

TECHTalks | EPISODE 6 | NEUROTECH

With Dr. Benny Briesemeister, Senior Manager, and Scientific Lead of Deloitte Consulting Germany's Neuroscience Institute, and Stacey Sandler, Principal and Coach in Deloitte Consulting LLP US's Pursuit Center of Excellence.

Raquel Buscaino: The human brain is one of the most complex organs in our bodies. And may even be one of the most complex things in our universe. Yet, despite this complexity, we are beginning to understand its inner workings through advancements in neurotech.

Welcome to Deloitte TECHTalks. I'm your host, Raquel Buscaino, and I'm the emerging technology lead on Deloitte US Novel and Exponential Technologies team. My team senses and makes sense of emerging tech. And on today's episode, we'll explore the topic of neuro tech. I'll be speaking with two leaders, Professor Dr. Benny Briesemeister, senior manager, and scientific lead of Deloitte Consulting Germany's Neuroscience Institute, and Stacey Sandler, Principal and Coach in Deloitte Consulting LLP US's pursuit center of excellence.

Benny and Stacey welcome to the podcast it's so great to have you both!

Benny Briesemeister: Glad to be here thank you so much.

Stacy Sandler: Super excited to be here.

Raquel Buscaino: Well, so just to kick things off. I mean in brief words, what makes you so fascinated with neurotech?

Benny Briesemeister: Well for me personally, the cool thing about your tech is, it opens a window to really understand the differences in people and understand the biological stance behind that. So it is actually a tool to help you scientifically get the ground knowledge that you need in order to make sense of human behavior, human decision making. That's what fascinates me about that, personally.

Raquel Buscaino: So incredible, and Stacy, what about you?

Stacy Sandler: Yeah, mine is 2 things. One is, it's all around data. And we at Deloitte consulting US practice, use data a lot to help our clients and two it's about relearning. So everything that I've learned over the last 23 years I am now relearning, based on data and based on this cool thing called Neurotech.

Raquel Buscaino: Before we dive into the application areas and use cases, maybe we could even simply describe what neuroscience is, what it isn't and what the common neuro technologies are? And, Benny, I might even look to you for this first answer.

Benny Briesemeister: Technically speaking, I think neuroscience is the scientific approach to understand how the nervous system is working both in humans and basically in every living being.

As for how we use it here within the Deloitte Neurosciences Institute in Germany, we apply it in a bit broader sense, so for us, neuroscience, relates to all nervous system activity, that relates to decision

making, to emotions, to motivational changes within humans specifically, but we also include techniques and methodologies that are borrowed from psychology, so that are not hard neuroscientific technologies, but that help to get a better understanding of how the human brain is working and functioning.

And to give you a specific example, you probably know, when you go out skiing and you break your ankle or something like that, you get into an MRI (magnetic resonance imagery) machine to have your leg scanned. Well, you can use that also to scan with slight adjustments to the technology, you can also use that to scan your brain and actually see not only the anatomy of your brain, but also how your brain is actually functioning, which parts of the brain are being active at a given point in time.

So that's then called Functional MRI, and that is basically the "gold standard" within neuroscience that really helps us a lot within the academic community to understand how the brain is functioning. There are other technologies like EEG (electroencephalogram) that use different types of signals, to basically get to the same processes, and all of that is neuro-tech in its core, like, EEG is something that you can also buy as a consumer device to play around with that, and see what it is doing.

In a broader sense, as I already said, there's also psychological testing as part of it. So, for example, in a business context, what some people might have seen is what is called an "implicit association test" to really understand the psychological mechanisms behind that, but in its core it's methodologies like, EEG and fMRI (functional MRI).

Raquel Buscaino: and so it sounds almost like there's so many different flavors of ways that you can collect this brain data...

Benny Briesemeister: Absolutely

Raquel Buscaino: And probably lots of different hardware that you can use to is the trade-off that you're making here signal fidelity versus cost and affordability and accessibility, is that how you would make the trade-off between some of these different neuro techs?

Benny Briesemeister: Yeah. Also, I think cost is something that plays a role initially, because, of course, like the more advanced Neurotech you get, the more expensive it gets. for example If you want to own an fMRI machine, you need an own magnetically shielded room to operate that in because you need such a strong magnetic field.

Raquel Buscaino: Yeah, I don't have one of those personally!

Benny Briesemeister: Yeah, that that doesn't make much sense but apart from that, like most of your tech that's available nowadays is quite affordable so the trade-off, when we really think about what to apply and when to apply it, has a lot to do with what are the questions that we're trying to answer. So, some of those technologies are really good into looking where in the brain is something taking place to get a better understanding of what is the psychological process behind it.

Some technologies are better in looking at how does it unfold over time? So if you have something that is very time specific, then you can't look too deeply into the location, but you look into into the temporal changes, and you need different methods for that. So it really relates to the question that you want to answer which neuro tech to use.

But in my experience so far, there's really very few questions especially when we're thinking about business applications where there isn't a good technology to help you to get a better understanding about that.

Raquel Buscaino: And Stacey, as you think about you and your work in the pursuit center of excellence as a coach. To Benny's point, what are the questions that you're looking to answer and use neuro tech data for?

Stacy Sandler: I think of it even though it's complex, I think of it in a much more simplified manner. We, at Deloitte consulting, we are applying it as we pursue our opportunities.

And it's simple in some of the findings that we learned, but contrary of what we've learned for many years. So as an example, we learned that you should not have a complicated slide, that it needs to be simple, and that the words that come out of our mouth need to be the words that we see on the slide, otherwise people are going to stop listening and they're going to start reading the slide.

So much more, in my opinion simplified an application coming from a non-neuroscientist and more of an evangelist of what I've learned based on data. And when we teach these things to our teams. They are fascinated, and, to be honest, they are at first very annoyed and they say things like: "I have learned that I need to come up with different words and not read the slide." And it takes a lot to convince them.

And what convinces them are people like Benny because they are scientists, and they are wearing eye tracking devices or skin response devices, and they're watching the spikes. And they come back with real data so as much as I tell them, it's the Bennies of the world that really prove to them and credentialize it based on data.

And it's like a "wow-moment", "a stop-in-the-tracks moment", and you know, we give them simple ways in which to take the data and change. And it's really fascinating.

Raquel Buscaino: Yeah, because I think you can think about it almost in 2 lens. Maybe one is the individualized data from neuroscience, But I think what you're speaking to Stacy is that most people, at the aggregate, when they're listening to a presentation and reading a slide. They typically read a slide in a certain fashion, and they expect the words that people say to match up to the slide. And so, even using that aggregate data, if you will, to draw those insights for how we communicate, how we correspond, I think that's so fascinating.

Stacy Sandler: It is fascinating.

Raquel Buscaino: And Benny, I think you're a little bit more working with clients, hands-on day in a day out, what are some of the used cases and application areas that you're seeing in your world?

Benny Briesemeister: Yeah, Over here in Germany, we're built as a client-facing unit. So we're really trying to bring those technologies into our traditional consulting work and to improve that.

And to further drive Stacy's point home, what we're trying to do is trying to use neuroscience data to convince people that have learned a business has to be run in a certain way, to show them what is the actual impact of what they're doing, I can give 2 very tangible examples.

Relating to the point of teaching and learning things new. I mean, every company has a lot of e-learning, a lot of coaching internally trying to educate their employees about whatever topic, doesn't matter which topic it is, and one of the things that we regularly see is that, if you think about teaching, you think about a classroom set up. So I'm not familiar with how long typical, like elementary school classroom setups are in the States, over here in Germany is 45 mins. So you have a teacher in front of the class for roughly 45 mins, and that is like the model that businesses have in their mind when they design those lectures, basically.

Now, if you look at how the brain is actually responding to that, you can see that they're attentive for the first 15, maybe 18 maximum 20 mins, and then their attention breaks down. So after that, it really gets a gamble whether or not they will remember the information that they are being fed.

And that is something that you can really use the data to show how this is functioning, and that whatever comes after those 20 mins probably won't stick.

And then, a second example, which is actually the area that we're working with most of the time deals with communication both internally and externally. There is a lot about internal communication, but also a lot about how do I advertise my services? How do I set up a brand? How do I communicate the benefits of my product? My prime example very often is, a lot of companies are experts in building products and knowing what their products can do best in comparison to their competitors.

So they have very intuitive understanding of what their product is. And then they put that into the advertisement.

As a customer, if you see that advertisement, you see a product being advertised through the lens of the business. But that doesn't mean that it's relevant for me as a customer. So what we're trying to do is we try to shift the perspective and actually teach businesses. "Look, your starting point is not your product, your starting point is your customer. You need to understand how they are working, what they want, what motivates them, what is relevant for them.

And that is where neuroscience really helps to better understand "how does my customer in the end tick? What does he want? What is that he really desires?" And then he can build the advertisement, build the product, built everything else, around that to have a better understanding, and then hence also more value for the customer.

Raquel Buscaino: It's fascinating because it's a true rewiring of challenging assumptions. Right? So to your first example, just because classes are 45 min long, we typically just supply that for the rest of our lives and don't challenge the assumption is that the right amount of time? Because how can you challenge those assumptions without the power of the data behind it? It's mesmerizing.

Benny Briesemeister: The cool thing really is that using neuroscience and neuro tech, you really have an objective way to measure that.

Over here in Germany, we have a team of neuroscientists, and they look at those data and we train other people to look at those data. It's actually in the data. It's not us interpreting something that the customer

said, it's not us interpreting behavioral data from the past or anything like that. It's really just looking at the product, at the brand, at the company, through the eyes of the customer.

We see what they see, and we see the neural processes that take place triggered through what they saw, and apart from that there is not much room for interpretation. It just becomes logic because you switch shoes with your customer.

Stacy Sandler: Yeah. And I would say in Deloitte Consulting US practice, we also have neuroscientists that have helped us understand leading practices based on the neuroscience and the data and those leading practices have helped our teams polish their performance and we've also been able to take it to a client that have used it in their sales practices as well.

As Benny said, lots of different applications, so one is how to help your audience understand what you're selling in a better way and focused on differentiation. The other thing that sort of blew the minds of our team is, we shouldn't pass to different audience members, because we should stay on the same person, and then, you know, go from A to B, and we've convinced them that a dialogue is better. And it wasn't based on Stacey Sandler telling them it was based on data.

Raquel Buscaino: Yeah, and even in and this is for our audience, but even in designing this podcast episode right? We think it's better to have a conversation, regardless to keep people engaged. And so having the data to support some of the things that we either intuitively or not intuitively know as human beings is it's really powerful.

So we've talked a lot about the advantages, use cases, application areas. What are some of the challenges of using neurotech?

And, Benny, I'll look to you on this one.

Benny Briesemeister: First of all, neurotech is something that has become available, but it's still something that is not cheap, and so if you want to have quality in neurotech. It is an investment.

So it is something that not each and everyone can afford to have, so that's part one, part 2 and I think you mentioned that in your introduction the brain is a very complex organ, even if we get those data, you still need people who are actually trying to make sense of that data, so it's not like switching on a smartphone, and then your smartphone tells you, "yes" or "no". There is a lot of data processing that to that day is not fully automatic, and then, I think there's also what we very often as a society underestimate, there is lots of people out there who really would love to get deeper into how their brain is working, and how all those mechanisms and processes are actually functioning and want to learn about that, but there are also a lot of people who actually love not knowing that, love that there is a mystery about that, and that is completely fine. I mean, if neuroscience told me one thing that the beauty of our world lies in the diversity of things.

And there's also people who are scared of knowing how they are working. I mean I very often tell that to our clients over here in Germany: "if you want to get an understanding of how much you're driven by your subconscious processes. Just look at your own shopping behavior. Look at the list of things that you made that you want to buy, and then, when you come back from the store, look at what you actually bought"

What you actually bought is a lot of things that have been influenced by your subconscious processes because you were not aware of that you needed those or wanted those in the first place.

And some people are really scared about knowing how much they're actually driven by that, and I think that is a very fine line that we have to always be very careful about, and also have to be very aware of that, that it exists.

Raquel Buscaino: I think it's a really interesting point, because it's almost an admission to your shopping cart example, if I go in wanting 10 things and I come out with 20, it's almost an admission of "Oh, wow! There's 10 things that I was influenced by that I wasn't completely rational." And so it's almost the neuroscience behind those purchasing decisions.

Stacy Sandler: And, you know, I go back to what I said in the beginning. To me it's getting people to think differently and learn differently, based on what they have learned for so many years and getting them to adjust. Based on this data. It's about getting people to really listen and open their mind - no pun intended - to do things differently and to learn. And then I do think there's a privacy component that people get nervous about, and we've seen it "Why do we want to look at the brain to make things better?"

Raquel Buscaino: And so maybe Stacy, to what you just said, is there a privacy and ethics component of this work that people might be hesitant just because they don't know what it is. Maybe is part of the gap that we need to cross is helping people understand that this data can be used safely and securely right? Can you speak to that a little bit?

Stacy Sandler: What I would say is that in our Deloitte Consulting US practice, it is a tool that allows us to polish our performance. It's as simple as that, it's to get to the message more quickly, more accurately, and a way to engage our audience in a more eloquent way.

Benny Briesemeister: I can only agree to that, and maybe add one more like tiny little bit of information here since I'm, obviously the European on this podcast and Europe is known for its data protection and data privacy rules. There is a lot of regulation, laws and guidelines around how to use data. And neuroscience data into that category. There's nothing inherently different from other sorts of sources of data that make it more or less complicated to work with it.

The only thing that you have to make sure is really that everyone involved, including the participants that take part in these experiments, and that basically give you their data, that they know what you're doing with it, that they know what is the purpose of it, and that they fully understand and agree to those purposes. And ideally, that they also get some kind of usage out of that, that they learn something about it, that they grow from that.

Raquel Buscaino:

And so thinking about the future. What is making you excited about where all this is heading?

Benny Briesemeister: Personally, I came into neuroscience because I studied psychology, and psychology was always a field that was no real hard science access to psychological processes. Then I came across neuroscience, and all of a sudden there it was,

But that was back in 2010-09, something around that, back then the technology really wasn't that far. So you needed to run experiments in a specialized lab using shielded rooms to avoid noise and things like that. So it was really a complicated thing to run in study of that.

Now fast forward, basically 15 years. We're in a situation where we can run those studies basically everywhere, we can apply them outside of a lab in real world environments. And those limitations just have to come fewer and fewer. And if you look at smart watches, they have a built in sensors, for example, ECG. ECG signal basically, it measures your heartbeat, but from that you can infer a lot about the neural processes taking place in your body. So right there, you have a signal that when I started out just wasn't available at scale in normal environments.

So what really excites me is having seen how this industry, and how this application has grown within the last 10 years and trying to project into the future. I'm really optimistic that there will be new opportunities for personal growth and for business growth.

Stacy Sandler: Personal growth and business growth. It has completely opened personally my mind on how we approach our audiences and I believe that I have influenced others to change and grow and I give you an example.

A partner in a very large pursuit had no intention of changing the ways in which he was going to approach the pursuit.

He started to listen and learn, and he is now speaking in large meetings about how neuroscience has completely changed the way in which he now does presentations going forward.

I was so unbelievably excited to see what he learned, and the fact that he will now teach that to others. It was fascinating to me.

Raquel Buscaino: I think such a big growth opportunity is when it turns from technology. To "hey, listen! We're talking about it because of the business value".

It doesn't matter about the technology necessarily as long as you can realize the business value and use it, and that's a very exciting turn, and the maturation of the industry.

Well, Benny Stacy, at truly, thank you both, this was fascinating. It's clear we're at the cusp of understanding how our brain works. And, to be honest, I couldn't be more excited about how this newfound knowledge might help humanity as a whole, discover new insights.

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