LOOKING AHEAD: BALANCING INNOVATION WITH HUMAN INSIGHTS

AUDIO TRANSCRIPT

INTRO STINGER 00:01
You're listening to The Lens: Life Sciences Reinvention in Focus, a podcast from Accenture. Your host is Tom Lehmann.

Tom Lehmann 00:17
Welcome to **The Lens**, with me, Tom Lehmann. A podcast that puts Life Sciences Reinvention in Focus. Today I'm joined by Matt Studney, Vice President of Information Technology for Merck Research Laboratories.

In this episode, we cover a lot of ground. In particular, we explore the progress being made with Artificial Intelligence and the importance of keeping humans in the loop.

We talk about the need to focus on change management and a consideration of personas when introducing technology changes into an organization, and also how the ability to search in a corporate domain stands to benefit from the capabilities we have to search and make sense of the vast amounts of documents on the public internet.

These topics connect to the opportunity to improve the experience of workers in an R&D organization and how enterprise IT prioritization strikes a balance between achieving quick wins, fast learnings, and achieving scaled benefits.

Get ready for an engaging conversation about the future of digital transformation in biopharma.

Join me in welcoming **Matt** to **The Lens**!

Matt, welcome. Thanks for joining me today.

Matt Studney 01.14
Great to be here.

Tom Lehmann 01:15
So just for the benefit of our listeners, and as we get started, a little bit of an introduction and maybe an overview of your journey, your career journey to get to this point.

Matt Studney 01:24
Yeah, sure. So I am a chemical engineer by training. I went to Clemson University and I started my career at Merck as an intern in Process Engineering, before I then joined the company full time into a rotational program where I was very fortunate to get experiences in multiple divisions and areas in a short

period of time. I rotated four times for six months each, giving me exposure to our research division, our commercial division and our manufacturing division, which then set me up to decide, "Do I apply this degree?" And I decided yes, I should. So, I went into chemical engineering research and development for a few years before then returning to one of the areas that I rotated through, which was R&D, project portfolio resource management.

Matt Studney 02:14
I spent the better part of a decade in roles in that space, from portfolio management to drug development project management to leading our research and development project management office, as well as our team of project managers responsible for our oncology external collaborations. And just as I was getting to the point where I was going to look for something new within Merck, I was in a situation where we had a cyber incident that led me down the path to where I am now. I ended up in a recovery role and then a resiliency role out of corporate strategy, before then coming back to research to take on alliance management and strategic programs for our Merck Research Laboratories division. And ultimately, three and a half years ago, took the role that I'm in now, which is leading our Merck Research Laboratories Information Technology organization. So that's how I got here, a windy road, but very happy with where I am right now.

Tom Lehmann 03:19
A windy road with lots of stops along the way, but it set you up for the role that you're in today.

Matt Studney 03:22
Yeah. Very much.

Tom Lehmann 03:26
So, let's start with the fact that after that journey, right, to get to this place and going through some different business functions, you find yourself in this information technology role at a time where information technology and science are coming together in a way that we really haven't seen before, right? If you think about sort of your background, would you be exposed to... technology was there largely as an enabler. Now it's becoming much more core and central to the way that that R&D is done. So maybe, if we can, let's start around AI. So if you're looking a little bit into the past, where are we today? Where is the future? Just give me a sense of of sort of past, present, future of AI. And let's, let's explore that for a little bit.

Matt Studney 04:03
Sure. When I took this role, it was really the focus that I was asked to take was on blocking and tackling. We had foundational issues for our workhorse platforms within R&D, we had built up some legacy debt, and we really needed to change the user experience for our scientists and workforce at large when it comes to things like lab notebook or clinical trials or pharmacovigilance. And

we're well on our way to modernizing that experience for our researchers.

Matt Studney 04:37
But over the last couple years, there has been a shift in focus to data science, machine learning, deep learning, artificial intelligence, and now everyone's talking about generative AI. And the way I look at that is where we've been is we've really applied these capabilities in a meaningfully impactful way, specifically in the data science, machine learning, deep learning world—and this is across industries, whether it's autonomous driving or designing a molecule, lots of imaging capabilities that have been developed, where we've impacted the overall capability of the industry to design better molecules, or in the case of the auto industry, self driving—and you're starting to see that really have an impact in a measurable way, whether it's cycle time, probability of success, or user experience or capacity creation. And those are the things I think about when we invest in new technologies and new capabilities.

CALLOUT #1: CLARIFYING DATA TERMS

Tom Lehmann 05:40
Hi folks. This is Tom Lehman, your host, jumping in here because Matt mentioned something that I think it's important to clarify. The terms data science, machine learning, deep learning, artificial intelligence, are important concepts. It's worth clarifying the difference between them. I've asked Tracy Ring Accenture's lead for Data and AI in Life Sciences to provide some context for you. Tracy, help us out here.

Tracy Ring 06:00
Yeah, great. Tom, and I think we see something here that I think is happening really pervasively. We're seeing terms used completely interchangeably, but I think a little bit of clarity and specificity would be helpful. So data science, obviously, the idea of using statistics or pattern recognition, but probably the oldest term that's used here, artificial intelligence, is an umbrella term that I think is likely used interchangeably all throughout and part of our our lexicon now. Machine learning is really about algorithms using data and data analysis. You know, this is how we do pattern recognition, the beginnings of how fraud detection was created, right? Deep learning, this is when we're using neural networks, right? So where the technology is learning by experience. This is how we got to self-driving cars, facial recognition, etc. And then generative AI, the one that's probably most on our minds right now, is where we're creating new content. But generative AI is born out of neural networks, deep learning, machine learning, et cetera. So they are all completely interrelated and very common that we'll see them used interchangeably.

Commented [TL1]: Insert Tracy Ring Call-Out #1after "capabilities" - quickly describe the difference between data science, machine learning, deep learning, artificial intelligence and GenAI.

Tom Lehmann 07:12
Thank you, Tracy, very helpful. And now let's get back to the episode.

Matt Studney 07:16
So I think deep learning, machine learning, data science, have shown their value, and that's the past. Where are we today is we're in the middle of a major hype cycle, I think, where generative AI and AI are getting headlines across all industries, and people are talking about certain efficiencies or productivity gains, but they haven't been realized. There's a lot of talk about what is possible, and I believe, as we've talked about the future in a second, there are many things in which AI will impact. But right now, there's lots of flowers blooming, but not a lot of scaling as it relates to true AI and true generative AI.

Matt Studney 07:55
So I think where we're headed is we're going to pilot these capabilities and determine where are the use cases that we can really scale and have an impact on meaningful things, not just do things that are neat and cool or interesting, but not creating real value. And again, I go back to value in our industry is speed, probability of success, user experience and capacity creation. Those are the things that matter, and we need to prove that these AI tools are creating value in a measurable way against those parameters and not being counterproductive—which you'll see in many areas, all these fancy headlines about something we can do more of, but if we do more...if we have more ideas, the problem I think we're going to run into is then we're going to have to chase more things down and end up being more inefficient if we don't have a great way to determine what not to do.

Matt Studney 08:56
I think that's a lot about what AI is going to help us, which is to suggest that what we may have done in a historically linear fashion, moving on iteration cycles, the AI capabilities will say, "Don't do that, don't do that, don't do that—do this." And now you've skipped three cycles of whatever the linear process is. And then I think generative AI in particular will continue to expand its impact. Right now, it's text, regardless of what you hear, it's really text. Over time, the text will turn into capabilities that span chemistry, physics, math, that will allow us to use it for more unique specialty use cases.

Tom Lehmann 09:35
I want to come back to where we are today, and I think generally speaking, if we look across the industry, I think you said something around limited scaling: we've begun to look at opportunities and are beginning to see the potential for benefit, but not necessarily seeing the benefit. What's the biggest impediment to scale at this point?

Matt Studney 09:54
Well, I think there's a change management component that's real here. We have a wide-ranging set of

people with varying degrees of experience and specialties, and having the organization or a role or a function work differently is harder than it sounds. People want to have an easier way to get their work done, but we've also proven that we can do it over and over and over again the way we do it today, even though there's challenges and inefficiencies. So I think bringing people along from a change management perspective is going to be really important, because there's going to be headlines that sound threatening, but really aren't threatening.

Matt Studney 10:36
They should be focused on the reality that we can do more in our industry than ever before, and we have a few options. Either we get more efficient or we do less programs, and less programs will lead to less innovations. And so I think the real key is to ensure that people understand the benefit, understand the value, don't feel threatened, but rather feel enabled by it, and those that embrace it will be able to have the impact that they want to have on human health globally.

Tom Lehmann 11:11
And so then let's assume that that gets the ball moving a little bit faster here, and certainly people... because, again, you said there's an emotional connection to this is probably human plus machine. But it's an augmentation. Not necessarily replacing work, it's creating something even better on the backside of it. As you move then towards the future, and we start to think about scale and real impact, and really starting to see, as you said before, we're in a bit of a hype cycle—and part of that is great because it's creating some enthusiasm and excitement—but it isn't necessarily telling us where to focus yet. Let's assume we get to that place. When you think about the impact that can be there, you mentioned speed and probability of success and user experience and just general capacity creation. Do you think it's one of those as a primary or is it all of those like, where do you think the real value starts to show up from this?

Matt Studney 11:59
I think initially, cycle time is the place where we can apply this as we get closer to value, and that's something that we're working on and trying to prove out and measure baselines against future state approaches. So I think cycle time is the first thing we'll go after. In the long run, probability of success will be the thing that we prove out, however, you'll see that it takes a while to show that, because a lot of the areas in which we can apply these capabilities are earlier on in the process, and because it takes usually more than a decade to develop a product or a medicine of any type, any modality, that it's not going to get the immediate dividends that you would get from doing something closer to, let's say, a filing or a Phase III clinical trial.

Matt Studney 12:52
So I think the probability of success is going to take a bit of time. Cycle time will be something that we see happening sooner. User experience, I think, is starting to find its way into everybody's daily life, whether it's personal or professional. Personally, I've found myself going to either Anthropic's models or OpenAI's models to answer questions that I historically would use a search engine for, and I feel like I'm getting faster, better, cleaner, thorough results in that way, and that's just going to infiltrate its way into the work environment.

Matt Studney 13:26
So I think the user experience piece is starting to show, and will continue to show, and then for the capacity creation, that's the biggest part in terms of change management and how we go about making assumptions, proving that out, and making sure that we're focused on not just doing more, but doing more of the right things. And that goes back to my comment earlier around these AI recommendation engines should be telling us what not to do as a starting point, and then eventually making suggestions proactively that the human in the loop and the subject matter expert can assess as a good idea or not a good idea.

Matt Studney 14:08
Because in the end, human intuition is not going to be replicated by the models anytime soon. And I think that's what we have to remember about all this is that a human in the loop is going to be key before we decide to make something and test it or accept the output of a large language model that wrote a summarization of something. We have to make sure we keep the human in the loop. And the relevance of the human is greater than ever in this space, because it may get tempting to become a bit lazy because the models keep getting better, but we can't allow that to happen, and we have to put the right checks and balances in place.

Tom Lehmann 14:50
Well it starts to get us down that path of the broader theme here around responsible AI, is also starting to show up as that the other part of the narrative here. So we're starting to see the technology potential, but very quickly it's getting into this responsible AI piece, which has a number of different components to it. I think it touches on what you just mentioned.

Tom Lehmann 15:07
So if you look at the future here, and part of this is reflecting on those that have gone before you. So think about other industries that maybe are a little further along on their curve. Are there industries that you think are in fact, ahead of the biopharmaceutical industry that have maybe, again, proved this out in some areas, that would be good places for our industry to start to emulate? Or do you think that everyone's moving roughly at the same pace, and there isn't

necessarily a standard bearer out there yet?

Matt Studney 15:38
Another great question. I was on a panel recently, and the question came forward, are we leading or lagging in pharma? And I think the answer is both. We're leading in the context of the fact that we have shown that we can apply deep learning and machine learning models to advance science and get things done faster, which I challenge other industries to prove that they've done that in terms of the length and complexity of the cycle time that we have. Yet at the same time, we have quite a bit of manual processes that we need to really unpack and redesign from a business process perspective and a technology perspective, which I think is going to be key—and those two things go hand in hand.

Matt Studney 16:19
It's just not about only the technology. It's about the business process and the technology working together in new ways that we never imagined before. I think other industries have problems to solve that are unique in their own way, and have applied these technologies, as I mentioned earlier—autonomous driving, or the car industry overall, has amazing advances in this space; airline industry, predictive maintenance—all the types of things that we're actually trying to and successfully applying in some parts of our organization or industry, where we can look at manufacturing, we can look at research, we can go down into the experiment level and do a lot of things.

Matt Studney 17:02
But our industry is hard in the context of human biology is really difficult to understand, and it's not simply an engineering problem or physics problem. It's much more complex than that. And so I think it's hard to compare industries. I think there's lots of learnings we can apply and share across industries, and I think we'll start to see that where we have things in common and then apply analogies to figure out how we can take an approach from one industry and apply it to another. Still a long way to go.

Tom Lehmann 17:32
That's fair and I think that's consistent with I'd say my view and what I have seen. I think there's examples, financial services with credit risk monitoring, and we're seeing now with insurance underwriting. There's different places that I'd say that there's application of these technologies, but trying to get to scale and really figure out the balance between what do you invest in and what benefit do you get from it? I think most industries are working industries are working their way through it at this point.

Tom Lehmann 17:56
So with that in mind, you've talked a little bit about the potential value here, that could be there... My

assumption is, again, not so much just specific to your organization, but across the industry, there was a lot of choices that need to be made around what investments to be made. How do you prioritize what's out there? Ultimately, how do you make the decision around a portfolio of technology investment? How do you think the industry should be looking at that?

Matt Studney 18:23
Yeah, I think ruthless prioritization is always key in this space. And having a combination of experimental work that is an "aim small, miss small" type of an approach where do small investments to prove something out, and then see if it works, and then stage gate that with a larger investment to figure out if scaling, or if you determine scaling is appropriate, then move forward with it. Because I think sometimes we can get caught up in analysis paralysis with respect to business case development. So I think some things just make sense to try and learn from. And if they fail, fail fast. If they're successful, scale fast.

Matt Studney 19:06
But I think that the actual, measurable value and tangible value that you're going to expect out of this needs to be written down and committed to before the investment can be made. And I think a lot of industries have tried things in the past that just haven't played out the way we expect it to because there wasn't a lot of critical thinking. So I think doing the right critical thinking, taking some risk, but also having the ability to say, "I don't care about that sunk cost. Let's move on and find something else that's going to create more value against the parameters that I called out earlier, or other parameters, depending on the industry" is really key.

Matt Studney 19:47
And prioritization in general is the hardest thing to do in any large company, because there are so many great ideas that can create value, but not enough resources or capacity to execute on all of them. And so I think that's really important to look at, is value, not just within a function or an area or division, but across the whole entire enterprise, and then follow through and force the follow through on the benefits, rather than just assuming it's going to happen.

Tom Lehmann 20:20
And what's your sense about where you said, "Aim small. Miss small." Is that off to the side in a contained, experimental place. Or do you say, listen, we're going to try this right at the core of our portfolio, right? Again, not in any way putting patient or patient safety at risk. But there's a philosophical difference there between saying, "Okay, we're going to try this experiment, prove that it works from a technology standpoint, and then think about what the benefit could be." Different than saying, "Let's put it right in the middle of our work, and let's see if it actually

works." What's your sense with some of these emerging technologies? What's the best place to try that?

Matt Studney 20:54
I think there are a few ways we can look at this. I quite often just think about all of what we do in any industry, and in the pharma industry in particular, is workflow. Look at the workflow, see if you can try something within the workflow for a subset of the work. And that could be a particular therapeutic area, could be an individual program, because it's tempting to try to boil the ocean and sit back and say, we're going to redesign the whole process, apply this to every modality, every therapeutic area, and inject this into the whole ecosystem.

Matt Studney 21:26
But really what you need to find are enthusiastic teams and people who can try, experiment, give feedback, and then see if it works, so we can then iterate and decide, is this something that can scale, or is there something that we learned that suggests it won't or the timing is not right?

Matt Studney 21:44
So I think picking the combination of rows and columns of opportunity and honing in a few cells is what I think about when I think about aiming small and missing small, because then you've done something quick, learned and then decided, can I go up? Can I go down? Can I go left? Can I go right? And to what degree and how fast, and what's the value that you learn there? And I think that's how we've been trying to approach a variety of these new technologies that we've been experimenting with in the last couple years.

Tom Lehmann 22:15
So then make the connection for me, you mentioned change management before, or some of the human behavior side being one of the largest impediments right now, which I think we're probably seeing across not only just this industry, but outside this industry. When you're thinking about then introducing change in a large, complex organization, there are multiple different personas, right as you look across the R&D value chain is just one sub segment of the overall business—a lot of different personas. How do you think about change there? Is it sort of broad brush. Let's start from the top, drive it down. Are personas often overlooked? What's your sense there?

Matt Studney 22:48
Yeah, I think personas are quite often overlooked, because not everybody needs to throw the same tools at every problem. And I think there's this fear of missing out sometimes, and we get requests of, what about us? What about me? When the role itself may be not amenable to a new technology, or even sometimes just not now, because we may be doing something in one area where it would be easy to get distracted by AI, yet

we have to shore up our foundations before we then apply the AI.

Matt Studney 23:20
So I think there's a foundational component, and then a user experience component where everybody wants a little bit of help, and there's going to be tools out there, something like Microsoft's CoPilot, that can probably help everybody in some way. But whether or not we embrace that is to be determined by the personality of the individual and the ability of the tool to actually help them.

Matt Studney 23:45
But when we think about the AI tools at large, we're going to have expert users that are running models on a regular basis and doing hardcore data science and software engineering and data engineering—then there's those that are going to be using it—and I think we need to make it as easy as possible for the subset of personas to use it and not allow others to get distracted or feel like they're missing out, because they're not part of that strategic initiative, in a sense. So I think finding a way to explain what you're going to get, how you're going to get it, and make it as easy as possible to take on and apply in your workflow is a critical element to how we're going to affect and apply change management in this space.

Tom Lehmann 24:34
So as you think about then introducing the type of change... there is no, I'd say average employee, right? In a large organization as you just said there's a lot of different roles and personas and probably different starting points here. How big is the, let's call it the talent gap? If you think about democratizing the use of these types of tools, is your average knowledge worker: It's a small leap to get to be able to use these tools? Do you think it's a larger leap, and therefore the need to invest in a lot of additional training to come along with it? What's your general sense? Because a lot of conversation around where we are with the state of the knowledge worker today and their ability to make this jump?

Matt Studney 25:15
Well, I believe strongly in real demonstrations, live examples, using the tool in a interactive way to get people to understand the value—because there are so many headlines and so many news sources, and everybody learns differently, consumes information differently,nd what I found early on was there was a lot of misunderstandings around what generative AI is and is not similar to AI, what it is and is not. And I think where we seem to find an inflection point was when we did in-person workshops to show people and walk them through a set of scenarios to use the capabilities, to understand the limitations. And then we got all these great ideas, some of which were still a representation of a

misunderstanding around things like hallucination or whatever it might be.

Matt Studney 26:14
But I think getting a good user experience in the hands of the users is the most effective way to convince them to move forward, regardless of their digital acumen. I do think we have a range of skills and experiences and personalities and backgrounds that it's impossible to do a one size fits all. And so I think we have to hit this with 360 degrees of opportunity. Some people might want to learn by watching, others might want to learn by reading. Others might learn by trying. And I think that's how we have to approach this and give people multiple ways to consume, absorb and figure out what they're going to do. And some are going to just be stubborn and not really want to be part of it for any number of reasons. We'll have to bring those people along over time, because it's going to be really hard to be effective in the long run without embracing the combination of tools that are going to be available through the technologies we've been discussing today.

Tom Lehmann 27:03
Well and I think also important, you mentioned before, even just looking at workflow, I think simply just making tools available, some percentage of the employee population is just going to be curious, and they're just going to jump on board, because they're just that type of person, right? The ones who are standing in line to get the latest new smartphone are probably the same ones who are going to just jump right in. You're going to have another group, as you said, who are probably standing back and then saying, I'm pretty comfortable the way that I work today. Somewhere in the middle, that group really needs to understand, how does this actually improve the way that I work? Show me, right, at the end of the day so it starts to fit naturally into my workflow. And I think you start to see, as you said, it's not a one size fit all here, you start to see very different change approaches depending on which employee population you're talking about.

Tom Lehmann 27:43
So let me go a little different direction then here. As we look at the state of technology today and the state of data, we have probably more data than we've ever had, more documents than we've ever had, both internally as well as externally, yet it still seems very difficult to actually go find what I need and do it in an efficient way. So thinking about the state of search here, at this point in time, what's your sense of where we are and where's the room for improvement?

Matt Studney 28:12
I think there's a lot of room for improvement, especially within the corporate domain. The advantage that some of the broad search companies have is they can essentially search the whole internet

with no concerns about privacy or confidentiality or administrating some sort of security model. The challenges we run into internally are related to those types of things, as well as records retention and versioning and so on. So I think the LLM approach will allow us to do something very differently over time, because prompting and setting up the models to be aimed at the right sources, and also building in automated rules, or at least guidelines around if you're asking for current trends and documents that are 10 years old start to show up, then that should be flagged automatically as probably not what you're looking for.

CALLOUT #2: LLM Approaches

Tom Lehmann 29:07
Hi there, jumping in again to make sure you have the background on another topic. This time it's the idea of LLM approaches. Tracy, can you help us with this one?

Tracy Ring 29:15
Absolutely. So I think in this example, we're thinking about how we're using generative AI, how we're applying different LLMs. Many times we think about sort of one or two, but there are, almost 100 major models out there at this point in time. I think Matt does a great job of describing the importance of how do we think about the limitations of these models—how do we help train these models, and most importantly, how all the models have moved into citing sources, how we're able to guide these models to pick our preferential sources, the ones that we trust the most. And so a lot of autonomy in the way that the models are used, both in an individual in a corporate setting, to help guide and give the best experience based on where the best data is residing.

Tom Lehmann: 30:02
Very good. Well, thanks again for that clarification, and we'll get you back to the episode.

Matt Studney 30:07
And I think that we're going to be able to aim the models at the resources that we trust with the limitations I mentioned earlier, which is making sure that we can trace it back. But I do think the overall experience for whether you're trying to find a help desk ticket for a particular application in the world of 1000s of applications that are in play in a large enterprise, to getting a single answer to a question that is backed by the source like what I described earlier today, when I'm interacting with these LLM applications on my iPhone, and I think that's going to be a big game changer for the general user experience for the whole workforce. Because we spend a lot of time as humans searching for things, reading things, and then determining if we trust what we read. Just to make that all a little bit faster, that will be a big capacity creator for people to get things done faster and with a little bit more joy—which I think is one of the things that we forget about, is if we

Commented [TL2]: Insert call-out #2 for Tracy Ring. "What is the LLM approach? What does that really mean?"

really watch people work in certain environments, they're extremely frustrated by the challenges of finding things, summarizing things and sharing things.

Tom Lehmann 31:25
What's your sense on timing for that? We've been chasing this challenge for some time, and it probably has only been exacerbated, just based on just the volume of wwhat's available. Has the technology finally caught up with this need to do something different in the next whatever it is, six to nine months, year, year and a half, two years? What's your sense? Are we going to going to break the back of this? Because I feel like we've been chasing it for a while.

Matt Studney 31:48
I think with search in particular, we're going to see gradual improvements, and then one day realize that, wow, transformation doesn't happen overnight. It happens one activity and capability and experience at a time, and it's not going to be you go to sleep on a Monday, wake up on a Tuesday, and everything's going to be so much better. But I think each day, everything's going to get a little bit better with a little bit more experience and advancements in these models. And we've seen just in a short period of time how much better these models have gotten at a series of tasks... and I think that it's just going to be something like what we've gone through over the years when it came to our phones, and now everyone's looking at their phone 24/7 it seems like, and couldn't possibly live without it. And I think that's what we're going to see with this. But I think this is going to be a bigger inflection point in terms of the overall day to day experience that humans have with technology, and many times, probably won't even realize that they're dealing with a model that was developed for those purposes or others.

Tom Lehmann 32:54
Well, and as you said, we get there, there's a pretty profound impact just on the experience, right? How we work, takes away a lot of that daily frustration or just lost time just looking for things. So it does have a significant impact. And I think you're right, it's not going to happen overnight, over a weekend, everything's better. It will take time, but if we get there the impact is significant.

Matt Studney 33:15
Absolutely.

Tom Lehmann 33:17
So if you tie it all together, if you will, here maybe I close with a question: a lot happening right now in the technology space. Obviously, we started out with a conversation around AI worked our way through a number of different topics. What are you most excited about in your space over the course of the next couple years?

Matt Studney 33:35
I'm excited about the continued innovation that's going to compound across all of these technologies. And we've been talking about information technology at large, but there's scientific technologies...and other technologies broadly that allow us to see what's happening to humans at a resolution that we've never imagined before. And so the tool set that we have to cure disease or make people's lives better across more therapeutic areas, and the combination of composition of matter, range that we see across modalities, whether it's vaccines, small molecules, peptides, gene therapy and so on...

Matt Studney 34:47
I think what I'm most optimistic about is that in five years, ten years, if I have a problem, or a family member has a problem, or a friend has a problem, we're much more likely to be able to solve that problem in five years than we are today. And that's what keeps me motivated and engaged and excited about the work that we're doing. And it's not all going to be perfect. There's going to be challenges, there's going to be debates, there's going to be issues that we have to overcome, but I do think net, net, net, in the long run, the world's gonna be a much better place in five years than it is today because of all these things coming together to help make people happier and healthier.

Tom Lehmann 35:59
I think it's a great, a great way to close. If you think about where we are with the science, probably never been better than we've seen right now. Technology has advanced to a stage we haven't seen before. Our understanding of just human biology and disease and putting all those pieces together... You're right. I think it does feel like we're at a unique time right now. In the next three to five years, we should see some significant improvements that all these pieces continue to mature.

Matt Studney 35:21
Yeah, absolutely. Very exciting times.

Tom Lehmann 35:24
Indeed. Well, thank you, Matt for joining. Appreciate the discussion today and I look forward to seeing how your journey continues, but also how the topics we've been talking about here continue to mature over the next few years.

Matt Studney 35:39
Great. Thanks for having me.

Tom Lehmann 35:43
A big thank you to Matt for sharing his insights on AI's transformative role in the pharmaceutical industry. , and a special thank you to my colleague Tracy Ring for joining the conversation.

Tom Lehmann 35:52
Reflecting on this discussion, we highlighted the exciting shift toward advanced technologies – AI, Machine Learning, and Data Science- and the profound impact they are likely to have on this industry. While early use cases show promise, we also tackled the challenges of scaling AI responsibly and thoughtfully embracing new technologies. I'm inspired by AI's potential to revolutionize our industry, while keeping ethical and practical considerations front and center.

To conclude today's episode, I'd like to leave you with three key reflections:

What are the biggest roadblocks to scaling AI in biopharma, and how can thoughtful change management help overcome these challenges?

When it comes to applying AI to enhance biopharma processes and outcomes, what valuable lessons can we draw from other industries, such as the automotive industry with autonomous driving?

How can you strike a balance between managing day-to-day priorities and embracing transformative technologies like Artificial Intelligence?

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Thanks for listening.