribal knowledge that you referred to, that tacit knowledge. I mean, that's the kind of knowledge that exists in the team because they've been working together for so long. That kind of tribal knowledge is not easy to convey working from home digitally. It's through those experiences working together that you build up that knowledge within the team. And that knowledge is critical. It's super important. Cool. It feels like we've digressed a little bit, but I love the conversation, and I think it's very topical in terms of what businesses and team leaders are going through at the moment. But just to get back to the approach of digital transformation. So we spoke a little bit about some of the drivers. We spoke about, very simply put, what it is and what it enables.

Jaco - **32:23**

What is the approach, or at least what is your approach and what have you found is the best approach? When you've identified these needs, you've married them, potentially you've married them up with technology that's available. What is the approach from there and how do you typically kick that off?

Wilhelm - **32:43**

Yeah, it mainly starts with an assessment, really. We would get involved with a client and do an assessment on the operations. And a lot of the time we do it from a few angles. So we will look at from an IT point of view. And sort of what is the constraints and what is the challenges from an it point of view. There's a whole big drive right now, no turn on site. So they want to, we always said everything has to be on prem. People are becoming more and more open towards total migration of it type environments into the cloud environment. So that's the first piece that is a driver.

Wilhelm - **33:32**

And then there is a lot of analysis also on, okay, so how many sqls do you have on site and what licenses do you use and where's all the service and the secure power associated with that? So that's a whole theme. And that creates sort of a think stream. And then there's a piece where, oh, but data, my data quality is my data clean. So data enablement and the cleansingness of the data, because a lot of the technology is very much dependent on having good data. So there's a whole exercise of looking from a business environment point of view, oh, how clean is my data? And am I generating enough data? And then we go from an OT. So you can hear this convergence of it OT and business environment that's constantly driving all of this.

Wilhelm - **34:22**

But from an OT point of view, we do analysis on saying, okay, so what is your key drivers that you are looking for? What's the key benefits or the RoI? So we would go in an OT space. If we cannot deliver an ROI of say, less than six months, then maybe there's another topic that's bigger to first go after because a lot of the digital transformation projects should be self funding. And so it can easily happen now in the IT space, but in the OT space. So we might basically delay one project for other so that we can use the benefit gains from maybe an advanced process control project that help to reduce the energy of a boiler or a mold by 10% or help to push the chemical usage or reduce the chemical usage of a nickel plant by 20%.

Wilhelm - **35:16**

So you get quite a lot of savings there. And then you redeploy that in maybe another piece of IoT technology, maybe an expansion to the method accounting solution for the mes, or maybe you want to put like a flow dashboard on. And sometimes they could go first, sometimes it could go second. But it's all to do with what is the benefit that the client wants. So we do this assessment, we do a roadmap with the ROI scale, and then we start with these projects, and a lot of them is self funding.

Jaco - **35:53**

I'm very happy that you mentioned the self funding. I think if we look at digital transformation, I think it was IDC that did a study towards the end of last year where they talk about budgets for digital transformation. And it was quite fascinating that according to the survey that they did across, I think it was something like a thousand organizations across middle eastern Africa, they found that the budgets for digital transformation, there's always been an IT budget and an OT budget, and all of a sudden, okay, now we need a DX budget. And where does it come from? Does it come from Opex ration? Does it come from the IT budget, the internal IT budget? And I think the topic of self funding is very critical. If you can demonstrate some of those immediate savings, you don't necessarily need a very big separate budget.

Jaco - **36:54**

The benefits and the value that you're getting in the bottom line from initially kicking off some of these things will fund other initiatives and other projects further down the line. And if you can prove that in your case, if you're building that out as part of your project approach, that will definitely help some of those folks motivate and help them justify some of these budgets for implementing some of these technologies.

Wilhelm - **37:18**

A comment is what makes these projects much less risky right now is that we're basing most of it on past data. In the past we conceptualize a project, we run rfis, we go out on tender and we buy this thing and then hopefully delivers what we do now we can actually go into the data and we can sort of do a machine learning on the data and see, listen, will my APN be able to exactly give you the predictions that I'm saying, can I make the prediction with the data or even from a simulation? So with working with the simulation team that's now with us, these guys really simulate all the scenarios.

Wilhelm - **38:01**

So they run sarcastic 2000 scenarios on a specific shop floor and say, oh, this is the throughput that you should be able to get with that amount of people, that amount of asset, that amount of flow, and that amount of pre work. So we do based on data and based on simulation, we do this POV or Pocs. They're normally quite low cost to do a quick proof of value or proof of concept, and then that puts a justification on the table that then becomes a justification for the capex expansion or the opex saving that justifies the implementation of the project. Sorry, I interrupted you there, but that.

Jaco - **38:43**

Was just no, 100%. I'm so happy that you're talking about how data is fundamental to digital transformation. I know that's a topic that's very close to Lenny's art is about the value of data. So I'm very happy that you're talking through that.

Lenny - **39:00**

And I like the idea that they use that to determine a proper roadmap and an ROI of the project and scope. We've been talking about it that some people think, well, the technology is available, you go buy it, you install it, and you derive value, and that's not the case. Old saying that genius is the eternal patience. Not saying that your digital transformation journey must now take forever. But do you have a realistic timeline with an ROI coupled based on the historical data on what is going to deliver and when it's going to deliver it? I think that's key. And I think that's potentially one of the pitfalls of some of these projects, is just the realization that it's not a quick, potentially could not be just a very quick thing that you're going to embark on.

Jaco - **39:51**

Yeah, 100%. Well, Adam, I loved what you. It feels like I'm the one bringing it up every time, but it does feel like it does come across every time as well with the conversations we're having as OT and it. We spoke with Francois at Clover a couple of weeks ago, one of our podcasts, and he spoke about how critical it is for their success for the Ot and the IT teams to work closely together. Just historically, what it's looked like in the past is that very often the equipment, the networks, everything that is under OT or operational typically sits with the OT folks, where everything else sits with it. And that has, in the past, that's caused a little bit of friction. But he was talking about how well they've married those two teams within Clover, within the organization, to be successful.

Jaco - **40:49**

And it was really pushed by, if you look at some of the assets that exist today in the OT world, they were meant to first of all, be put down and run forever. They were not necessarily meant to be online or be exposed in terms of the data that they can give us. And now, through a lot of these projects and transformation, that's no longer the case. And it's almost forcing these two teams to work closely together. And we've even gone beyond that they are now working very closely together. And that is what is required for a project to be successful.

Lenny - **41:25**

Yaku, there's actually a myth around that one. There's a myth about digital transformation is all about just going digital. It's not about it. And that's one of the myths that definitely got debunked is, yes, digital is necessary for this transformation, but it still is the backbone of all digital execution.

Jaco - **41:47**

Yeah, and Valalima definitely sounds like that's what you echoed in your comment a little bit earlier.

Wilhelm - **41:52**

I think that what we see, so in foresight, our chief sales officer, Villi Akerman, which is well known by lots of CEO, he runs a CIO forum of basically 140 people that gathers normally once a quarter, but now in Covid, they gather once every two months and they discuss this type topics. So that term where you say, listen, CDO. So chief digital officer, the CIO is now sort of a lot of them in certain aspects has also got certainly maybe for the tier two s and the tier threes, they've taken the OT under them as well. And I know there's always o but OT is OT and it is it. But the convergence of that is becoming very important as a group, maybe just a little quickly about the foresight group.

Wilhelm - **42:40**

So we have a bunch of about nearly 300 people that come from that itbe space and where they are providers of Microsoft and Sage and Akamatica and whatever. And so they're doing CRM systems and payroll systems and modern workflow and whatever. And we brought that together with the teams that I run, about 80 OT people in automation and simulation. We jointly now are hosting this conference, which we call the foresight converge conference on the 22 October. And it's exactly focused on exactly this and that you cannot today engage with a client and not look at the world. So if there is basically, again, if the asset performance management or the maintenance management system says, listen, there's maintenance to be done, well, then you need to feed it through to the ERP system, the SAP or whatever.

Wilhelm - **43:39**

But you might even want to push a workflow, a modern workflow tool that really tells the person how to do it. Because if the OT gives you a signal and the operations cannot process it, in both worlds, they're using transformational, we're using AI machine learning. Both it side, even more so than how to process an invoice, how to make it much more effective in the pay office or in the approval office. So the world, when you run a plant, you want things to flow easily and not go through many points and checkpoints and whatever. Only by converging this do you get those type of operations or that operational improvement. So, yeah, 100%. And these two worlds are totally convergent, you still have to respect.

Wilhelm - **44:38**

So, for example, at the CIO forum that was held this week, the IT guys or the CIO said, oh, the biggest challenge that we have is OT cybersecurity. Okay, interesting. So why do you say they do know? Because now with this whole virtual space, if I take a plant down, and in South Africa, there were some massive knockouts, also in the medical space, but also in the OT space. During this whole pandemic, everything stands. So they do.

Jaco - **45:13**

I love the you mentioned about the CIO forum. I'm doing a lot of references this morning. I also read an IDC piece where they talk about where they also spoke with some cios, and they spoke about a number of these CIOs, their top need that they were looking for outside of what they wanted to accomplish within their business, and the kind of tech that they wanted to deploy to serve their customers better. But one of their top needs that they had was a partnership. Funny enough, they were looking at all of these different activities, alliances that they can create, the technologies available. But one of the top things that they were looking for was a partnership and a relationship.

Jaco - **46:01**

So within this ecosystem of everything that's available, they valued a relationship and a partnership the most outside of the base tech and all of these other things available. And I think that definitely does speak to where we are today, that it's definitely not just a quick hit and run, if I can call it that. But partnerships are vital, and all of these enterprises are looking for partners that can orchestrate these technology innovations into a business case and be with them for the long term, for the long run, for the long game. And again, it comes down to people.

Wilhelm - **46:36**

I suppose, and they like to share as well. They like to share ideas with each other. So at these forums, they present the latest greatest to each other with some of the largest mining companies that we are working with right now. So they're all trying to future proof themselves with digital transformation. Those that were more ahead than others weathered this COVID pandemic challenge much more than those that weren't. So some companies were not using things like teams before this, and then they had to scramble to get onto it and scramble to get people to be able to work from home. Others were really far ahead. They're just as a simple example, but just in some of the clients we go as far as to have like a digital transformation committee or a steercoat.

Wilhelm - **47:24**

So you would work on an assessment, you would work on a roadmap, but then we also form part of the steerco to sort of help justify like, oh, do we do this first or that 1 second? Why this? And the level of collaboration that happens now between businesses in the space is also phenomenal because no longer can you try, you're not trying to fight each other, you're trying to fight this fast transformation of this exponential development of technology. We will have about the point of singularity, like the human computer will be smarter than the human mind by 2026, maybe 2025. So if I'm just focused on my competition right now and not how to be the best at what I can be, I'm going to fail. So the people, the leaders are sharing, the leaders are opening ourselves up, they're working with us.

Wilhelm - **48:27**

And it's quite interesting. No longer do you have to educate them, oh, it's a must. Do they know they have to do it. It's just now choosing the right partner, identifying agile teams, working with people that know what they're doing, and prioritizing the right projects.

Jaco - **48:44**

Definitely, it definitely does feel like we've moved from do it yourself to partner collaboration to hyperconnected ecosystem where we're all sharing amongst each other because we recognize the value that's going to bring. Yeah, I love that. Very true. So speaking of the latest and greatest, what are some of the latest and greatest out there as far as technology is concerned? What are some of the really exciting things that you are currently working with and some of the exciting technology that you're delivering?

Wilhelm - **49:18**

Yes, I'm going to repeat something that I said before. So let's go from, if we get to a new place, a lot of the guys are going, no, tin, so it guys are very much, they present to each other or cdos and oh no, we're going into the cloud and we're migrating to the cloud. So cloud migration is obviously latest and greatest. It's been around for a lot, but it's accelerating quite a lot right now. And then there's also quite a lot of themes of analysis tools where you can see, listen, license optimization, storage optimization, SQL optimization in your operations. So there's a lot of projects and success that we're getting just from an IT influence structure optimization. That is a key theme that people are going for right now.

Wilhelm - **50:09**

There is also, before I get to the OT, there's also in the business environment space, there is a view that I need to clean my data. So I need to deploy concepts like the data vault, the data enablement methodology, to make sure that my data is structured in such a way that I can plug in and out components without having to reengineer everything, and that my data is clean enough so that I can generate wisdom and intelligence using AI technology on the data. So there's a whole discipline and we have a few partners or vendors that just work with us in that space. And then also maybe a last one in there from Microsoft.

Wilhelm - **50:53**

There's a lot of enabling tools to basically RPA type tools to help you to automate workflows and also bring some intelligence into the workflows that you can make automatic decisions. If I then go into the OD space, so obviously a hot topic. We've had APC and mes themes for a long time, but there's a lot of new developments there as well. I'll talk about that soon. But in the APM space, which is sort of in the last five years, the asset performance management space, the space about, oh, how do I actually run my assets longer or better? Get the most, get the most out of that's been a key thing. And specifically the enabling technologies like deep learning, machine learning, pattern recognition, and the multiple various ways of doing that has accelerated that.

Wilhelm - **51:58**

We have in the last year and a half, did quite a lot of interesting projects and exciting projects, and some of the largest mining clients just on being able to predict the failure on a conveyor system or on a crusher system, on a pump system three to six or four weeks before. And all that you're doing is you learn a model. So basically you use the past data and I learn from past failures, and I learn basically what is normal, what is not normal. And so I constantly do pattern recognition in the background and see, oh, if I see something that's not right, I say, oh, I've seen this. Two years ago it was this, do it like this. I'm seeing something right now, I've not seen it before.

Wilhelm - **52:48**

I best you investigate this and it becomes prescriptive as well because the learning will say to you, well, I see something that I've seen before or I haven't seen, but go and look here and here, because I think this is where your problem are. That's one step up already from the previous ones where you had a bunch of data analysts, and they grew very complex models, and then you basically constantly compared your real world against the model. But even there's enhancements right now that some of these model learning is becoming much simpler. And so the client can enable himself to learn these model continuously. So that is, for example, something that's very interesting in the APM space. The multivariate analysis tools that we have available to be able to find the needle in the proverbial haystack is also enhancing quite a lot.

Wilhelm - **53:43**

Like, if I'm doing a production runs, I'm making quails, I make powder, milk, whatever. But my input is constantly changing. My supplies is changing, whatever. How do I control that? Because I have, like, 500 variables. I don't know what's causing this. It's very hard. You need then PLA type technology to sort of, again, learn a model, give you a correlation, tell you, listen, this is the key variables that's driving the biggest behavior here. And I tell you, do this changes right now, and in 24 hours, your quality will still be right. These are amazing new things that's come out. If I touch on in the advanced process control environment, in the OT spaces, it used to be that you need very smart engineers, and we have some very smart ones, phds and whatever, on our books.

Wilhelm - **54:42**

But nowadays, with what AI brings to it, all, this deep learning technology is that you can actually automatically learn. So you can orchestrate the tool to learn those complex 3d graphs to which you control. So the technology makes it simpler for us to deploy complex advanced process control technologies. And we've just won a project in South Africa where we actually orchestrate various chemical plants against each other with a technology which is called GDOT, where if you have one plant with, I don't know, 30 pid loops and another one with 40. And so if you cut the one back, then the other one has to scale up. So normally in operations, you would do this once every week, so you lose a lot of efficiency. But with a tool like Hedon, you would do this every five minutes.

Wilhelm - **55:38**

And this one plant will scale up and scale down. And so if you think about a chemical process or a facility or whatever where these things have to be coordinated with each other, those type of technologies is quite amazing. And then in mes space. So, yes, we gather a lot of data into historians, and we do reporting, and we do accounting and metal accounting on it. But nowadays there's a big drive like, oh, I need intelligence. I've got fridges all over the country. That fridge needs to tell me, listen, I need to be replenished, blah, blah. And with bringing some of the technology again, the analytical tools and the machine learning tools that we bring with the ME systems, we can also start doing that. So this is theme. It's all about this intelligent enterprise. The technology is helping the client to just run.