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Insider Perspective: Streamlining Life Science Corporate Training by Embracing AI

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A friend told me, "*We're in just the first five seconds of the next five years with this stuff…*". What an exciting five seconds it has been, for the past six months. This is an important opportunity to embrace change. I've been working in the field of adult learning and employee education for the entirety of my career. I often stress the following three key area:

- Employees are the most valuable asset in any company;
- Their learning and development are absolutely critical; and
- It's *vital* for organizations to stay ahead of the curve, both in our biotech advancements and in the way we design and deliver education.

Without diving too deep into internal dynamics, my organization is changing. In fact, I would argue that nearly all businesses are being forced to evolve. My direct employee education team needs to accommodate this transformation by ensuring our approach is both adaptive and forward-thinking. We also recognize that the pace of our entire industry is changing rapidly. From cell and gene therapies, mRNA formulation, and viral vector commercialization the biotech world has hit the gas pedal, and complexity is going through the roof. I work for MilliporeSigma, the Life Science business of Merck KGaA, in Darmstadt, Germany. They are guided by the following mission "*…bringing our client's most innovative solutions to life by pushing the boundaries of science and technology…*" All that is to say this means our commercial teams need to know a lot of stuff, both technical and procedural, and it's up to my team to help increase their speed of independent learning and decision-making.

Our commercial sales professionals are grappling with an ever-expanding knowledge landscape. To address this challenge, our training and development organization must distill this vast ocean of information into potent droplets of learning. And as the knowledge base grows, so does the challenge. So, how can we ensure these professionals are equipped with the latest and most relevant information? Generative AI offers a promising solution.

AI-Powered Collaboration with SMEs - A Game-Changer

Creating effective training materials using the traditional content development framework felt like a marathon. We would delve deep into the minds of our technical subject matter experts (SMEs), sift through their detailed papers and presentations, and effectively *translate* it into commercial relevance. It was time-intensive (long-winded), and an overall challenging endeavor. The value of their insights is undeniable. But the relevant message was difficult to transcribe. This process needed an upgrade. Huang, Chang, and Henderson's research team highlighted the idea that there should be a strong emphasis on the exchange of knowledge between research and development (R&D) teams and marketing personnel in high-technology companies.[1] In addition, numerous other scholars argue that the flow of knowledge is either positively or negatively impacted by four key factors: the tools used for knowledge transfer, the knowledge provider, the knowledge

receiver, and the specific context in which the knowledge exchange occurs.[2] Generative AI offers a new and innovative tool to address some of these longstanding challenges.

For example, using generative AI tools like ChatGPT, instead of starting from scratch, I'll curate a draft, complete with lesson plans, structures, even quiz questions. SMEs are then free to do what they do best: review, refine, and perfect. The shift in role from creator to reviewer, is a game-changer. Not only does it save time, but it amplifies the depth and quality of the content. After a focused expert review, the training materials are sharp, relevant, and impactful. Again, the sales professionals we are training are our frontline warriors. They're required to navigate deep technical waters, understand, and empathize with the client's mission, and competently deliver guidance and actionable insights. Their conversation is the crucial link between a pioneering study and a tangible real-life application.

For this type of dynamic environment, conventional training approaches struggle to keep up. Sales reps need more than just standard video or text-based resources. This is where AI steps in. We're diving into the development and integration of tools that not only effectively manage knowledge sharing, but also offer coaching for these vital conversations, all while matching the environment they operate in daily.

The Greater Organization - A Bespoke AI Option

My organization has taken a significant leap by introducing our own tailored (Firewalled) LLM, named "MyGPT." This has been established as a secure, compliant, environment that is consistent with the company's highest ethical standards. I realize this isn't just a move unique to us - a lot of forward-thinking companies are now internally tuning AI models to better align with their industry. As a point of personal pride even after 350 years in the game for Merck KGaA, (and more specifically my division in MilleporeSigma - Life Sciences) is still looking to stay ahead of the curve by diving into large language modeling (LLM) and generative AI.

A recent article in Forbes by Adam Lieberman, head of artificial intelligence and machine learning at Finastra, said that the "entire world is still learning about generative AI—its potential and its risks—and immense business value can be derived from bringing your entire team along for this journey."3 Currently, we are primarily using MyGPT to convey information in text form. There is untapped potential in terms of uses in visual components, video, and more. When I contemplate future opportunities, my thoughts gravitate toward preparing for a client meeting. I envision myself crafting a bespoke visualization of a therapeutic approach to animate a molecule, perfecting the conjugation of drug linkers to a monoclonal antibody, or meticulously designing a customized workflow diagram for a seamless scale-up. And, if necessary, I'm capable of accomplishing these tasks right from my mobile device in the parking lot!

That's an exciting possibility, but it naturally brings some concerns to mind. The MyGPT LLM that was trained on specific data scraped from the internet in all domains, from Legal, IT, literature—everything that is available in written language. The results generated are a plausible guess at the best answer. But plausibility doesn't equate to factual accuracy. One approach to moderating this risk is to keep our SMEs in the loop but shift their role from content developers to content reviewers. According to Neal Dunkinson, VP of professional services and solutions at SciBite "when an LLM has proprietary and verified data embedded alongside public data in combination with human oversight, it could produce more reliable outputs. Achieving this goal

requires integrating all relevant data pipelines, both internal and external."4 MilleporeSigma is on a similar trajectory.

And no doubt most importantly, as we integrate more of our own proprietary data, the responsibility to protect this information becomes crucial. To respond to this concern, Merck KGaA, (and MilleporeSigma-Life Science) has instituted a digital innovation team evaluating these issues as part of the organizations data strategy. Currently, our internal guidelines include:

- Protecting confidential information;
- Verifying results for bias and/or errors;
- Being mindful of copyright and technology licensing;
- Maintaining transparency with regard to AI generated content; and
- Not sharing personal information.

Imagining the Future

As we embrace and use MyGPT, I am already demonstrating that the SMEs on my team have a lighter load. The instructional design team are especially pleased. It is evident that there is potential for this impact to ripple across the broader organization. At first glance, it may appear that the lab technicians working at their benches are not connected to generative AI and won't be affected by it. However, as we observe a broader impact on our teams, it's highly likely that senior leaders will soon demand a strategic approach for this segment of the workforce too.

As an early adopter, I am optimistic. I can imagine a future where training updates roll in and are synchronized with the latest industry breakthroughs. Or AI-driven simulations where sales reps can perfect their sales pitch. My team is exploring this now. And I'm working hard to craft a new paradigm in how we train our sales teams. I might be biased (a tad), but I genuinely believe that the education industry stands on the cusp of a transformative era in generative AI. Its integration promises not just efficiency but a qualitative shift in how we prepare and enable our sales force. By partnering human expertise with AI's capabilities, we're paving the way for a future where commercial professionals aren't just informed but they are more confident. And ever ready to navigate the ever-CHANGING landscape of life sciences.

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