

Big Bank experiments with generative artificial intelligence

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Florence Smith, CEO of Millennials Bank, was heading to a meeting with the other members of the steering committee. On the agenda: How to integrate generative AI (GAI) into the bank's offerings and internal processes.

Millennials Bank was the digital branch of Big Bank, the fourth largest bank in Spain in terms of assets. Aimed at digitally savvy young customers, Smith was appointed CEO four years ago to turn the bank around after a disappointing launch, with the mandate of delivering on the promise of a fully digital, AI-driven bank. She and her team had spent a good portion of the previous years revamping the bank's organization and processes, acquiring the necessary technical know-how and infrastructure, and testing and launching new digital products.

But technology had not waited for Millennials Bank to catch up. The world was now abuzz with generative AI, such as Dall-E, ChatGPT, Sora, Copilot, and MidJourney. People all over the world were experimenting and playing with a growing number of GAI apps, while hundreds of reports and think pieces made predictions that ranged from a world of limitless efficiency and convenience to several catastrophic scenarios.

And amid all the noise, businesses all over the world were trying to determine how to use this new technology. Smith wanted Millennials Bank to build a solid position ahead of the competition.

This case was prepared by Eureka Simulations, Professor Javier Zamora, Lucy Hennigan, research assistant and Isaac Sastre Boquet, case writer. June 2024.

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Big Bank and Millennials Bank

Big Bank was a universal bank founded in 1982 as the Export Development Bank, currently the fourth largest financial institution in Spain in terms of its asset value. It offered retail banking, investment banking, solutions for entrepreneurs, and private banking services. By the end of 2023, Big Bank was servicing nearly 7.7 million retail clients and 32,000 corporate clients.

Since the mid-2010s, Big Bank had been consistently trying to develop a digital platform, the flexibility of which would enable fast implementation of innovative changes, improving efficiency, and even developing new business models. This platform would enable an omnichannel approach that was fully integrated with online banking, mobile banking, and service in outlets. By 2023, digital channels accounted for 34% of all transactions.

However, the digital revolution had increased competitiveness and lowered barriers to entry, with fintech startups easily launching digital products in a space that just a few years prior was reserved for large, storied, and well-capitalized institutions like Big Bank. The pace of innovation had accelerated. This was one of the main reasons that led Big Bank to create Millennials Bank.

Millennials Bank was born in 2019 as an initiative to adapt the value proposition of Big Bank to younger customers of the Millennial and Gen-Z generations. These generations grew up with portable connected devices, such as tablets and smartphones, and had forgone physical branches, instead looking for availability, speed, and convenience. The launch of Millennials Bank was supported by a significant marketing campaign. However, after just 6 months of operating, the bank was already leaking customers, unsatisfied with the new bank's very basic digital offering.

Big Bank then appointed a new steering committee and a new CEO, Florence Smith, who spearheaded a comprehensive effort to deploy the necessary infrastructure, acquire new know-how, and launch new products. By the end of 2023, Millennials Bank was seen as leading the pack in digital and AI banking in Spain (see **Appendix 2** for a list of initiatives implemented by the bank).

Generative AI

In the words of one of Smith's colleagues, "Technology is never done." Indeed, in November 2022, OpenAI launched a chatbot powered by its GPT 3.5 large language model (LLM). ChatGPT soon captured the world's attention and imagination. Smith spent countless hours testing it herself, requesting summaries of 200-page regulatory reports, drafting presentations, and even asking for new ways to cook rice and vegetables. After years of working to complete the digital transformation of Millennials Bank, another technological revolution was now underway.

But what was GAI, exactly, and what made it different from regular predictive AI?

Until recently, machine learning was largely limited to predictive models used to observe and classify patterns in content. For example, a classic machine learning problem involved creating a model that could identify whether a given picture was a picture of a dog. To do this, an algorithm was fed with several images of dogs. The algorithm then identified patterns among the images, and then it could scrutinize any provided image to check whether it matched the "dog" pattern. Generative AI, rather than simply perceiving and classifying a photo of a dog, was now able to create an image or text description of a dog on demand.



This was combined with models trained with enormous amounts of data extracted from the Internet. LLMs, such as GPT3, were trained with over 300 billion data strings (“tokens”),¹ creating models with a wide range of applications.

Indeed, Smith had been following the many attempts to leverage GAI in professional applications, with the results being quite impressive thus far—both impressively good and impressively bad. For example, many software developers used it to successfully debug and write code, but lawyers using it to prepare their legal strategies found that it made up case law, even creating fake citations.

Generative AI and banking

The banking industry followed new developments in GAI very closely. Smith was aware that several major global banks were developing new GAI-driven chatbots that would, for example, offer personalized financial advice and were even revamping their customer experience to offer a fully customized relationship with each client. She believed it was just a matter of time before any of the major players in the Spanish market would follow this lead.

McKinsey recently estimated that GAI could generate an additional \$200–340 billion in the banking industry, with the bigger impacts being in risk and legal, marketing, customer operations, and software development (see **Exhibit 1** for potential use cases of GAI versus predictive AI).²

GAI could potentially streamline operations that involved processing unstructured information and generating a structured output anywhere throughout a bank’s operations. For example, it could read and produce summaries of regulatory reports, which could then be reviewed by a compliance officer to take action. It could increase the number of touchpoints a given agent can have with its customers while maintaining a personalized relationship. It could also potentially reduce the amount of time (and cost) to launch new products to market, compile and select all the relevant data to make risk assessments, and many others.

The possibilities seemed endless, and in a way, that was the problem. Where should banking institutions deploy GAI to be more effective, and how should they do it? Smith felt that they had very little time to figure it out.

Smith’s decisions

How should Millennials Bank approach GAI? Just a few days before, Smith had discussed the issue with Michael Perry, the bank’s CIO. Perry told her he favored a more “wait-and-see” approach; that they should keep focusing their efforts on data analytics and “standard” discriminative AI, and let others try and fail first with GAI, sparing Millennials Bank the growing pains of figuring out a completely novel technology. “We have spent years sowing. Let’s reap the fruits first, before planting new trees that we don’t even know whether they’ll grow. Maybe they’ll even rot.”

¹ Brown, Tom, Benjamin Mann, Nick Ryder, Melanie Subbiah, Jared D. Kaplan, Prafulla Dhariwal, Arvind Neelakantan et al. “Language models are few-shot learners.” *Advances in neural information processing systems* 33 (2020): 1877-1901.

² “The Economic Potential of Generative AI: The Next Productivity Frontier.” McKinsey & Company. Last modified June 13, 2023. <https://www.mckinsey.com/capabilities/mckinsey-digital/our-insights/the-economic-potential-of-generative-ai-the-next-productivity-frontier#industry-impacts>.