INFLECTION POINT: TRANSFORMING TODAY'S LABS FOR THE FUTURE
AUDIO TRANSCRIPT

Tom Lehmann 00:00
Hi, Richard, Welcome to Driving Digital in Biopharma.

Richard Milne 00:03
Hi, how you doing?

Tom Lehmann 00:05
Good. Thanks for joining today. Maybe for the benefit of our listeners, can you provide an introduction and a little bit about your background?

Richard Milne 00:15
Sure. Okay. So my name is Richard Milne. I'm the vice-president and general manager of Digital Science Solutions at Thermo Fisher Scientific. And that means that I'm sort of responsible for helping, along with a number of the other senior executives in the company, to drive our digital strategy forward, both in terms of running the P&L of the digital business itself, and also working over the longer term horizon as to what the strategy is. In terms of my background, as you can tell I'm not not a native American, although I am now an American citizen. But I was originally responsible for developing some of the e-commerce capabilities actually a way back in the day and in fact, did that in Europe. And originally drove the launch and introduction of a number of different e-commerce and digital marketing capabilities for the company.

Richard Milne 01:10
About 14 years ago, I moved over to America, where I'm based in California at the moment, Southern California. And I took on that role, responsibility for the company as a whole. At that point, that company Life Technologies was bought by Thermo Fisher and we merged it all together. So I then launched the thermofisher.com website, and also took responsibility for some of the activities on Fishersci.com. And it was an interesting journey, it was an interesting thing to do. When we first started, the target that we had for e-commerce was less than $50 million. And when I left some time later, we were doing over six and a half billion dollars, which was a fun journey to go through. And so then I was asked to take on a new job as the General Manager of the Digital Science business and I'm looking to kind of take some of those experiences and activities that we did in the e-commerce space, and then hopefully replicate at least some of the transformation that has gone forward within the lab operating space.

Tom Lehmann 02:17
That's great. It certainly is interesting with that background, because you certainly have seen the evolution from something where we were just putting the E on front of everything at that point. So if we met let's make an E commerce, we're not quite sure what it was into something, as you said, a multibillion dollar business. So certainly, I think that evolution, and that experience is quite relevant to your current position.

Richard Milne 02:36
I think that's a big part of it. It's also somewhat interesting relative to where we are now in Thermo Fisher, because at that stage, when we took over e-commerce, there was, you know, hundreds of little micro sites dotted about all over the place, everything was sub scale, everything was kind of unique and kind of fragmented. And what it really took was a concerted effort to start building some more of a destination and more of an activity—you know, there's now over 200 million visits a year across that website.

Richard Milne 02:36
And it's interesting, because I think there's an opportunity to do something somewhat similar within the space that we operate in that we're going to talk about today, I think, which is, you know, there needs to be a bit of consolidation in the thinking, so that we can make some more gains. It's been very typified by a lot of fragmentation and a lot of experimentation, but at a certain point, we're going to have to yield to some scale, if we are going to get the benefits that people are hoping from some of these transformational activities.

Tom Lehmann 03:49
Well, I think that is the challenge. So we actually jump in from there, you mentioned part of the current role is a focus on the labs, and obviously, Thermo Fisher does a lot more than just that the lab side... Reflecting on maybe your experience that you had in the e-commerce space, and maybe connected to the question here, we hear a lot about this idea of "lab of the future". And perhaps it's a bit of a moving target, but it is a widely mentioned concept across the industry. Is that how you look at the opportunity ahead for the biopharma labs?

Richard Milne 04:18
Yeah, I mean, it's an interesting question, Tom, because the "lab of the future" is a term that has been around for a long time, and in a lot of ways, provokes emotional responses in people in ways that not many business phrases do, I guess, and partly because people say, "Well, what do you mean when you talk about the lab of the future?" Certainly, when we've had that conversation with some of the senior executives at Thermo Fisher before you get all kinds of different interpretations of what that means, including obviously the visceral response of well, when is the future if you're just talking about the lab of the future, then kind of why is it always in the future? What about the lab that we need today sort of thing?

Richard Milne 05:02
And so I get it as a concept. I think as a label, it's absolutely fine. I mean, there are conferences called Lab of the future, right? It doesn't really matter as a label. What matters is the thinking behind it. What is it that we as an industry, and I mean, I think of Thermo Fisher is a participant in the industry, in that case. What is it that we as an industry are trying to actually achieve? And if we want to give it a label that's called LOTF or lab of the future, or whatever else people want to call it? That's completely fine. So long as you don't fixate on that. And what you have to do is you have to think about, what are we trying to achieve? What is the business outcome, or the business goals that we're going after? And how can technology and how can, process development process evolution, and the adoption of new capabilities, accelerate those business outcomes. So, I worry less about the name that we give it and more about our ability to actually execute against some of those business objectives that we have to be honest.

Tom Lehmann 05:03
So you mentioned your introduction that you are responsible for the digital strategy, so maybe reframe that idea of lab of the future and put it into context of some of those business outcomes or objectives that you're trying to drive toward. How would you talk about then the focus that you have within that digital strategy?

Richard Milne 06:24
There's two different levels that that you can take that on. We do not at Thermo Fisher, or I do not, we do not, separate our fundamental purpose for being which is to help our customers drive their productivity, and to accelerate science, from the digital ambitions, Those two things are absolutely in lockstep. And so, generally, what customers are doing is they're looking for either the ambition of improving the productivity that they're experiencing from the investments that they've made or are making across their operations, or they're looking to accelerate the science—or oftentimes, they're obviously looking to do both in different measures.

Richard Milne 07:14
And so that strategy is common, regardless of whether you're buying the latest gene sequencer or mass spectrometry instrument, or whether you are deploying digital tools. You're still ultimately looking to achieve one of those two aims. But more specifically, what we see, I guess, at the digital strategy level, is that there are two particular pillars upon which we build our digital strategy. The first is that evolution of the scientific experience. And I think that is evolving quite quickly now, partly because of the question of talent and the availability of talent, and what has been described at times as the war on talent, in terms of competing for very scarce, highly trained scientific resources.

Richard Milne 08:29
And so the second pillar that we take into our digital strategy is that of the of the data journey. And when think about that it's, as Thermo Fisher, we're obviously authoring a lot of data on our instrument fleets, and other things. And so how do we make sure that the data is being captured, ingested, normalized, and presented to people in the times and places that they need it. And we believe that through that we can create new scientific insights, we can create new investigations that can be done, new hypotheses that can be driven as a result of organizing and managing the data more effectively. So those are our two pillars scientific experience and kind of data journey really, within the digital context. But as I say, we don't believe that those have any separation from the overarching business objectives of improved productivity and accelerated science.

Tom Lehmann 09:33
Well you can certainly see the connection between those two, you can certainly see them come together at the end of the day. But also then to your point, it's either in the purpose of driving increased productivity or in the role here to accelerate science—or as you said, most companies are probably looking at both right now. And I think we're certainly seeing a combination of those two. Where does then things like artificial intelligence and this big focus on AI right now fit within that digital strategy for you?

Richard Milne 10:02
It's a really good question that and I'd love to hear your thoughts about that as well, because we are profoundly aware of artificial intelligence, and we are very, very aware that it will have an incredibly transformational effect on science. Okay, so kind of, foundationally we recognize the importance of artificial intelligence, but then, as you sort of look to the use cases, and the adoption of it, I think it's going through one of the most remarkable kinds of maturation processes at the moment. But, what we are seeing is the potential in certain areas to quite radically transform some of the way that science has progressed. And if we look at it, as you might do in the in the drug discovery space, for example, within the pharmaceutical environment, you can see that there will be an acceleration of the amount of what you might call dry lab or in silico discovery done at the beginning of any particular process, which will then lead, in actual fact, we think, to a change in the way that wet lab biology takes place, and how labs are utilized in the future. And then there'll be obviously a significant amount of post experimental analysis that is done after that.

Richard Milne 11:39
And so, there are a number of published concepts, this is not revolutionary to talk about, you know, many public debates and discussions about that approach. From a ThermoFisher point of view, though, I think that there is... the way that I've been viewing that right now is that there are very many niche vendors who are coming forward with lots of exciting AI capabilities. But fundamentally, again, AI is only as good as the data that is looking at. And so we have a job and it may sound like a very foundational, somewhat prosaic job, but I still think there's quite a lot of work to do to actually organize and manage data. And so we have a program that we run at the moment, our use case that we apply at the moment, which we call "AI Enablement", which is to not try and position ourselves as an AI company, per se. But it's to recognize that across the industry, different actors and different participants will bring forward different AI capabilities. But perhaps what we can contribute to that in the short term is some work around how do you actually bring the data together, so that the models can work, as well as they need to so that you can realize some of that promise.

Richard Milne 12:59
My experience is that AI works unbelievably well with regards to your published data and textual data, largely. When you start to try and do computational data with it, it's much more difficult to apply yet. And so many of the use cases, and certainly we spend some time with the big AI vendors, many of the use cases around summarization and rapid synthesis of large amounts of texts—understanding who did what before, what sort of protocols were used those types of things—when you start to want to actually apply that into some of the, if you like, calculative, or computational stuff, there's still work to do that. So, our effort is around, how do we enable the data? And how do we disposition the data in such a way that people can use it to fulfill some of that promise?

Tom Lehmann 13:54
Well, and that makes sense. And certainly, depending on where you are, as far as which research or early development activity, right? The ability to either augment with what's there or fundamentally, change, is going to vary greatly. And to your point, whether it is more traditional data oriented, or if it's more text oriented, that the tools are going to be applied in different ways. And certainly, this idea of more computational science as a precursor to the traditional wet science followed by computational science seems to be more of the standard that is emerging.

Richard Milne 14:31
Yeah, I'd agree with that.

Tom Lehmann 14:34
So what does that mean then for—you mentioned experience before... What does the modern scientists look like? What's the profile that you're seeing in the various labs?

Richard Milne 14:43
Well, I mean, the modern scientist is made of cells and genes just the same as the old scientist was, I mean, that's one of the things that's kind of important to remember is, you know, at the end of all of this, there are still people and there are still humans who do this, now science will change and some of the skills that we look for. I remember I used to, when I was a young man going around at Edinburgh and other parts of Britain, I'd wander into these labs and there'd people, were there Radiohead t-shirts on and whatever else and I think we probably still doing that, right? And so, you know science is about human inquiry. And I spend quite a bit of time with a senior investigator in neurobiology for one of the large pharma companies and his group and his team, they're all the same as they were, if you like, five years ago. But what's happening is they're being given new tools, and new capabilities to access. And those things probably mean, at some point, there will be some scientists who put on white coats less often, and who actually spend more time in front of screens. And there'll be a rise of the data scientist. Obviously, that's going to become an incredibly important role in all of this, the modeling and analysis will take on a much greater perspective.

Richard Milne 16:12
I think there's also a need to try and reduce the amount of repetitive activity that takes place within the labs. And so I imagined that there will be a significant step forward in automation and robotics, I think that is a space where there's lots and lots of scope for rapid disruption, it's been a kind of sleepy little backwater for a long time. And I see that kind of automation and robotics thing coming forward very quickly.

Richard Milne 16:43
I think that what you'll find is tha the ability for people to use complex software applications will become more necessary than the ability for people to sort of manage instruments in the traditional way that they did in the past. And so you might see, even within discovery labs, more of a kind of technician approach to some of the instrument management, because the knowledge, the knowledge management, the knowledge workers will tend to be working in a kind of in silico, or computer based way a lot of the time. But nonetheless, it will still be ultimately, I believe, a human-driven activity, even though it might now be co-piloted to use an expression by a series of different AI assistants and other things.

Tom Lehmann 17:36
You mentioned something in there that I wanted to just explore a little bit further here around just that the reduction that repetitive tasks, and that could, again, could come from software, addressing that, but it could also come from automation. As you mentioned, there's conversation and maybe it's this utopian end state around "dark labs" or "lights out" labs, where things are just running fully automated, remotely operated. How far away are we from that being a regular occurrence? And then what type of maturity needs to be in place to actually get there?

Richard Milne 18:06
Yeah, it's a good question isn't it? I was having a conversation this morning, actually with some folks about what's the movement in terms of scaled automation, which I think is an interesting topic for just now. But you have to be careful about what labs are you talking about at that point, because you know, that the definition of lab becomes very broad then. When we were discussing that we were putting in the context of discovery labs, if you like R&D Labs, which have been notoriously difficult to automate, because of the variety of activities that take place within them.

Richard Milne 18:52
There are a lot of other scientific processes, or things that have been reasonably highly automated. When I think about, for example, we were very involved, as you may know, in the COVID response, including some of the extremely large governmental labs that were run across the world, and those were highly automated, you were running millions of samples through those labs on a daily basis. And you were doing that because you put in essentially automation that covered it from end to end. But that was because it was a very structured process. So yeah, they were labs, you can see the same with bioanalytical labs—anywhere where you've got a standard process, you're going to be much closer towards that notion of technician running a lights out facility. You know, probably QC labs, I mean there's a whole debate as to whether you'll actually even have QC labs in the future because you might put all of the quality control in line which is another interesting discussion. You actually need to have some of those labs in the future because manufacturing quality control or other things, it may be better to just put all of those process steps in line and just be done with the lab type of thing.

Richard Milne 20:07
But if your question is about discovery Labs, which has been the area where there hasn't been the same ability to do automation, I think my perspective on it, and it is confirmed by some others in the industry, is that you will see increased automation in discovery labs in the next five years; five, six years. Probably not all the way to lights out lab or empty lab with just automation. But I think there are two things that are driving that, on one hand, it's the experimentation is going to be more about hypothesis at scale. And so pushing through derivatives of the same kind of experiment and using the equipment in repetitive ways. And so you'll actually tax the equipment much harder, and drive it much harder. But you'll be able to automate the steps in the process. And the second thing is, I think that there's a move at the moment within the automation community to create more accessible and configurable automation capabilities. And so flexible automation coupled with an increased standardization of experimental process will probably mean that you are able to automate some of the discovery labs, more than has been possible in the past.

Tom Lehmann 21:35
And with that, then I guess I presume certainly in those types of labs, or even in the other labs, the ability to get the data off of the instruments just gets easier over time—if you're going to be doing that type of volume of activity, it becomes essential to be able to get the data. I don't think that necessarily solves for all the other instruments that are out there. And I'll pivot maybe to a different question here, which is, over the last number of years, there seems to be a perennial challenge here to get to the data. So years ago, when the data would be stuck on the instruments, and you've got to use thumb drives, things are moving to a better place now, but it still feels like that is a challenge that is pervasive across labs. Are you seeing the same thing?

Richard Milne 22:13
Yeah, I mean, isn't it funny? Isn't it strange? Because if you draw an analogy (I mean, just to sort of be a little bit philosophical for a while), if you draw an analogy, between your home printer or your printer that you can buy from Best Buy for whatever, 99 bucks, 150 bucks, or whatever, you get with that immediate connectivity, it connects to your Wi Fi, there's 10s of millions of these devices that are all connected, whether in the professional environment or the home environment. We're having a conversation this morning about smart consumables, smart reagents. And even in my $99 printer, the consumable cartridge has got a chip in it that tells the printer how much ink it's got, and when you need to replace it. And then I sign up to, you know, some HP service or some Best Buy service, and for five bucks a month, I get a new printer cartridge whenever I need one without even knowing about it.

Richard Milne 23:16
And so it's a problem that the universe has kind of solved in that regard. I mean, that technology is 10 years old, it's not surprising anymore, any of those things, right? We stick those in our home offices, and it just happened. And yet, for some reason, these very complex, expensive instruments that are within these laboratory environments, don't yet function in the same way. And it's everything from the actual functionality of the instrument, and if you like the consumables that it might be using and ensuring that it's kind of ready and fit for purpose. And also, then the data coming off it and some of those reasons for that are quite justifiable, if you like. There are network issues and proprietary issues and security issues that people have had to deal with. But it has to happen. It has it is happening now. I think one of the biggest things that I think foundationally will change that rate of adoption, is that it's my belief that many of the big customers, the big industrial customers, pharmaceutical customers, and such, have now addressed the question of cloud and have now adopted the notion of cloud.

And I think, funnily enough, whilst you were talking about AI a bit earlier, cloud, to me is now really showing those business benefits that it can offer. And because customers are now much more accepting of the security credentials of the cloud, and they built around the cybersecurity and some of the trust issues that may have existed before, you're seeing that people in our business where we're installing software for customers, almost all of it now has got to have some kind of cloud componentry.

Richard Milne 25:13
And so once you've crossed that bridge, then instrument connectivity starts to become a much more reasonable thing to have on the horizon— scaled instrument connectivity. Because now you can start changing the locations of workers, you can start thinking about here's the best place for data scientists doesn't have to be in the same place as an instrument, and not constrained by datacenters, or internal networks or anything else. Now I can start really logically arranging things in the most optimal way. And so there's gonna be huge, huge benefits unlocked by a few of these enabling technologies, which are going to drive really, really scaled adoption. I think five years from now, the idea that you lived in an unconnected world where people were wandering around with thumb drives will be absolutely foreign, alien to the process.

Tom Lehmann 26:12
Which is where we are in our private lives at this point, like, how often are you using thumb drives at this point? There's so many other options to move data around outside of work, yet you go to work, and then you seem to take a step backwards at this point in certain types of labs.

Richard Milne 26:25
Yeah, speaking to my kids. And that, actually, so I got a printer, talking about printing, I got a printer downstairs, right. It's all online, and it's in my office and whatever. When my kids pointed out the other day, we've actually pointed to the USB port and said, "What's that for?" Like, they don't know anymore, right? It's now the next generation of people, they will not function, if it can't be done on a phone, not a laptop a phone, right? I mean, some of these things are really surprising the way that some of those technological kind of experience leaps are coming forward. And, and they have no concept really, of cloud versus on premise versus anything else. It's just it has to work. And it has to work almost immediately, and it has to work on my phone.

Richard Milne 27:10
And so, I think that's a big one, though, I mean, there's, as I think about it, you know, for a long time, there's a lot of resistance in our industry about cloud, and it wasn't safe, and we all need datacenters and blah, blah, blah, that's gone. That's gone now. And you know, now the problem I think, that people are having is the volume of data that people are creating is so vast that it's costing people a fortune to maintain all of that data. And so we've got to get smarter about what data we process at the edge, and what data we use to actually send up the cloud maintain store for a long period of time, I think because the data archiving question is gonna be a big one.

Tom Lehmann 27:59
So what's your sense, then? Are we at an inflection point here? So let me put together a couple of things we talked about. You mentioned, just talking about cloud, right? And that's taking us into a different spot. And in that data points not lost to me as far as we're creating a perhaps a different problem for ourselves. But we now are moving to really extending the abilities from a cloud standpoint. We talked about automation is reaching a new level, and it may vary by lab, and AI broadly in our lives is taking on a bigger role. Are we at an inflection point where in the next three to five years, you actually see, call it a "reinvention" of the lab space, the experience, the outcomes, or we in this the next incremental step forward?

Richard Milne 28:41
I hope so. I do. That is a great question. That is a great question. And I hope so. Right. Partly, because having been doing this for such a long time, at some point, we're going to reach an inflection point. Just, I mean, I think that we act... but I legitimately think we are. If you look at the amount of money that people are investing in AI, if you look at this step change that it can do. If you speak to any of the big pharma companies and you ask them how are you going to accelerate your drug pipeline? How are you going to expand the breadth of your drug pipeline? It's not a I'm going to go from, you know, from 10 to 12, or I'm going to go from 100 to 120. It's I'm going to go from 100 to 100,000. Right? I mean, it's remarkable the scale that it enables, and the step change that it's enabling. And whether it is the amount of you know, investment that's going behind it, behind some of these news, kind of data driven technologies, if you like. Or whether it's the promise that they can hold.

Richard Milne 29:46
The other thing that I have not, you know, we've been speaking to other people about this, but I also sense that some of the very kind of elemental Science, biological discoveries, have now been done as well; obviously, I mean, the human genome, but some of the things like the cell & gene therapy stuff and the gene editing stuff, and, you know, some of these capabilities that were coming through five, ten years ago, are now becoming much more real. And so personalized medicine and other kinds of medical changes are also driving that inflection point, right? And so there's a real sense that we are in the age of biology, and that, they say, the 21st century is the age of biology, and we've got to make sure that we are realizing that. Things like cancer becoming, non-terminal diseases, chronic conditions, but not inevitably terminal are important societal changes that are coming forward.

Richard Milne 30:49
And so what we are doing is, that's part of the inflection point, science itself, biological science is accelerating. And it's part of that is because we are uncovering new biological insights and understanding—and then marry that together with the fact that technology is also evolving to hyperscale in all sorts of different ways. And you end up with a very significant acceleration. And you end up, in my opinion, you end up with an inflection point. And at Thermo Fisher, we strongly believe that some of these emerging technologies be it cloud, be it AI, be it robotics, and other things orchestration and other pieces like this, are fusing together with the need with greater biological understanding to form a particular point, where what has gone before, will need to change. We were describing, is it 1.1, 1.2, 1.3? Are we going from one to two? And I believe that we're going from one to two, I might take us five years, but we're going from one to two, we're not incrementing.

Tom Lehmann 32:03
Okay, that's great. So if you were to pull something out of the air, or even just something we haven't talked about today, whether it's on the biology side, the science or on the technology side, what's one thing you're most excited about over the next few years?

Richard Milne 32:19
I'm excited to see where it goes. I'm excited about the convergence really. I think there has been, you know, there's been a lot of kind of things that have brought us to this point. But I believe that the stars are more aligned than they ever have been. And, and to some degree, I'm doing that because I think about some of the internal conversations, I have with some of the senior executives within the company. And having had those conversations on an annual basis over the last five years, it's a useful exercise, because I feel that the conversation that I'm taking forward this time, is significantly stronger than it's ever been in the past. I think in the past, that was a sense of evangelical, you know, what, you have to believe this. Why? Well, because we are believers, and let's kind of see what the future looks like, because look at what happened in banking, or look at what happened in automotive, or look what happened in aerospace. And so, it's inevitably going to happen here. But there wasn't really those kinds of foundational tenets that existed kind of within our industry. But now if you look at them, you can see that those drivers are becoming present. And that makes me excited.

Richard Milne 33:42
It's an exciting time to be involved in this stuff. It reminds me very much of when we were sort of early 2000s, that we visited kind of doing websites and ecommerce and everything for the first time to bring the conversation a little bit full circle. You know, it was exciting to be there. You were kind of pioneering something, but you sort of knew you were on the right side of history. And I think the same thing now is it feels like... I wouldn't bet against this at the moment. You know, in the past, you might have in the past, you might have said "Oh, it's just LIMS" or it's all what awesome electronic lab notebook or yawn, yawn, yawn, right? But now with the various PCs coming together and forming those join dots, I feel pretty bullish about the idea that we can make some changes here that we can step things forward.

Tom Lehmann 34:37
I think you're right. And as you said, it's not a place that I would bet against. I think it's a matter of the timing and really the ultimately the degree of impact, but certainly it does feel like it's moving in that direction and moving quickly. You just brought it back full circle, I was going to ask you around the e-commerce side. Is there a lesson from that experience? Because obviously e-commerce has become ubiquitous at this point. Looking back, something that perhaps that could have been done a little bit better or that we learned from it that might actually accelerate this pace of evolution we're in right now.

Richard Milne 35:09
 Do you know what I think this industry does, is I think it settles, and I think it's a shame that it settles right. I don't know that there are enough people—you know, this is just my own personal view of it. I don't know that there are enough people who want to really kind of like shake the tree. It's very risk averse, it's very slow on the uptake of things. I speak to some friends in the financial services industry in London, or I speak to some friends in the kind of entertainment industry up in L.A. or whatever. And they're much more aggressive about trying to drive change. And, you know, so from an e-commerce perspective, I look at the e-commerce site that we built and everything else, and it was, it was fine. But do you really want fine? I mean, it was good enough, it was I guess it was good enough to transact $10 billion in the end. So I mean, it's a big ecommerce site.

Richard Milne 36:17
But I don't know that it was something that really made me think "Do you know, what this is doing more, this is this is actually really helping science." It was just a good ecommerce site, right? And when I think about what we're doing in this space, I do believe that there's a lot of opportunity for people to bring forward innovative ideas that from a Thermo Fisher perspective, we might actually not always do that, because it's actually quite difficult for us at times. We bring scale and we bring that surety of execution, if you want to think about it like that, but we need a very vibrant community of people bringing niche applications and niche activities into the market to make sure that we are pushing our thinking hard enough, right? I don't I don't think we should settle. That's a thing that I worry about.

Richard Milne 37:14
I wish we could, as an industry collectively set our expectations high, and then drive towards excellence. Rather than settling for good enough because it answers a problem. It might be a bit a little bit of heresy, but that's a bit of a kind of an industry level. On a personal basis, one of the things I recognize is, from my point of view, impatience doesn't win you wars, right? Winning people's hearts and minds wins you wars. And you know I remember going into all sorts of conversations about the importance of ecommerce in the future of the world being online, and how digital would change everything. And if you're not doing that, in a way that is communicative to people, that people engage in align to, all you end up doing is frankly turning people off and having people not understand the value, not understand the relevance.

Richard Milne 38:22
And that doesn't help the cause. I think we could have gone faster in terms of our e-commerce adoption, had I been more skillful at thinking about how I brought other stakeholders along with me, particularly people in that case in our commercial organization. So you know, there was a huge sense that the e-commerce program and entity was at some way at odds with their value. And of course, it wasn't, but it was very difficult for them to see that. And my sort of brash approach to say, "Yeah, but you know, ecommerce is the future." It didn't encourage them to embrace it. It just encouraged them to see it more as a threat.

Richard Milne 38:22
And so, you know, again, as we're thinking about things like robotics and AI and other things, there can be a threat mentality, there can be a fear instinct provoked in people like that, about those technologies. And we have to be careful that just telling people that they're not with it, they're not kind of part of the future community, if that's their reaction, it doesn't help anybody. It doesn't help with the adoption and it's actually not true. What will happen is they will be asked to do different things, and they will be asked to evolve. And so I guess that's my, I suppose, mature perspective on what I learned from the e-commerce thing that I think is very relevant to the work we're trying to do at the moment.

Tom Lehmann 39:54
And I think that it's helpful, and I think very relevant, right? At the end of the day. I think you're probably at the beginning part of that journey, you really couldn't anticipate exactly what was going to happen or how far it would go—much like at this point, we're not quite sure exactly how far this will go. But as you said in there, part of that is that level of ambition, and not settling part of it is feeling that this is good for me, me as an individual, me as an organization, and recognizing that people do feel threatened by change in how you bring them along on that journey is an important consideration.

Richard Milne 40:20
Yeah. Accenture is in a far better place than I am to describe the details and intricacy of change management strategy. The one thing I do know, and this has been from some of our scaled implementations across things like our pharma services group, where we've got 65 factories all around the world—and actually Thermo Fisher is one of the largest manufacturers of drugs in the world, right? Is that the change management, the organizational change dynamics are absolutely critical to success. 100%. As important and as critical as the technology that you're deploying, And so what we see is, it's actually in some regards, it's fairly easy to deploy some of these technologies. But if you don't think through carefully the actions and activities of the people, the recipients and the people who are involved in the process, then it's not going to be successful. And I think that most digital transformation projects fail... where they fail, it's not because they are technologically inferior, or it's the wrong thing to do. They fail because the organizational change management isn't considered properly enough.

Tom Lehmann 41:40
I think that's well put in certainly some of the observations that I've had. And I, again, as you said, increasingly, it's not a technology problem, right. And that's something we have to just be mindful of.

Tom Lehmann 41:50
So let me bring it to a close with a personal question. You've been in the industry for some time, you've gone through different types of roles. Thinking about where you are now versus the e- commerce days, I imagined to be successful, you've got to be a bit of a lifelong learner, are there any books or articles or resources that you'd say this is something to just pay attention to. So for those listening here, who are interested in this space, or trying to move their career along, anything you'd recommend?

Richard Milne 42:20
Well, obviously I spent quite a bit of time with folks like Michael Shandler, you know, the guys at Gartner and just getting their perspective. I find it useful to be connected to them. And then there's a fabulous sort of organization, which I enjoy, I get a lot of value out of, which is the World 50 organization. And what they do is they bring together all kinds of sort of weird and wonderful people together to have conversations. And I think that one of the things that Mark Casper has taught us is that you can learn a lot from speaking to people outside of the industry, as well as people inside the industry.

Richard Milne 43:01
So you know, some of those things, but you keep the aperture reasonably wide. And you find that you're talking to people who you wouldn't necessarily see as being direct influences on our space. It's a useful thing to do, because you can synthesize some of that information into your own context. And often you get a different perspective on it. That's why spending time with people in the financial services industry and spending time with people in the entertainment industry and in some of these other spaces is quite useful. I think.

Richard Milne 43:32
I mean more specifically, I obviously, I have a collection of different resources that I use on LinkedIn. I think that's a good space for getting some industry context and other things. There's a there's a chap across in New York that I like to spend some time with as well, I don't know if you know him—Seth Earley of Earley Information Sciences—I think Seth's quite an interesting guy to just get his perspective on what's happening, particularly in the AI space. He's very involved in AI. Originally involved in ontologies and ontological management and all that type of stuff. And now much more so in AI, And he's quite a character as well. So it's nice to listen to Seth and hear what he's doing.

Tom Lehmann 45:31
That's great, very helpful. Well let's bring it to a close here. I appreciate not only where we ended there with some different reflections but also that the conversation we had so thanks for joining us here today.

Richard Milne 45:43
Thank you very much for your time. Appreciate the opportunity.

Tom Lehmann 45:48
Absolutely.