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The most important part of the technology puzzle: People

Eli Lilly and Company's chief information and digital officer explains how a medicine company rewires itself to embrace technology—starting with the CEO.

by Dan Tinkoff and Jeffrey Lewis

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Rapid technological advances such as generative AI are placing an ever-greater emphasis on the role of corporate tech leaders. But Diogo Rau, chief information and digital officer and executive vice president of Eli Lilly and Company, who arrived at the company after working for a decade at Apple, believes tech leaders need to stop playing it safe and be bold. That includes jettisoning the customer–supplier mindset and never losing sight of the most important piece of the technology puzzle: people. Rau sat down with McKinsey senior partners Dan Tinkoff and Jeffrey Lewis to discuss how he is changing the technology culture, why he brought the development of LillyDirect in-house, and how technology teams are working better with their peers in the business. What follows are edited highlights from their conversation.

Technology's job: Invent and build things

Jeffrey Lewis: Diogo, could you give us a brief introduction to your role at Lilly and the responsibilities of technology leadership there?

Diogo Rau: I run technology for Lilly. That covers just about everything, such as IT, digital health, cybersecurity, and AI. What might not be so obvious is that Lilly is a centralized organization, so we don't have multiple finance, legal, HR, or tech teams.

Because we are strongly centralized and because we're not a support function, I need to do my own thinking as a horizontal function, and we need to invent and build things. That means our technology strategy hinges on things such as AI, building consumer technology that no other medicine company has ever done before, and keeping everything secure.

The most important thing about tech: The people

Jeffrey Lewis: As we've seen across the industry, technology talent is critical for realizing digital and AI objectives. How have you have thought about tech talent, both in terms of insourcing and working with external partners?

Diogo Rau: The most important thing to get right about technology is understanding that it's never the technology itself. It's the people. While I think a lot about the tech strategy, I also spend a huge amount of my time thinking about the people strategy.

It always starts with the leadership, and the first leader it needs to start with is, of course, me. For example, I've said we need to keep our tech skills sharp, so I'm working on it all the time, as is our CEO. In fact, we did an AI course together earlier this year. But he didn't do an ordinary AI course for executives. He coded in Amazon's SageMaker Python SDK notebook and built a Hugging Face machine learning model as part of the course—and this is the CEO of a Fortune 500 company who doesn't have a degree in computer science. So the whole organization knows the CEO and head of technology are constantly honing their technical skills, which puts a lot of pressure on the rest of Lilly to do the same.

The second thing is getting the right leaders in the right places. Part of that involves shaking up the thinking. One thing I've done is move every single one of my direct reports around so none of them is in the same role they were three years ago. That really helps generate fresh thinking because people in the same role for a long time do things a certain way. Even an A+ player is going to see things differently from somebody new to that role; they're going to spot new challenges.

The third thing is growing our talent base and getting the right kind of talent. Prior to my arrival, we prioritized a lot of things in the interview process and, as a consequence, deemphasized some technical skills. I put a focus back on technical hiring and bringing in people with real hands-on technical skills. I would say that about 90 percent of our recent technology hires are people who can really code and develop. That means we can now do a lot more things ourselves.

What I always look for is curiosity. You need an engineer who asks why. The best engineers are the ones who always want to understand why something is the way it is. The best engineers are also lazy, by the way. Laziness gets a bad rap, but laziness is a virtue. The best engineers are the ones that are going to figure out how to automate things and how to use things such as generative AI so they can write code—or have it write the code for them and manage that.

Going their own way to build a new consumer business

Dan Tinkoff: You made a big splash in the industry when you introduced the first direct-to-consumer platform. Can you talk a bit about the motivation and mission behind LillyDirect and what you have learned so far?

Diogo Rau: My first learning came from being outside of the industry. I didn't have a background in life sciences before I came to Lilly. One of the things I noticed as a patient is what a terrible experience it is to get your medicine. You have to schedule an appointment with your doctor, go see your doctor, get a prescription, go to a retail pharmacy, and figure out if your insurance is going to cover it or not. And if you're lucky, you'll walk out of there with your medication.

Lilly is all about the patient. We want to create the best medicines and make sure people are taking them and staying on them. The existing system doesn't make it easy for people to get their medicines or stay on them. We realized that if nobody else was going to fix the system, we needed to do it ourselves. The whole motivation for LillyDirect is to fix this awful experience that people taking prescription medicines go through today.

We learned a lot of great lessons in building LillyDirect because we had no experience in building a direct-to-consumer business. We knew about marketing to consumers and we knew about consumer branding, but we didn't know about how to engage consumers directly.

For a lot of companies, when they get into a space where they don't know what to do, there's this tendency to say, "Well, we shouldn't do it ourselves. We should hire another firm to do this for us." For the very first prototype of LillyDirect, we did just that: hired somebody from the outside. It was a very scrappy effort, but, not surprisingly, it didn't really turn out all that well.

So we immediately brought it in-house and built the real version that we launched ourselves. We built the first version of LillyDirect in two six-week sprints. Now, that might not sound exceptionally fast to you if you're coming from the tech industry, but let me tell you that in this industry, doing something in 12 weeks is insane because this industry is used to doing things in 12 months. This is a completely different speed. That showed all of us what we can do if we do things ourselves.

Of course, the story doesn't stop there, because if you build it in-house, then you have the expertise in-house for anything you want to change. So not only could we build it that quickly, but we could also keep enhancing it.

Jumping into AI

Dan Tinkoff: We're witnessing an incredible moment in terms of the collision of analytical and generative AI with biology and scientific innovation. How is Lilly leveraging AI to accelerate growth and help more patients?

Diogo Rau: From the very beginning of the generative AI revolution, we've inspired and encouraged every single person in our company—without exception—to jump in and start using it. While other companies were telling employees, "We're not going to allow you to use ChatGPT," we went the other direction and said, "You need to get on ChatGPT. Don't enter any confidential information, but you need to get out there and use it." So there's a baseline expectation and a foundation that this new technology needs to be a part of everyone's job.

But ChatGPT, Microsoft Copilot, or other products are not going to be able to solve every single case you come up with, so you need specialized AI solutions. That's where it gets very different and very specific very quickly. If you look at the discovery side of medicine development, for example, we have several different kinds of problems, and they each involve a different kind of AI.

For example, you have oral medicines, which are typically small molecules, as we call them. Those are medicines that you can write down with a chemical formula, a small number of elements put together. We've got millions of rows of data of existing chemical molecules that we can use to train a model to help scientists, propose new molecules that scientists may not have been thinking about, or explore spaces that scientists might not have had time to go into.

Large molecules are antibodies and proteins—things that you typically get in an injection instead of an oral medicine. That's a completely different kind of challenge, in which we look at how we can design something new from scratch.

How can you create a protein that meets the exact goal you're looking for? It's a super-exciting but completely different technology from the traditional training needed for oral medicines.

And then genetic medicine is a different ball game altogether. So even just in the space of discovery, you're no longer talking about one kind of AI—you're talking about several different kinds.

On the commercial side, there are, of course, a lot of things that have already been well established, such as next best action and next best engagement, but the whole space of interacting directly with consumers is completely untouched by any medicine company in the world.

If we look internally to our support functions, there are tons of opportunities for things such as content authoring, which is already very useful in our clinical trials, where we have to look at a lot of reports.

When we look at where we're using AI across our enterprise, it's probably easier to talk about where we're not using AI, which is pretty much nowhere.

Saying goodbye to 'IT'

Jeffrey Lewis: How are you breaking down the traditional silos between IT and the business? Because bringing them together is a requirement for success.

Diogo Rau: First, I'm trying to break them down with our own people and get them out of any sort of a legacy mindset. Words and terminology matter a lot, so one of the first things we did was to change the name of our team. We don't actually call ourselves IT: we call ourselves "tech at Lilly" or "the tech team" because we're not just information technology.

One trap in how the tech team works with the business is the customer–supplier mindset. If we call ourselves a supplier and the business team we're working with is the customer, they can't fire us, and they don't have the option of going somewhere else. And if we don't like working with them, we can't say, "We're going to fire you as a customer and go somewhere else."

Instead, we have an opportunity to work together as partners. One definition of "partnership" that I love is when the success of your partner is as important as your own. That's the kind of culture I try to espouse in our teams, stressing, "These are not your customers; these are your partners, and you need to think about their success as much as you do your own."

That also means, just like any other partnership, your partner is sometimes going to want to do stupid things, and you need to call them out on that. I encourage our teams to be great partners in that way too.

I think that over time, technology roles will and should evolve to focus more on capabilities—on the horizontals instead of the verticals. There's a tendency in a lot of companies to organize

technology as a set of vertical functions, and a lot of technology organizations are organized exactly that way, with technology teams for business units A, B, and C. If you do that, you're just wasting a lot of energy trying to align everything to an organizational model and not benefiting from capabilities that run across the organization.

The make-or-break role of technology for the future of life sciences companies

Dan Tinkoff: How do you see the role of technology evolving in the life sciences industry over the next decade? And what's your vision for Lilly's role in that evolution?

Diogo Rau: There are a lot of big companies in the industry, but over ten to 20 years, we're going to see some huge changes. And not everyone is going to make it through to the other side.

If we imagine ourselves 15 years in the future and look back and ask ourselves why some companies made it while others didn't, I think the reason is going to be technology—in particular, the use of AI. It may be because they didn't invest enough in technology and AI to come up with the next medicine, didn't figure out how to reach consumers, or were just doing things the same way they did in the 1950s.

One thing that I do to gauge how technology-forward a company happens to be is looking at where the head of technology reports. You can tell very quickly which companies are very good based on that answer. If that person is a part of the executive leadership team, that is a technology-forward company, and it is probably going to do well.

Diogo Rau is the chief information and digital officer of Lilly. **Dan Tinkoff** and **Jeffrey Lewis** are senior partners in McKinsey's New Jersey office.

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This interview was edited by Barr Seitz, an editorial director in the New York office.