

The fourth age of banking, powered by generative AI

The EY logo consists of the letters 'EY' in a bold, white, sans-serif font. Above the 'Y' is a yellow chevron shape pointing to the right.

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# Generative AI can unlock an era of responsive, adaptive banking services

Generative AI (GenAI) will transform financial services, for example, with wholesale banking products and services dynamically created and reconfigured in response to individual client needs and market conditions. In many cases, entirely new products may be created on the fly. These would be supported by associated risk and credit scoring models, as well as automated front-to-back fulfilment, operational and product servicing processes.

EY analysis suggests that rethinking the traditional financial institution with GenAI at its core has the potential to create US\$200b to US\$400b in value by 2030. Additionally, productivity gains could reach up to 30% by 2028, supplementing new revenue opportunities.

Many of the enabling technologies required for adaptive AI-powered banking already exist. These include tokenization, virtual products and digital wallets, electronic transactions, straight-through transaction processing and product accounting, as well as sophisticated cloud-based risk and financial crime detection models.

GenAI provides the intelligent natural language orchestration capabilities that are required to fully enable adaptive banking. These capabilities include:

- 01 Large language models (LLMs) that can interpret natural language queries and commands, and translate these into machine-executable queries and commands.
- 02 Graph search models that are able to rapidly parse and continuously index large volumes of text and quantitative data, as well as assess end-to-end client and risk processes.
- 03 Constructor capabilities required to create new products and process journeys, e.g., as demonstrated through natural language prompt-driven AI image creation tools like Midjourney, and code creation tools like OpenAI Codex.

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A hand is shown holding a glowing fiber optic cable. The background is a deep blue with light trails and bokeh effects, suggesting a high-tech or digital environment. The hand is positioned in the lower-left quadrant, with the index finger pointing towards the center where the fiber optic cable is held. The cable itself is a bundle of thin, glowing fibers that create a sense of depth and movement.

## Financial services players racing to harness GenAI capabilities

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Banks, nonbank financial services players, and FinTech or Big Tech are at different stages of the journey to harnessing GenAI capabilities. Established financial institutions are experimenting with GenAI use cases, initially in marketing and sales, customer support, risk and compliance. They have improved product search and client service capabilities and have initiated change programs to overcome the obstacles posed by data quality issues, fragmented processes and systems, and legacy risk policy frameworks.



# Landscape of potential GenAI use cases in financial services

	1 Marketing and sales	2 Onboarding	3 Product development	4 Financial advice	5 Advisor and customer support	6 Risk and compliance	7 Supporting corporate functions
	Identifying and acquiring new customers	Customer document and information validation	Creation of a unique financial services product	Generating recommendations with research and analysis	Relationship service and customer service	Identification and management of potential risks	Additional reporting corporate functions (e.g., human resources)
Value and ease of implementation	Creative content and collateral development, including personalization	Intelligent document processing and digitization	Supportive programming, developing and documentation	Investment reports and research synthesis	Support in the drafting of memos, analytics, etc.	Knowledge database for legal teams	Code review and auditing, codebase modernization, integration and documentation
	Customer segmentation and sentiment analysis	Document synthesis for financial product approval and review	Synthetic data for customer profiles and model training	Support RMs or FAS for client interactions with memos, analytics, performance monitoring	Customer service support interface and chatbot	KYC checks and synthesis creation	IT: synthetic data generation and use for test cases
	Web or app landing page personalization (content, visual assets)	Suggest tailored product offerings based on uploaded data	Helping users discover financial products tailored to their needs	Synthesized, tailored reports for customer distribution based on individual interests	Policy or contract monitoring and synthesis	AML monitoring and document creation	Knowledge management and analysis
	Client acquisition chatbots for warming leads, engagement	Initial fact find for a new clients	Pricing and fee optimization	Performance monitoring and optimization across client portfolios with automated notifications	Knowledge base search	Compliance monitoring and documentation creation	Memo writing
	Sales training for simulating client conversations	Chatbot assistance during onboarding	Identification of emerging product trends to support product teams	Product recommendation LLM tuning with corpus of enterprise-wide investment research	Chat or email monitoring to suggest course of action for "toxic" conversations	Data privacy and transaction monitoring	Optimization of risk weighted assets
	Customer retention	Customer lifetime value modeling	Scanning data to influence creation of innovative and hyper-personalized financial products and features		Call transcript analysis and insights mining	Early warning credit risk monitoring	HR: AI-powered talent acquisition
	Cross-selling and acquisition	Personalized onboarding	Analytical banking offerings			Data privacy and transaction monitoring	Optimal allocation of resources
	Pricing and fee optimization	Streamlined onboarding (including KYC)	Automated product updates for specific segments, clients			Collateral risk assessment	HR: talent retention and employee sentiment analysis
	Omnichannel engagement	Initial fact finding for a new client	Adaptive product management			Automated credit decision-making	HR: synthetic data for employee engagement and performance management LLM
	Hyper-personalization of text content (e.g., email)					Suspicious activity report pre-population	Finance: drafting and reports and planning
Hyper-personalization of image content					Ongoing customer due diligence		
					Document synthesis for lending reviews		

 Use cases currently targeted by GenAI startups



# Financial services players racing to harness GenAI capabilities (cont.)

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Some financial institutions are pressing ahead and applying GenAI tools to assessing and adapting both risk control frameworks and processes, as well as client onboarding and service journeys. They are beginning to see early gains in operational cost reductions, significantly improved client onboarding and servicing journeys, as well as dynamic financial crime controls.

Forward-thinking technology teams in large financial institutions are also applying GenAI solutions to harmonize legacy enterprise technologies (e.g., older versions of ERP and core banking platforms, legacy databases, home-grown software), thereby reducing technical debt and freeing up operating costs for innovation. Large language model-powered (LLM- powered) code generation and debugging tools speed up such technology modernization efforts by identifying the underlying business logic constructs. They also help in delivering modern and scalable microservices-based designs. Low-code or no-code GenAI platforms available in the market automatically generate documentation for the modernized codebase, as well as the API code for integration with the rest of the technology landscape. Some of the more innovative emerging GenAI solutions also use Retrieval and Augmented Generation (RAG) to iteratively learn and adopt coding standards specific to each financial institution, based on architecture design and standards documentation.

Similarly, COOs are exploring opportunities to convert traditional cost centers such as the procurement function into revenue-enabling entities by repurposing the enhanced insights, decision-making capabilities, and automated AI agents gained from GenAI solutions, to offer “procurement-as-a-service” to smaller supplier partners, as well as affiliates.

The most innovative banks and FinTechs are exploring opportunities to dynamically reconfigure products, or to create new products on the fly, in response to evolving client needs and market conditions, with one major APAC bank recognizing that GenAI can produce 40% of its product manufacturing requirements.

**GenAI tools adapted for banking needs can produce code 50% faster, create go-to-market product documentation 20% to 40% faster, and improve relevance and quality of newly launched financial services by up to 40%.**

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# MENA banks well positioned to capitalize on GenAI opportunities

Banks across the region are uniquely well positioned to leapfrog their peers in other parts of the world in leveraging GenAI to drive growth with adaptive new product management capabilities, while also increasing the share of risk-weighted assets (RWA) and driving down operating costs.

Sovereign funding enables these banks to focus on long-term investments and growth opportunities and many have invested heavily over the past five to seven years in upgrading their technology infrastructure. As a result, more banks in the region have adopted flexible, scalable cloud-native technologies and modular API-enabled product platforms, as well as platform-centric operating models. These banks are largely free of legacy technologies such as mainframes. They do not have mission-critical systems with a large overhang of technology debt and key man risks from a dwindling pool of resources conversant in legacy programming languages such as Common Business Oriented Language (COBOL).

Both banks and national regulators across MENA are innovation-focused, with mature regulations on cloud and blockchain technologies, thriving FinTech ecosystems, well-established national identity management infrastructure, and large pools of data available for training GenAI models. Banks in the region have long embraced FinTech and are well positioned to rapidly incorporate innovation generated through the FinTech hubs in Dubai, Abu Dhabi, Doha, Riyadh and Cairo.

Senior executives at financial institutions across MENA want to invest but they have concerns as to where to start, unclear returns on investment (ROI), feasibility of integration with existing enterprise systems, execution capabilities in-house, LLM risks such as data privacy and security along with other concerns such as model biases, hallucinations and inability to explain with clarity. In some cases, GenAI technology is useful in identifying the most relevant use cases to pursue. These use cases would be optimized for ROI, ensure integration feasibility, reduce compliance risks or cater to some other set of prioritization criteria.

CFOs at financial institutions also worry about the nontrivial costs of resources required to operate the better-known generalized LLM platforms. Banks are increasingly turning to smaller, more specialized domain models that can be finely tuned on proprietary data, creating a competitive edge while also being more cost-effective. These domain-specific models require fewer tokens to perform tasks, thus reducing operational costs. Additionally, most established financial institutions as well as FinTech institutions rapidly progress from initial exploration with a single LLM to a portfolio of domain-specific models tuned for specific use case categories. These categories would be based on a common substrate that both protects sensitive data and allows results to be compared on a like-for-like basis across multiple LLMs.

Data, however, is a core capability gap for most MENA banks, despite years of spend on data lakes; challenges range from incomplete and inconsistent data on customers, products and transactions, as well as disparate data sources (e.g., databases, spreadsheets, XML, JSON) and technologies. Focused effort is required to produce robust, augmented and synthetic data sets for customer needs profiling, product profitability analyses, risk and regulatory compliance model training. Finally, access to data remains a challenge for over 65% of financial institutions, with fragmented data ownership and governance limiting the ability to rapidly adopt GenAI and machine learning (ML) technologies at scale.





# New capabilities required in seven areas to deliver adaptive banking

To capitalize on the most promising opportunities from adaptive banking, banks will need several key building blocks to leverage the natural language orchestration and product manufacturing capabilities of GenAI. They are:

- 1 Overlay data and analytics capabilities** to dynamically extract insights on client needs, market and environmental signals, product positions, and to generate prompts for the GenAI system. Traditional data warehouse architectures may fall short of the task. Instead, data mesh architectures that can work with siloed, fragmented legacy data landscapes that persist in most banks will be required. Many banks may opt for data lake house technologies that provide a steppingstone, before embarking on the operating model changes required to fully enable data mesh architectures.
- 2 Synthetic data generation and wrangling capabilities** to create complete, clean and consistent data sets that can be used to train GenAI and ML models. Several startups now specialize in solutions that can bridge “dirty data” issues, such as null values, data gaps or inconsistent data across legacy and newer data platforms. Low-code or no-code solutions in this space can be especially helpful in cleansing, normalizing and integrating data elements across disparate sources and technologies to create useable training data sets, without large-scale IT or data management projects. Many solutions also provide data visualization capabilities which are helpful in testing for the most valid outcomes that can be further used as inputs to further LLM tuning.
- 3 Adaptive product management platforms**, including cloud-native lean and modular core banking solutions. These solutions cleanly separate immutable product accounting from configurable product workflows. There are also product engines based on composable “smart contracts” that can be rapidly reconfigured into products tailored to client or market needs.
- 4 Smart orchestration and ecosystem integration** using low-code or no-code workflows and an API-powered, microservices architecture capable of scaling dynamically to support large transaction volumes and throughput. These technology elements are typically embedded in front-to-back product operations process flows and provide the automation required for straight-through processing. Innovative new solutions on the market can now also bootstrap LLMs for a low-code or no-code approach to help in writing and maintaining backend API code. This can help integrate GenAI solutions with existing enterprise platforms and legacy databases.





# New capabilities required in seven areas to deliver adaptive banking (cont.)

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**5 GenAI enablement platforms** that can protect sensitive customer and bank data, correct for model biases and hallucinations, enable financial institutions to safely experiment with LLMs from multiple providers, and compare the results in a consistent manner with clear audit trails. A GenAI-supported business rules engine can, for instance, configure a new revolving credit product for a commercial client, as well as dynamically adapt the product features to evolving client needs. An explainable AI overlay will be essential to ensure that relevant fairness, suitability and affordability criteria were duly considered in the LLM decision-making process, as well as to understand the lifecycle of such dynamically evolving products. Such GenAI enablement platforms can also generate synthetic data to replace confidential customer or bank data with a high degree of statistical fidelity. This can be achieved by ensuring that relevant customer demographic characteristics in the synthetic data are consistent with those in the actual customer data that has been replaced. In cases where entirely new synthetic data sets are required for LLM-supported new product or market exploration, such GenAI enablement platforms can be particularly helpful in avoiding biases or hallucinations by either under- or over-representing specific customer groups, or scenario outcomes.

**6 Adaptable risk frameworks** and policies that are well documented and can be parsed easily by GenAI models. Ideally, the risk appetite framework should be documented as clearly articulated principles and thresholds, with product-specific policies defined for each product class, e.g., collateralized debt. These policies should also reflect the product architecture hierarchy so that risk policies for specific products can be automatically adapted, or new ones created, to support product creation or reconfiguration on the fly.

**7 A reasonable well-developed signals intelligence capability** that can extract client and market insights based on client, transactions, risk, market and external data sources, as well as a comprehensive view of client product holdings and client relationship value metrics.

At EY organization, we have identified specific AI pathways banks and FinTechs are taking as initial steps and have captured significant lessons learned across the retail and wholesale banking, wealth management and insurance sectors. We have built these insights in EY.ai platform that combines our vast experience in strategy, transactions, transformation, risk, assurance and tax, with EY technology platforms, ecosystems and leading-edge capabilities.

Finally, the EY global alliances provides MENA financial institutions and FinTech institutions alike with access to proven GenAI solutions from both large global technology partners, as well as innovative new startups.





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