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ALEX MAIERSPERGER: When you've had staying power as a company for nearly 50 years, there's bound to be customers who don't know you for your current offerings. They might know a version of you from just a few years ago, but a lot can change quickly when you invest in innovation. And when you invest in innovation on behalf of patients and the health of society, change can be wildly impactful.
I'm your host, Alex Maiersperger. Today on the Health Pulse podcast we get to hear from two SAS life science experts about what's changing in global pharma markets, and how SAS is investing in innovation to continue to lead the market for meaningful insights. Our guests are Mark Lambrecht, director of health and life sciences practice for SAS in Europe, Middle East, Africa, and Asia-Pacific regions based out of Belgium, and Matt Becker, life sciences strategic advisor based in the US. Welcome Mark and Matt.
MARK LAMBRECHT: Thank you for having me.
MATT BECKER: Thank you, Alex. Thanks.
ALEX MAIERSPERGER: Mark, we're going to start with you. We've recently had a few senior executives at globally recognized life sciences organizations on the podcast, and all of them have shared the recent impacts of global pandemic, supply chain challenges, explosion of new data sources and technology capabilities. All these effects that have had on their business. There's certainly been a lot of changes the last few years. So Mark, what do you think in the next two to three years, what's life sciences going to look like. And what should we expect to see?
MARK LAMBRECHT: Yeah, thank you Alex. And I think life sciences change is a constant, right, because life sciences is all about innovation. What we see is that the therapies themselves, new therapies are coming to market, and they are changing. Think about mRNA vaccines that we have seen during the COVID pandemic. Commercial pharma, the way that therapies are being introduced to the clinicians and to those that prescribe these therapies. The way that the information is reaching them is changing.
And then I think what is most impactful is how clinical trials and how therapies are being tested on humans. And that is changing as well. Like new types of data. We all know about patient sensors and wearables and digital biomarkers that will become available and are available to pharmaceutical companies. We see new science platforms. We see also the erosion of classical so-called EDC systems, and more data coming available from other sources.
I think what we should tackle the word immediately, generative AI, and how that will impact how people are extracting insights from data and from information. And what that does to programming. So that is changing.
At the same time, you see a lot of collaboration happening. A lot of interoperability standards being introduced, the way that regulators are innovating. The way that the FDA is modernizing their data science environments. And yeah, the overall harmonization, I would say, the convergence between health care and the clinical research world-- there's also a massive change is happening there.
ALEX MAIERSPERGER: Certainly a lot to pack in these next few years. Matt, do you agree? Are you seeing any international differences or anything different?

MATT BECKER: I'm 100% agree with Mark id saying. I think a few other, Mark mentioned technology adoption. Right? Before the pandemic I never knew what telehealth was. But during the pandemic, I had to do telehealth. I did like two visits. I had never done anything like that before. And I'll tell you what, I'm a fan. Being able to do that from my home, I'm a huge fan.

Mark mentioned generative AI. Even when we talk about artificial intelligence, machine learning in drug development. Screening, using computer simulation or modeling to discover new targets for potential medicines. Digitalization, hard word to say. It's a tough one for me to say but we hear about that a lot as well. That's one of these buzzwords that we're hearing in our industry, and we're going to continue to see more adoption of that.

And precision medicine. I think precision medicine with being able to identify individuals based on, for example, their DNA, and what medicine may be best for them. I think we're going to see that take off as well.

ALEX MAIERSPERGER: We've already mentioned one or two new technology capabilities. With that pace of change, especially on the technology side, Matt, what do pharma customers need? How are they going to stay competitive and even lead amongst their peers?

MATT BECKER: Yeah, great question, Alex. I'm a programmer. So, you know, I think of this as a programmer, and I make it very simple. But for me, there's three things. Data, right? We've heard data is the new oil. I've seen people say it's more than oil, it's oxygen, so on and so forth. But for data, first, do I know what data I have? Second, do I have access to that data? The third thing is, can I integrate that data together? We like to say a friend of mine here at SAS calls it stitching that data together in a governed manner. And four is that data quality. Have we curated it. Can we trust it.

Then we want to be able to do the next thing, which is get insights of that data, or do discovery on that data. Can I use my expertise in asking questions of that data, whether it be through code, whether it's writing code, whether it be through low code or no code type methods. Do I trust the answer I'm getting? Am I using the best tool for what I need? For example analytics tools within an SCE or a statistical computing environment. And then the last thing is action. If my data is quality and I'm able to ask the questions and get an answer that I can trust, I need to be able to act on that.

ALEX MAIERSPERGER: Definitely heard, and you mentioned the buzzwords at conferences or different events that you attend. I've definitely heard that data is the new oil. Data being the new oxygen I think is a hot take, and something that I can get behind. You mentioned SCE, and then you said statistical compute environment. Can you tell me a little bit more about what that is and why it's important?

MATT BECKER: Sure. I first spoke to a large pharma company back before the pandemic, this was probably 2017, 2018, and they had this platform where their folks would go in and it was a single access point to see the data that they have. If they wanted to launch an R environment or launch a SAS environment or launch a Python environment they could do that within this single point of effort. But they wanted to be able to do things based on that individual's comfort level.

In this case SAS was separate. SAS was a separate server. It wasn't integrated into that platform, and they wanted it in the platform, which we did. But when we talk about SCE, I like to think of this as a controlled solution or a system that provides documentation of the thoroughness and accuracy of clinical analysis. So when I get clinical data, and I run it through my analytics and my data management steps, so on and so forth, I need something that proves what I did, and what I did was correct.

Fuse put together a white paper where they brought together leaders from around the pharmaceutical industry to document things that an SCE should have. Intuitive, easy to use. Can handle large data. Can integrate with a variety of data and tools. Has version control. Has traceability, if somebody changed something in a data set what did they change, and when did they change it, and why did they change it. So on and so on.

But just like large pharma, a single point of entry to do clinical trial work in a governed way. So just like that large pharma company I talked about at the beginning. If a regulatory team from the FDA showed up at my front door and they say, I want to see the data, programs, people who had access to this data, for a safety-- data safety monitoring board submission that you did 10 months ago. My statistical computing environment should help provide that. The ability to show who had access to this data, to these programs, when, what version of the files were used for that DSMB, what happened to those files over time, the version control and traceability, and have that at my fingertips. When that happened to me 20 years ago, we had to get a tape backup which took about 24 to 48 hours.

ALEX MAIERSPERGER: At one point in my career, I was a hospital administrator and so I remember the regulatory agencies showing up and the need to have documentation and be able to show the work. And so it sounds really meaningful to have a platform that you can trust and that has that built in. Mark, we already mentioned that SAS has been doing a lot of this work for nearly half a century. Life sciences organizations have been right alongside us. Some of our customers may have different perspectives of us based on the timing of their interactions. So as you travel the globe, are there any misconceptions about SAS in the community that you'd like to change?

MARK LAMBRECHT: Absolutely, Alex. Absolutely. And I think one important topic that I would like to highlight is the open source movement. And there have been a lot of misrepresentations recently of what SAS is doing with regard to open source, not in the least by new entrants in the market or tech vendors that like to say, OK, SAS is a closed software company only. And we are associated to legacy. And I think with everything that Matt just said about what we're trying to achieve and what we're doing, that couldn't be further from the truth.

It's not always visible, but open source software and technology has been a part of SAS solutions and what we do since many years. And in myriad ways we have contributed also to open source projects. Today we embrace and extend open source capabilities. Yes, the SAS language is truly important and we keep investing in it, but so are other approaches. We accept that people program in R or in Python, or maybe soon in Julia. The main thing is that they can access the algorithms and the data management methods that we make available to them from that language. And that's what we want to provide.

And I can't help but feel there's a huge paradox out there. On the one hand, open source is all about collaboration, about working together with open source communities. On the other hand, proprietary technology is being excluded for the value that it's bringing.

And I see other industries are beyond that. They see really that the real answer is to work with any technology that will help them drive the outcomes. In this case, it's about the compounds. It's about bringing medicines to the market. It's not so much about the code itself. That's nice, but it's an instrument to get there.

And both approaches have benefits and downsides. The downsides of open source, it's sometimes complex. You have lots of packages. You have-- there's a cost to be compliant, and a cost of IT to maintain all of that. And of course closed source and proprietary software has some downsides, not in the

least the fact that you have to pay for it and invest in it up front rather than the cost that it brings downstream.

The real thing here is there is no free lunch. Whatever approach you take, it's about finding the right balance. And I work for another marketplace, and you're coming from that, Alex, from the hospital and health provider market. And what I see there is that a lot of hospitals, they start with some form of exploratory research, sometimes open source projects, and then they want to bring that to the patient in a clinical production setting. And then they see that they need other types of technology. They have other requirements to mature that, to put that in production. And that's really where we want to make the difference, as well, for our customers and users.

ALEX MAIERSPERGER: I love how you brought that back to the end user. That the means or the outcome is what's most important. And so really exciting to hear how you've changed, maybe, some of the perceptions in the market as well. Matt, SAS invests heavily in innovation. How does that show up to a life sciences customer? And most importantly, to that end patient in need of the next drug or intervention?

MATT BECKER: Yeah, another great question, Alex. And I'm going to cover how does this show up for life science customer, and then I'll give you an example of how this helps patients. At SAS we build software and we invest in that development of that software to better society. Whether that's credit card fraud, when you walk into Target and you get a coupon on your phone, or get best in class medicines to treat a disease. That's in our DNA. No pun intended.

I'm continually talking to our clientele about pain points, or how we can make their lives easier or more efficient. For our industry, every day that a drug is delayed is about $1 million or more. So we're trying to make things more efficient. And we want to get these drugs to people to help them as fast as we can.

So for example, I need to get data from systems. Mark mentioned EDC systems. We do have new ways of getting data, but we still use EDC systems. And even today to get data from those, it could be a manual process. Someone goes to that site, someone extracts that data manually, somebody pulls it down as a zip file. They unzip that file manually, they move it to their statistical computing environment, into their SCE manually. They kick off a program manually.

So you see the path? A lot of manual steps. But what if using for example APIs we can automate the pull of that data, storing it in my SCE, running my programs, all in one script. All in one automated fashion. So it's listening, it's saying new data is there, and it's automatically doing all those steps for me.

Another innovation I was recently involved in, I met with a large pharma organization in who wanted an RStudio to have SAS code in line, and have it run. So basically SAS code mixed in with R code. So I didn't have to go out to SAS and do code over there and come back over to R. I'm in R and I want to be able to call SAS code directly from there. Done. We work with open source bidirectionally.

I can have R and Python code in SAS and R and Python can have SAS code within them. Our CTO Bryan Harris says BYOL. Bring your own language. We're not anti R, we're not anti Python, we're not anti any language. We want to ensure you have a platform that governs the data, is performant, and provides results you can trust. We are doing this today with our friends in the industry.

So for that patient in need of the next drug intervention, even predicting needs, I'd like to highlight some work we're doing in Nevada. We're combining genetic data, environmental data, individual health informations, and researchers and physicians are gaining new insights into population health, enabling personalized health care, while improving the health and well-being of entire communities in Nevada.

There's some really good personal stories. I ask folks, Google Healthy Nevada and SAS and you can learn more about the amazing work we're doing.
ALEX MAIERSPERGER: Really cool combination of the omics that you mentioned and personalized medicine and hitting on a bunch of those. The field to a lot of us futuristic topics that are happening today. Appreciate you sharing that. Mark, are we-- talking about just life sciences industry broadly today, are we getting enough of the insights that save lives? What's the risk maybe to not investing in this latest technology and innovation? Where does this put the industry in 10 or 20 years of just the status quo, stays status quo. Is it going to be good enough?
MARK LAMBRECHT: Well, first of all, Alex, I do want to take that back a little bit and say that pharma is all about innovation. And I think they realize that. They bring innovative medicines to the market, to the patient, every day, right? There's approvals of fantastic medicines getting out there. I think they're investing as well.
But somehow pharma needs to do a bit of a better job explaining that to the public, I think. It's sometimes difficult to explain how that innovation looks like, and how they have worked to bring that to the market. I think Matt explained the Healthy Nevada Project. It's complex. Biology is complex. Fundamental science is key. And so we have to recognize that a lot of that fundamental science needs to be done. And so investing in that is really important.
Pharma companies constantly need to move the needle. They have limited patent periods on their products, so they know that. And I think as you see digital health and digitization, which is the topic what we're discussing about here and how statistical analysis and programming can help bring insights to regulators, is as hard as the science itself, especially if you start talking about how do you bring patient data, measured from a patient at home, back into the clinical trial. And there's a lot of processes around that.
And so I think we need a new breed of bioscience engineers that are recognized next to the statisticians and the medical doctors in a pharma company. I'll give you an example. I recently-- and I probably would not allow to mention brands here. I got an electric vehicle recently from a brand starting with a T. So probably everyone knows what I'm talking about.
I had an issue on day two. My car had an issue. I couldn't fix it in the software. So I called the brand and instead of me having to go to the garage, the engineer came to my house. He stopped with something that looked like a sports car, it looked like he was coming out of a Hollywood movie rather than of a car company, but he still fixed my car without making his hands dirty at all. He fixed the camera, he fixed something in the software, and there I was.
And I think that's the paradigm we need in pharma. We need engineers to go into the pharma processes, into the clinical R&D machine, to fix problems. I think, Matt, you mentioned automation, but there's other things we can solve, bringing AI inside some of those processes. Making decisions as the data comes in. So we don't need people to go to IT when they have a problem. We need the software inside the processes almost to be self-healing inside the process itself. And I think it comes down to curation of data, and understanding of the process. That's always the same. We need better data sharing processes. Pharma companies are investing in that somehow, but we need to keep doing that.
Federated learning, for example. How do you deal and analyze data that is not to be moved outside of a country of a hospital, yet you want to make sense of it. And as we mentioned before, whether it's open source or proprietary technology, let's not make this like old wine in new wineskins, but truly impact what's

happening out there and then measure each technology for a return on investment. I think pharma companies focus on the compounds, and as a technology company we're happy to focus on the code and the AI and work with them.

ALEX MAIERSPERGER: We're so fortunate societally to live in a time of modern medicine, and recognizing that amongst our customers and amongst the life sciences industry broadly of the investments that they've made in innovation, and their benefit to society already is incredibly-- I think we're all grateful for that. And then painting that picture of what the future could look like. I love the self-healing software and the self-healing intricacies of being able to deliver that next drug that's going to impact that next patient life. And so really appreciate both of you. The best organizations are made up of the best people, and SAS is certainly better because of both of you. Mark and Matt, thank you so much for joining us here on the Health Post podcast.

MATT BECKER: Thanks Alex.

MARK LAMBRECHT: Thank you for having us.

ALEX MAIERSPERGER: Thank you for listening or watching. We'd love to have you join as a guest or simply to join the conversation. Send us an email, thehealthpulsepodcast@sas.com. We're rooting for you always.