[Interview] Shaping European Life Sciences with AI

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There is a great deal of hype and a lot of misconceptions among life science experts as to how AI can or can't be applied in pharmaceutical research and business. Judging by the rapidly increasing number of AI-involved deals and partnerships tapped by big pharma recently, it becomes obvious that life sciences decision-makers are eager to understand what this new and disruptive technology can bring to the table, and how it can be adopted efficiently with tangible ROI.

In order to get valuable first-hand insight and new ideas about the technology and its emerging role in the life sciences industry, I have asked several questions to Dr. Loubna Bouarfa, Founder and CEO at ■OKRA Technologies ■ a leading AI company for healthcare, which builds a sophisticated AI-driven engine specialized in supporting faster and more accurate decisions for life science executives and field teams. Loubna is also a member of the European Union AI High-Level Expert Group (HLEG) and the winner of several prestigious awards, such as MIT Innovator Under 35 and Forbes Top 50 European Women in Technology. Last year, OKRA was named the Best Female-Led Startup at the StartUp Europe Awards.

Andrii: While AI has been a very emerging thing in the pharma industry five years ago (about time I started covering the topic in this blog), now in 2020 it seems as this technology has come of age and it is a strategic matter for most, if not all, major pharma and biotech companies. But as with every new tech, there are "low hanging fruits" and use cases that are harder to approach with AI. Can you provide your vision as to where AI will be making the biggest and fastest impact in the coming years in terms of practical ROI? Some examples of use cases AI is already making an impact?

Loubna: The low hanging fruit in pharma is applying AI to drive ROI for the field teams, both in the medical and commercial space. This will have a direct effect on maximising not only ROI but also patient outcomes. By empowering the field teams with AI-driven suggestions about who to talk to and how to communicate with other stakeholders (e.g. HCPs), we can drive the prescription of new treatments to the right patients at a fraction of the time and at a fraction of the cost. There is a tremendous amount of resources that go into identifying the right doctors, building the right scientific evidence, and driving the

field teams both on medical and commercial functions. With AI, we can maximise the productivity of these teams exponentially.

For example, at OKRA we launched our MedCompass AI product to support Medical Affairs teams. This system bridges the communication between key opinion leaders and Medical Scientific Liaisons (MSLs). We use behind-the-scenes AI to combine medical strategy with real-time scientific and market information. MedCompass predicts scientific need and proactively supports MSLs in the delivery of key, personalised information to satisfy expert needs.

We use AI to empower commercial teams in bringing the right drug to the patients who will benefit from it. OKRA's FieldFocus AI system identifies the best surgeries and hospitals with patients most likely in need of an existing treatment and drives field teams to engage with HCPs in that practice and reach those patients faster, regardless of them being in rural or urban areas. FieldFocus is democratising access to new drugs to the whole population in a country.

In the coming years, I see AI having an impact on all aspects of pharma. The worldwide adoption of AI will be driven by the automation of laborious, mundane work. AI will free up the time of life science professionals so that they can focus on driving the outcomes that matter most: the patient outcomes.

At OKRA, we are leveraging all the real-world data and using AI to extract key insights that support the decision-making of life science executives on clinical, medical, and commercial functions. We provide the predictions, suggestions, and explanations that users need to make the right decisions consistently.

Furthermore, one of the areas where I see AI having the biggest ROI impact in the coming years is in market access. At OKRA, we are pioneering the development of an AI system that leverages all the results of clinical trials, submissions, and pricing data, predicts the price of a new drug and supports the submission process to ensure market approval with the best evidence possible, minimising the time to launch and maximising the benefit for the patient.

Our Suite of AI products is designed to build communication bridges among stakeholders in the healthcare ecosystem. These stakeholders are stuck in a tunnel vision, so we open their minds and give them the bigger picture. We connect these people and provide the knowledge they need to take action.

Andrii: AI has been a great success in many commercial applications already -- surveillance, translation, movie recommender systems. We all know AI-based

algorithms are powering most services for companies such as Google, Amazon, Facebook. But do you think the life sciences might be a "trickier" industry for the practical application? What are the examples of industry-specific challenges that will have to be overcome yet?

Loubna: It is sad to see that the adoption of AI in the consumer business such as dating, gaming and fashion is way faster than in healthcare and life sciences. Being a machine learning scientist, I would rather use AI and ML to bring the right therapies to patients, than to bring any other product to consumers.

With the COVID-19 pandemic we have learnt a big lesson: it is in healthcare where we need technology the most. In healthcare we are stuck in discussions about whether we can use tracing apps to limit the spread of the virus and save lives. In the meantime, consumer industries are operating with no restrictions on data sharing, ranging from dating apps, to retail or entertainment.

The challenge in healthcare ■as we see with COVID-19■ is that the cost of our slow adoption of new technologies and policies is paid in human lives. I believe we can drive technology adoption at speed without compromising on our privacy. Both need to go hand in hand, and compromising on one of them is against human rights.

I expect that in 5 years healthcare and pharma will be adopting AI at an exponential rate. In 10 years, AI will be like today's electricity. The fourth industrial revolution is here, and life sciences are not being fast enough in the adoption of AI.

To successfully implement AI, pharma still needs to overcome several challenges. We have seen our top pharma clients struggle to get their data environment ready. To deploy AI solutions, pharma needs to be in control of their data and remove barriers to leverage it. We cannot train AI systems with inconsistent data.

Moreover, life science companies should allow for third-party apps in their environment. Integration into existing IT systems takes unnecessary time and effort. To ensure effective AI adoption, at OKRA we work on small projects that are easily scalable. The OKRA mission is to deploy AI solutions that empower users. Our technology is designed to support people, not replace them. Our AI-driven outcomes are explainable, actionable, and predictive so that users take action and proactively anticipate predicted outcomes.

Andrii: Can you tell a bit about the artificial intelligence technology behind the OKRA's analytics engine? How is it special and what kind of use cases can be tackled using this tool? What is your target market and who are the typical clients?

Loubna: OKRA is an AI productization company. We focus on empowering users across the pharmaceutical sector in commercial, medical, clinical and market access functions to make better decisions at speed. We have the capability to integrate huge amounts of data and extract relevant insights to drive actions, but also deliver these insights with evidence. OKRA is the opposite of black-box AI, the OKRA insights are built on explainability. We deliver predictions and suggestions that are coupled with explanations, and as a result, empower users to drive the outcomes that really matter.

Our FieldFocus solution is helping time-poor sales reps make data-driven decisions, guiding them to the right engagement opportunities. The solution is built for a post-Covid world, combining multiple historical data sources to predict the future in an uncertain environment where we cannot rely only on personal experience. Validated by reps and managers at several large pharma companies, the system delivers the highest opportunity, priority and urgency of a potential engagement directly to the reps, and then delivers suggestions on what could be discussed, through what channel and why. With FieldFocus, we are observing a change in behaviour: reps are able to elevate engagement with higher opportunity accounts and difficult-to-access customers, and their planning time is significantly reduced. We help reps to stay more focused, and this translates into an increase in their sales. In the future, our system will close the gap between high and low sales performers and enable new starters to make an impact from day 1 of joining new organisations. It will also enable sales teams to be scaled up and down at speed during critical periods, such as product launches or loss of patent, and the learnings will remain forever.

We believe that to really empower users across the life sciences ecosystem, these users need to be put at the centre of AI deployment. AI can only be successful if users have trust in it. As a member of the European High Level Expert Group on AI, I make sure that our AI systems follow the European AI strategy and guidelines, deploying lawful, ethical and robust AI.

Andrii: Besides running OKRA, you are an active advocate of artificial intelligence technology in Europe, so I think you can offer a wider view of the industry, trends, and opportunities in the region. Can you provide your vision about these things? What are the key challenges and opportunities for the "AI-driven transformation" that European life science companies and the government will face in the nearest future?

Loubna: Europe is currently driven by analytical thinking, and I believe this requires a shift in mindset and methodology: probability and correlation must be used together with causality in European policy and business decision making. In order to lead the global AI race, Europe needs to embrace uncertainty and agility. We need to move away from rigid analytical thinking to an integrated and holistic thought process that considers all stakeholders and outcomes and fosters collaboration across the continent.

With the COVID-19 pandemic, the big learning for Europe is that we are being very slow in making decisions and experimenting. We now have an opportunity to be more pragmatic, create sandboxes and experiment with new technologies faster. As I mentioned before, the slow speed has already cost us many lives with the pandemic, and this is simply not acceptable. Next to implementing data privacy legislation, Europe has to enable the adoption of innovation in most crucial sectors such as healthcare. I believe that it is unethical not to use AI technology when it can save so many lives.

Last but not least, we need to empower the ecosystem with AI to become fast and proactive, to not wait for individuals to get sick, but to intervene earlier and provide patients with the medication they need and track their outcomes as they live their lives. In this COVID-19 crisis we have experienced the need to move to preventive medicine at a much faster pace. Because until we find a vaccine, we need to put testing strategies in place for the open consumer market to prevent the spread of the disease and to avoid reaching our maximum hospital capacity. All in all, I think we all can agree that this is the time to change, and this change needs to happen fast.

Andrii: A bonus question. We are all now under the quite extraordinary conditions caused by the COVID-19 pandemic. How does your company react to this situation?

Loubna: During this crisis, we are learning to react and adapt quickly; the more time we wait, the more lives we sacrifice. From a personal perspective regarding the team at OKRA, instead of waiting for the government to announce the lockdown, we took action and started social distancing two weeks before the official measures in the UK. We made the right decisions and made them fast, but more importantly, we put the physical and psychological measures in place so that this could be possible.

From a professional perspective, the life sciences industry is going the extra mile to fight the COVID-19 pandemic, and OKRA is here to support them in this journey. The problem we observe is that traditional responses are simply not sufficient to tackle the challenges we are facing. In fact, we see that COVID-19 is accelerating the adoption of AI in life sciences.

As an innovative, AI-driven company, at OKRA we have a relevant role to play. For instance, we introduced a COVID-19 status within our FieldFocus system to further support life sciences field teams in this time of crisis. Our new feature allows field teams to feedback directly into the system and provides a real-time understanding of the changing access environment caused by the coronavirus outbreak.

For example, OKRA's field product is built for a post-COVID world, where we can predict the future even at times of uncertainty. The AI system extracts insights from COVID-19 statistics, disease prevalence, and demographics, and identifies the regions with a high prevalence of patients with critical conditions. With this information, FieldFocus creates a priority list for field teams to reach out to doctors in these locations, to make sure that patients can safely get access to the best treatment for their condition, even during this pandemic.

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