

The State of AI Adoption in Life Sciences

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Artificial intelligence, predictive analytics and other such technologies are coming to a pharmaceutical company near you. In fact, some would say that they've already arrived. But just how ready are pharma companies to embrace and integrate these technologies, and can AI really deliver?

We recently spoke with **Saby Mitra**, a principal at ZS, and **Arno Sosna**, the general manager of CRM at Veeva, who bring immense expertise in commercial and enterprise cloud technology, integration of advanced analytics and technology, and organizational change to the table. ZS's and Veeva's shared interest and leadership in the space reflects the rising need for companies across the healthcare ecosystem to leverage diverse data sources to generate novel customer insights. The experts weigh in on where pharma companies land on the spectrum of AI adoption, and what we can look forward to—and prepare for—in the next few years:

Q: Based on your company's on-the-ground perspective working with pharma teams, how are pharma organizations integrating artificial intelligence, machine learning and other emerging technologies into their commercial strategies and processes?

Arno Sosna: Even though there are different levels of adoption, most life sciences companies are investing significant amounts of effort into those technologies. In the commercial space, many of our customers have been using data sets to make “next best action” recommendations, find patterns and improve customer interactions. So, I think that we're past the early adoption stage when it was really avant-garde within the industry. Many companies now have the resources to focus on these technologies. They're on the verge of

becoming commodities, so the “if” question is no longer applicable—it’s just “when” and “where.”

Saby Mitra: I agree with Arno that we’re seeing many pharma companies create innovation groups to experiment, pilot and launch early experience programs for this type of capability in the commercial space. For example, pharma companies have been building out capabilities to personalize customer engagements for some time now, but more recently we’ve seen focus and intensity pick up in using advanced analytics to predict customer affinities and then using machine learning to improve prediction accuracy over time.

Similarly, another application we’ve started to see in commercial is how you design customer journeys, and how you sequence and deploy tactics in a much more deliberate and purposeful campaign. The third application is the idea of suggestions and next best actions, which also happens to be a key area of focus for both ZS and Veeva. The primary focus here is on using advanced data science to mine insights that could be served up to the field and then using reinforcement learning to learn from the feedback and optimize the next set of actions.

Q: In what ways can technologies like predictive analytics improve field mobility and arm reps (and other roles) with new information to improve their relationships with physicians?

SM: First, it’s about efficiency. To make suggestions or next-best actions, predictive analytics collects insights from multiple sources and packages them into a digestible format, so that means as a rep, I’m not looking at multiple places, multiple reports and multiple emails to come up with a strategy of what I should do to engage with this customer.

Second, predictive analytics helps to identify trends in customer behavior changes that can help me to understand or hypothesize what may be some of the underlying reasons for it. The third benefit relates to uncovering new opportunities: For example, as a rep, I’d know that a diagnosis was made, but that the patient wasn’t on a therapy just yet, so how could I use that information to be much more agile in my engagement with my customer?

And fourth, predictive analytics can help focus and prioritize my approach as a rep by telling me two or three opportunities that really matter, or that actually will have an impact on my set of customers.

AS: If field teams were exposed to all of the raw data that’s generated across channels and teams, they would be overwhelmed with too much data and not enough information. They would appear uncoordinated in front of their customers, which isn’t the experience pharma wants to create. That’s why they need predictive analytics, designed specifically for them, that helps them navigate the avalanche of information to help them make the right decisions.

Q: Do current data sets allow pharma companies to get the most out of AI and other technologies? What organizational changes are needed to enable AI integration?

AS: I think this is the most important question when it comes to AI and machine learning because the algorithms and the frameworks are being commoditized as we speak. We've moved past the point where only a select few on earth are able to employ machine learning to analyze big data sets. The reality is that having the right data is the key that makes all of this feasible. It has to be as big and clean as possible because your AI will only be as good as the data you use to train it with. I think that's also the biggest hindrance right now.

Are pharma data sets ready to get the most out of AI today? Absolutely not. There's a lot of work that still needs to be done in the life sciences ecosystem, both in-house and across data vendors, to actually make AI easy to use.

In the coming years, we'll see a massive wave of change hitting the data side of the industry. There's broad agreement that machine learning and AI are absolutely necessary, and organizations will realize how much of a potential problem they have on their hands as they look at their data.

SM: I second Arno's point of view. I like to think about the democratization of data within the organization enterprise because access to historical data is a critical success factor for training AI engines. One shift that we have started seeing is pharma companies establishing more robust data contracts with vendors to get what they need from the data to successfully enable advanced analytical programs. However, looking at the pharmaceutical industry overall, there are departments that are sitting on pockets of data, and unfortunately in some cases, data is getting politicized. It's critical that pharma companies—and some have already started—create separate data organizations and appoint chief data officers, if you will, to mandate the use and access of data.

For better adoption of AI, there has to be an **AI-friendly culture that's championed from the top down**. Senior management has to believe in the value of AI and build the next layer of management to be those change advocates and change agents. Additionally, data science is a very sought-after skill set, and there's a significant gap in data science talent today across all industries including pharmaceuticals. Organizations have to build programs and training charters, labs and partnerships with academic institutions to bridge this gap over time.

Q: What's on the horizon for AI, machine learning and predictive analytics in the life sciences industry, and how soon do you expect to see big changes?

SM: One prediction is that pharma will start looking at patient-level data, including social media and EMR data. We're seeing some evidence of this already. These are unstructured and semi-structured data to some extent, and there's a tremendous opportunity to mine these data sets and come up with comparative, differentiated insights.

The second aspect is this notion of “explainable AI”: If you ask someone about AI, particularly in the commercial organization, it's hard to tell what the machine is going to come up with or why it comes up with what it does. Is it giving the right recommendation, or is it an accident of data? In coming months, I could see more focus on providing more

transparency to the end users who are administering and managing those types of AI programs.

AS: Companies have been focused on what we internally here at Veeva call “big AI.” It consists of a big data base in the cloud that’s capable of running big analytics, predictive analytics and suggestion engines to generate novel insights. I think that's where we are: Companies realize that they have an imperative to do it and are thinking more about how to get it done.

Then, there’s also what we call “small AI,” or AI on the device of the end user. For example, if you’ve been watching what Apple has been showcasing—custom chips and new frameworks to perform machine learning on devices—you’ll realize that this will bring another use case of machine learning. It addresses how data is entered and how it’s transformed in front of the end user. It’s not centralized data maintained by a team of analysts at HQ. It’s data managed directly on a field user’s iPhone.

There are many inefficient processes today where field teams are being employed to count things, like sample inventories in medical offices. Highly paid reps expend valuable time opening and shutting drawers to manually count boxes. It’s amazing that that's still a human task: not only is it error-prone and imprecise, but more importantly, they should be focused on managing relationships, not counting. Machine learning can essentially eliminate this issue through image recognition. This is an example of how small AI or mobile AI will help the industry optimize its own processes. I think we’ll see a lot more of this type of innovation going forward.

Once organizations figure out how to conquer growing mountains of data and convince senior leadership that AI and other technologies are worthy of further exploration and bigger budget commitments, all signs indicate that the next few years will be an exciting and fast-moving chapter in pharma’s history.

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