The transformative potential of Gen-AI and LLMs in Banking

The banking sector has traditionally been characterized by its overall cautious approach to embracing emerging technologies. With varying risk appetites, cultural influences, and intricate complexities of legacy systems, integrating novel technology can understandably be perceived as an arduous and time-consuming process.

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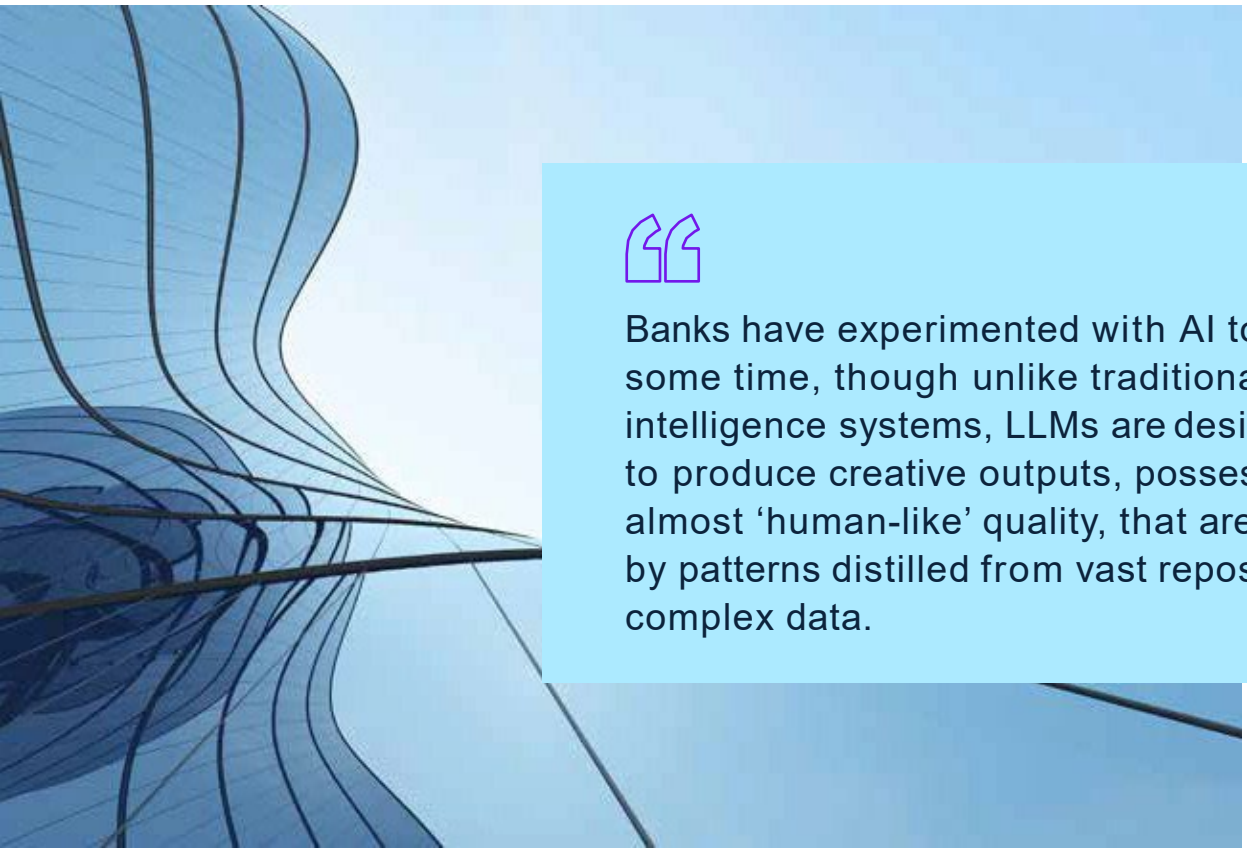
Recent years, however, have witnessed a considerable shift within the industry's mindset, as banking institutions have started to recognize the importance of innovation, aligning their strategies to the swiftly evolving technological landscape. This shift is driven by the realization that adaptability is key to maintaining competitiveness.

While instances of slower technological adoption are prevalent, there are numerous examples of banks undertaking lengthy digital transformational projects to compete with their more agile financial counterparts. From migrating to cloud-based infrastructures to implementing automation tools and blockchain technology, the industry has seen a significant degree of technological excitement in a relatively short timeframe.

However, none has garnered as much excitement as Generative Artificial Intelligence (Gen-AI), or more specifically, Large Language Models (LLMs) which appear to have enormous transformative potential, capable of influencing virtually all aspects of conventional banking.

What exactly are LLMs?

Banks have experimented with AI tools for some time, though unlike traditional artificial intelligence systems, LLMs are designed to produce creative outputs, possessing an almost 'human-like' quality, that are driven by patterns distilled from vast repositories of complex data. More specifically, LLMs are AI models that are intrinsically designed to understand and generate human-like text based on input provided.



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LLMs have a large number of parameters – ranging from millions to billions in some cases – allowing them to capture and learn from a vast amount of textual data. Guided by machine learning, LLMs generate predictive text, and can be 'trained' to translate language, summarize text and answer queries, among other applications. They can process and generate natural language text in a way that is coherent and contextually relevant, which is an absolute game-changer.

LLMs can essentially emulate a 'personalized' customer experience, enriched with insights drawn from historical data parameters i.e., consumer behaviors and prior customer interactions. They can analyze enormous amounts of data in real-time and offer informed, human-like responses to cater to customers' needs - a feat previously impossible with legacy infrastructure. LLMs can engage in meaningful conversations, making them useful in customer support applications, i.e. through sophisticated chatbots or virtual assistants, to provide customers comprehensive support with common inquiries, which can free up human agents from routine tasks and enable them to allocate their efforts to more strategic endeavors.

How can LLM's help in banking?

The utility of LLMs is certainly not limited to elevating customer experience through chatbots. The industry has begun witnessing the emergence of broader use cases that are reshaping traditionally labor intensive banking processes and interactions. Core front office operations, ranging from customer onboarding and KYC to account management, compliance, and risk assessment, can be significantly automated or enhanced using LLMs, enabling an increase in overall efficiency levels. While the applications can theoretically be endless, standout use cases include:

Detecting Suspicious Behavior and Fraud

LLMs can analyze sizeable volumes of customer data and transaction history to augment credit risk assessment, detect and report on fraudulent activities and identify patterns indicative of suspicious behavior. Some banks have already begun leveraging AI for trader surveillance, employing complex models to detect and report anomalies with incredible accuracy.

Automating Processing

LLMs can be used to generate predefined templates for various types of financial documents, such as loan applications or invoices, by extracting relevant information to populate responses. This can help significantly reduce lengthy processes, i.e., customer onboarding, minimizing human error and interaction and ultimately improving customer experience and satisfaction.

Conducting Financial Analysis and Research

LLMs possess the capability to scan enormous amounts of publicly available information i.e., news reports, social media content, company documents and historical trends, to provide comprehensive insights to analysts and investors. They can generate research reports, forecast potential trends, and provide detailed summaries on investment prospects, essentially personalizing financial counsel and recommendations.

How are LLMs different from existing Natural Language Generation (NLG) applications?

While NLG technologies have become popular in recent times and are capable of generating human-like text, LLMs represent a significant advancement in the technology, due to their remarkable size and complexity and non-templated nature. LLMs, overall, are far more complex when compared to traditional NLG systems and can capture a much broader range of language patterns, subtleties, and nuances. They are much more 'adaptive', drawing insights from a wider array of sources to adapt themselves to different language-related tasks and applications. With ongoing training and access to fresh, pertinent data, LLMs can continuously enhance their output generation capabilities.

Traditional NLG technologies, on the other hand, often rely on rule-based or template-driven systems, based on predefined templates, making them far less flexible or adaptable, limiting their ability to be 'creative' in their responses. That being said, NLGs excel in maintaining consistency and accuracy when generating structured content, making them particularly valuable in functions or areas where templates are essential, i.e. transaction reporting and basic financial reporting. They, however, require extensive data preprocessing which can be labor-intensive, making them less effective when handling unstructured data or ambiguous content. LLMs, overall, offer far greater versatility and a much wider range of applications than traditional NLG technologies.

Can LLMs help the banking Finance function?

LLMs can be deployed to streamline processes across the many functions of a conventional bank, including its Finance function. On a broader level, they can help summarize complex financial information in a coherent manner – useful when compiling narrative sections of financial reports. LLMs can also simplify the retrieval process of financial data for reporting purposes, allowing users to submit natural language queries from financial databases. Their capability to extract data from historical accounting records can be used to generate financial statements themselves, and with incredible accuracy, saving time and minimizing human-error or bias as long as the data they have been trained on has not been biased in its own right.

LLMs can also monitor changes in financial regulations and ensure staff are well-aware of upcoming requirements or changes that may impact financial reporting. Perhaps most interestingly, LLMs can play a pivotal role within planning, budgeting, and forecasting by analyzing historical financial data and trends to produce forecasts and scenarios for revenue, expenses, cash flow, etc. – allowing financial professionals to make more informed, data-driven decisions. LLMs can create multiple scenarios based on various assumptions, enabling banks to prepare for a wide range of potential future outcomes. The budgeting process can theoretically be entirely automated, allowing staff to make refinements and run scenarios after the base view has been automatically produced.

Expenses can be analyzed to identify cost-saving opportunities; payments and cash flow projections can help manage liquidity – the possibilities are truly extensive. But the models need to be trained on the right amount and history of correlated market signals

Overall, LLMs have the potential to enhance financial processes, thereby fostering heightened levels of efficiency and customer experience. However, it is important to acknowledge that the technology isn't without its challenges, perhaps the biggest of which is centered around data availability and quality. The fundamental requirement to 'train' LLMs according to the specific architectural structure or requisites of a given financial institution hinges on the availability of high-quality financial data. Transactional data and its associated parameters can change with each distinct transaction type or category. This necessitates the development of complex foundational models that underpin the intricate framework for language processing. Ensuring the available data is both clean and useable is a considerable endeavor for a majority of banking institutions. This partly explains why implementing LLMs can be resource and cost intensive, at least at the onset.

As LLMs and Gen-AI become increasingly sophisticated, the current juncture presents a golden opportunity for banks to proactively position themselves at the forefront of innovation.

Detractors of the technology further emphasize the indispensable role of human intervention and oversight, particularly in light of concerns regarding the accuracy of outputs generated by certain LLMs. The necessity for SME human oversight will remain ever-present, particularly during the phase of 'training' data sets. The extent of rigor applied to this oversight is contingent upon the intended application of the LLM; risk factors and security measures must unquestionably be taken into consideration.

Despite the criticism and anticipated challenges associated with integration, banks should not be deterred from embracing the technology. As LLMs and Gen-AI become increasingly sophisticated, the current juncture presents a golden opportunity for banks to proactively position themselves at the forefront of innovation. It's the opportune time for banks to get ahead of the curve and begin experimenting with LLM applications to enhance operations and functional processes. At a minimum, organizations can leverage the momentum of executive interest on Gen AI to actually scale simper AI applications to enhance productivity and improve the digital literacy of Finance staff.

It's clear that the applications of LLMs are not just limited to language generation, or even to a particular function, but can be deployed across the bank's many functional areas, for a variety of tasks and applications. Deploying LLMs is a complex task; choice of a particular platform can depend on a bank's size, tech infrastructure and budget, among other factors. There are, however, cloud-based service providers that some banks have started to opt for, that can offer more manageable, scalable solutions. The industry may anticipate much more innovation to follow, but Finance functions should not be at the back of the queue.