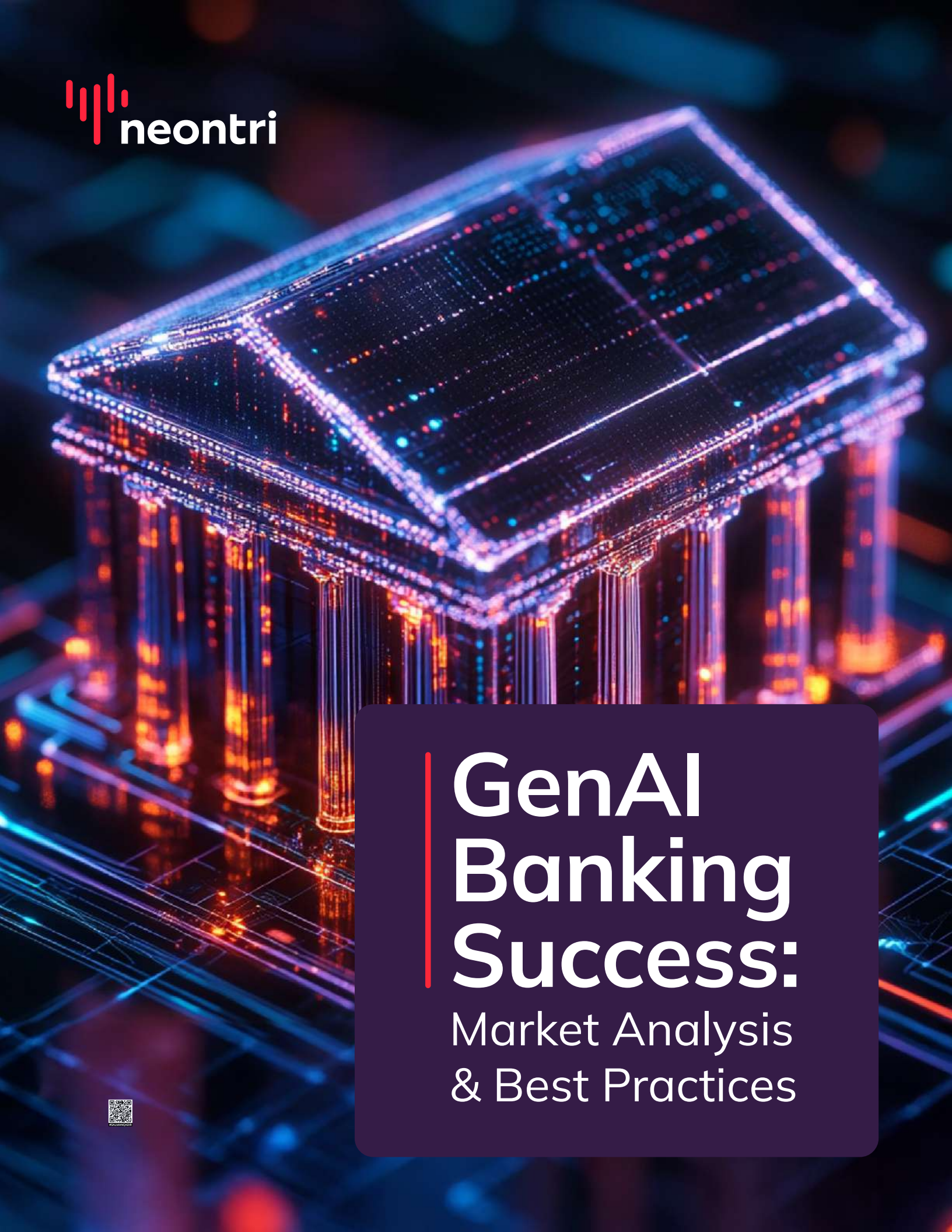

neontri

GenAI Banking Success:

Market Analysis & Best Practices

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01 Introduction

We've recently witnessed the rise of generative artificial intelligence (GenAI) for everyday use. GenAI marked its beginning with the publication of the "Attention Is All You Need" research paper written by eight Google scientists. The piece introduced a new deep-learning architecture called the "transformer." The research paper is considered a foundational paper in modern AI, as the transformer approach is the main architecture of large language models (LLM).

The boom of AI systems happened in the early 2020s, as chatbots such as ChatGPT and image generation tools like Midjourney were released for public use. Nowadays, everyone can try out the newest GenAI tools, which react to a user prompt and return a specific, generated result. The availability of generative artificial intelligence has led to the fact that more and more organizations and industries are exploring GenAI capabilities.

GenAI is becoming a general-purpose technology in many areas for both personal and professional use. Apart from fields such as marketing, writing, design, and software development, banking and fintech niches are also embracing its exceptional analytics capabilities. The use of generative artificial intelligence is increasing along with the development and rise of new tools. Tech giants like OpenAI, Anthropic, Microsoft, Google, and many other smaller companies are working on their generative AI models and developing the tools they've already released for widespread use.

What is GenAI

Generative artificial intelligence, also known as GenAI, is a type of artificial intelligence that uses generative models to create different output types, such as text, video, images, and other data. GenAI uses advanced algorithms and models to generate responses based on some input context, usually including a user prompt.

Generative artificial intelligence has different capabilities and can be used for other purposes than traditional AI. It uses models trained on data sources and transforms them into new, original outputs.

How does the process of creation in GenAI work?

01

Getting a model

The models available in the industry are trained by big tech companies, such as Amazon, Google, or OpenAI, and they can be fine-tuned for specific business use.

Generating new content

GenAI can produce new content based on the patterns and insights derived from the data it was trained on.

02

03

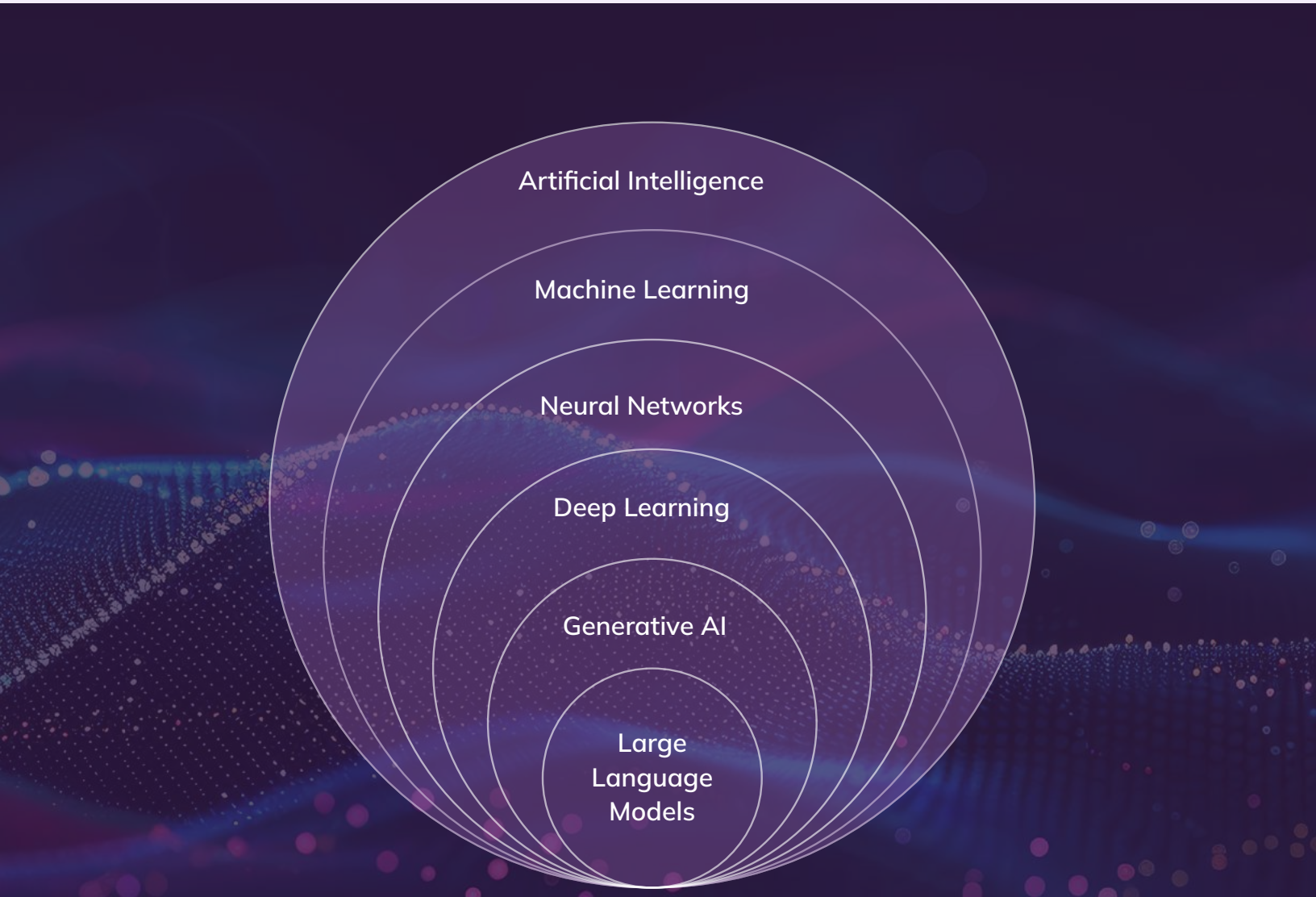
Matching and correction

Users can then refine and adjust the generated content to better align with their preferences and needs.

AI vs. ML vs. GenAI

Understanding the core concepts of General Artificial Intelligence (GenAI), Machine Learning (ML), and large language models (LLMs) is essential to navigating the changes. Here is a brief overview of GenAI fundamentals. The distinction between AI and GenAI lies in their scope and capabilities

Simplifying it a bit, AI can perform a wide array of tasks knowing specific rules. It can be compared to a computer chess player. The AI knows the rules and possible moves to play. Basically, it can follow specific rules and complete a range of tasks.



GenAI

A subset of AI, thanks to its access to ML and, more specifically, LLMs, can generate something based on input. ML uses models to make predictions that are used as a base for generating what is required—texts, images, videos, etc. GenAI uses various models, including neural networks and deep learning, all tailored to understand, learn, and generate human-like responses.

Machine Learning

A significant component of AI. Machine learning is a set of advanced algorithms that help to make predictions. It learns based on observations and allows for a feature prediction.

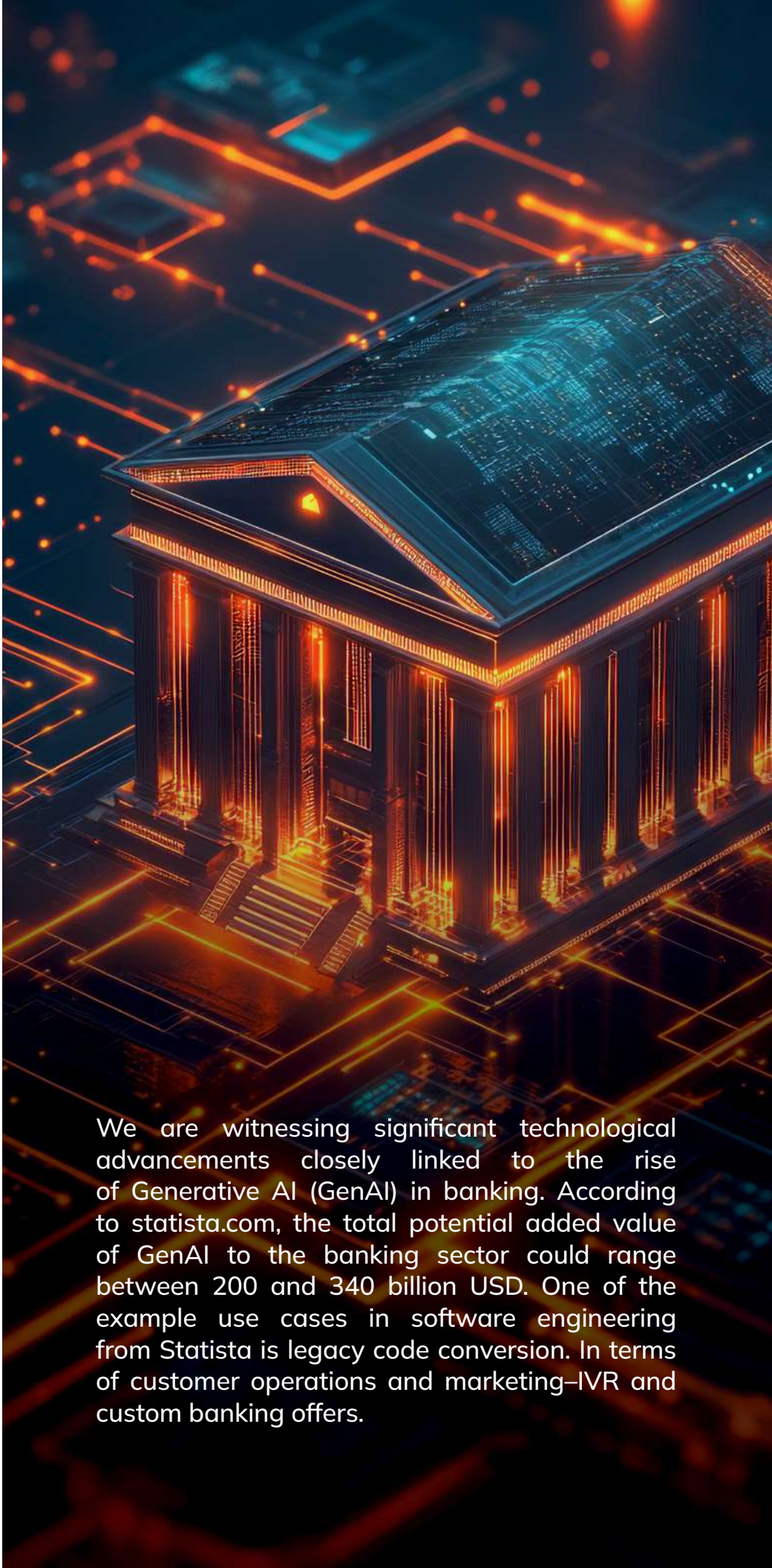
Large Language Models

Outputs of deep learning algorithms and part of AI that can recognize, process, and generate content using a language we know and understand. They are a subset of ML. LLMs are trained on huge sets of data, such as Wikipedia articles, GitHub, etc. Most of you probably know GPT (Generative Pre-trained Transformer), one of the popular LLMs that was developed by OpenAI and is available in ChatGPT. GPTs focus on generating text responses. LLMs can also be used to generate images based on text prompts (like DALL-E), but image generation models don't necessarily use LLMs.

Components

These technologies are interconnected, working together to produce solutions that were once deemed impossible. They are not standalone but part of an integrated system that drives innovation in modern technology.

02 GenAI in banking: General outlook



We are witnessing significant technological advancements closely linked to the rise of Generative AI (GenAI) in banking. According to statista.com, the total potential added value of GenAI to the banking sector could range between 200 and 340 billion USD. One of the example use cases in software engineering from Statista is legacy code conversion. In terms of customer operations and marketing–IVR and custom banking offers.

Potential added value of generative AI to the banking sector, with example use cases, in 2023

Indicator	Value
Total value potential	200-340 bn USD
Value potential as a share of industry revenue	3-5%
Value potential as a share of operating profits	9-15%
Example use case in product R&D, software engineering	Legacy code conversion
Example use case in customer operations	Customer emergency interactive voice response (IVR)
Example use case in marketing and sales	Custom retail banking offers
Example use case in other functions	Risk model documentation

GenAI was introduced to improve operational aspects and customer interactions. First, AI-powered chatbots were implemented to improve customer service, but GenAI has pushed the functionality to enable real-time, natural interaction. This is one of the basic and most popular uses of AI in banking. More and more financial institutions are introducing more or less advanced chatbots.

Apart from the customer service improvements, GenAI has been implemented in other areas of banking, such as fraud detection, anti-money laundering, and Know Your Customer processes. This is mostly because of its ability to analyze large datasets to detect anomalies and hidden patterns that would otherwise be missed.

Expert insight: Rewriting legacy code using only automated tools involves a possible risk of creating a brand new legacy code. This process must be overseen and controlled by an expert who will guide the GenAI through the process to obtain the expected result.

Potential impact of GenAI on the banking industry

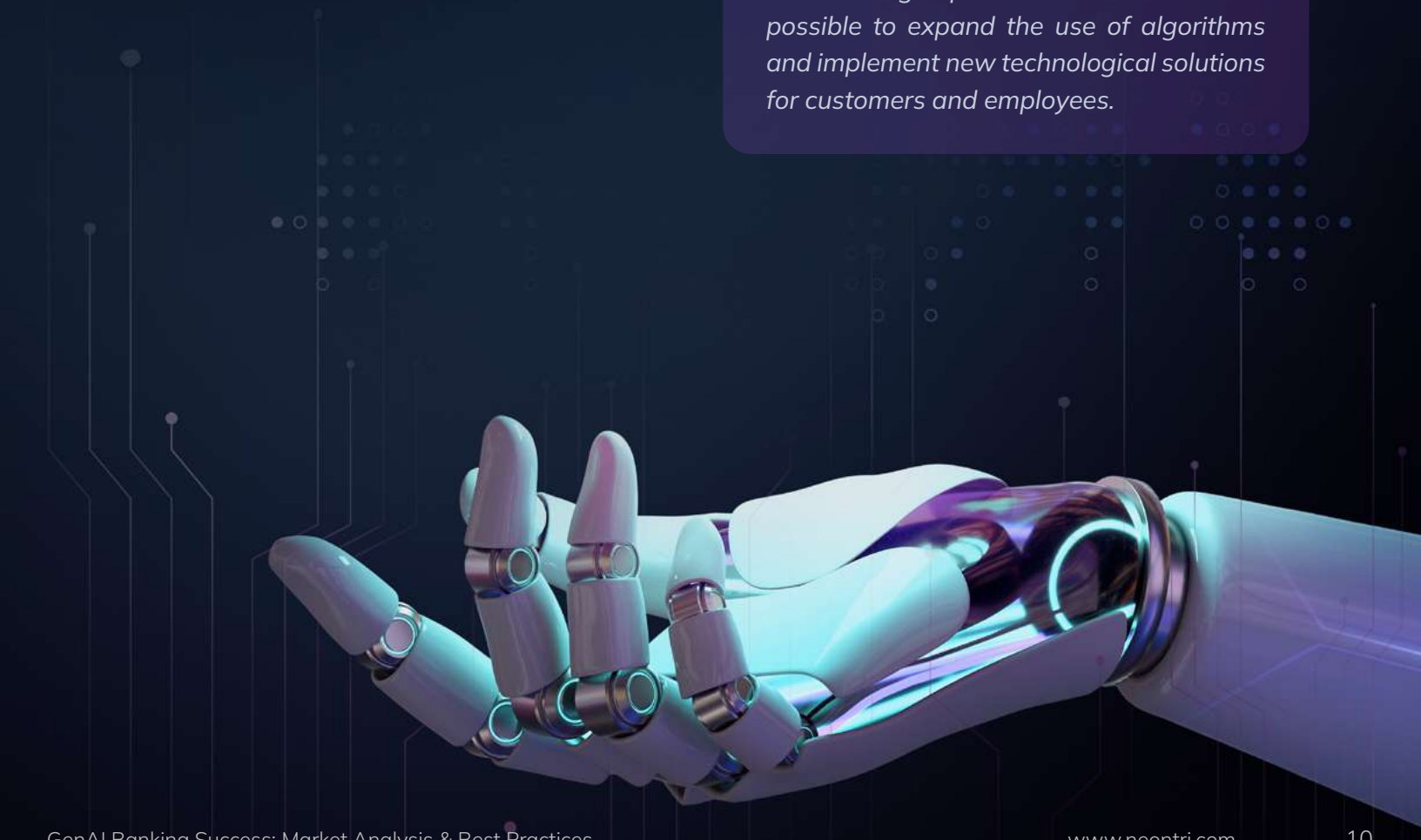
GenAI is relatively new in banking. Its usage and potential in the industry promise increased productivity by shifting repetitive customer service tasks to bots and letting people devote their time to more complicated questions asked by customers. However, this is just the beginning, as innovative banks will implement GenAI for complex data analysis and lowering risk

Some AI-based systems can be implemented to detect security threats by identifying unusual patterns or flagging possible fraudulent transactions. The potential is huge, as the capabilities of large language models and machine learning algorithms can be used to thoroughly check a customer's financial situation and offer a suitable loan. A similar technology can create personalized product recommendations, like credit card offers.

This has the potential to bring significant value to banks and financial institutions, increasing their productivity. Adding GenAI to an organization requires proper adoption and change management. Bank users and employees need to learn how to use the newest technologies, which requires a thought-through change management plan.

It will also take time for everyone to acquire the technology. The employees need to understand the tools and their limitations to leverage them.

Overall, GenAI will add new roles in the organization and shift the focus to more important tasks, as it can take over the ones carried out by support employees. The learning capabilities of AI will make it possible to expand the use of algorithms and implement new technological solutions for customers and employees.



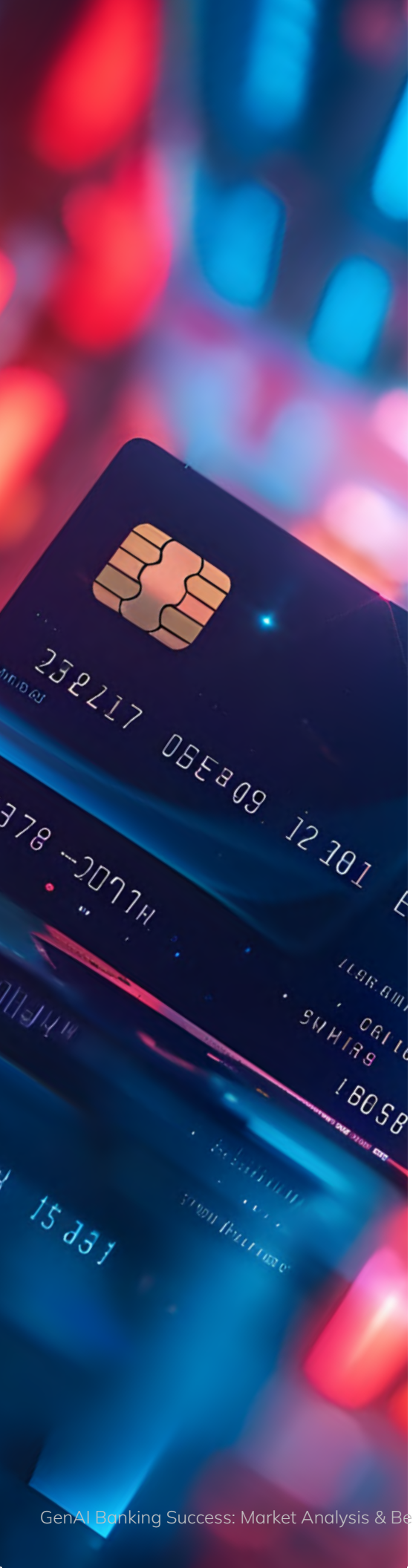
03

Examples of possible use of

GenAI in the banking industry

With the introduction of GenAI, there are many possible applications of the technology in banking. Apart from enhancing efficiency, improving customer service and experience, and general innovation, GenAI's capabilities have a few specific uses.

The examples of GenAI uses below are available for implementation by Neontri's experts. Neontri can prepare an implementation plan and the delivery timelines for the examples presented. Our specialists can analyze the possibilities of GenAI implementation to drive growth for your organization. Neontri has 10+ years of experience in fintech and banking software development, including generative AI solutions.



Chargeback reduction

GenAI can enhance card transaction data to reduce the frequency of incorrect chargeback reports when a bank receives a high volume of chargeback claims from customers.

01

Data Enrichment with GenAI

GenAI enhances transaction data by adding details such as store names, transaction locations, product or service categories, prices, dates, and other relevant information.

02

Presentation of enhanced data

This enriched data is then presented to customers in a clear and accessible format, either through a web portal or a mobile app.

03

Reduction in chargeback claims

With access to comprehensive and accurate transaction details, customers are less likely to initiate chargebacks, as they can verify that the transactions were legitimate and aligned with their purchasing patterns.

GenAI's ability to process and analyze large volumes of data quickly and accurately means it can significantly enhance transaction details, making them more informative and useful for customers. Providing clear, detailed transaction information improves transparency and customer trust, leading to more informed decision-making and fewer disputes. Similar technologies have been effectively implemented in various industries for fraud detection, customer service, and data enrichment, suggesting a strong potential for success in the banking sector.

Transaction categorization

Using GenAI to create a training set accelerates the deployment of a financial transaction classification solution.

01

Creating the training set

The team gathers data from past transactions, such as grocery store purchases, to form the training set.

02

Training GenAI

This data is then used to train GenAI, which analyzes it to identify patterns and learn how to correctly categorize transactions, for example, those related to “grocery shopping.”

03

Implementing the categorization system

Once training is complete, the categorization system is ready for integration into the banking system.

04

Categorizing transactions

For new transactions related to grocery stores, the system will analyze the data, recognize these transactions, and classify them under the “grocery shopping” category.

Using a well-curated training set that includes diverse and relevant examples (like grocery store transactions) enhances the model’s ability to learn and generalize, leading to more accurate categorization. The technology can adapt to different types of transactions and categories, making it versatile and scalable across various banking applications.

Similar categorization technologies have been effectively implemented in other domains, such as expense tracking and financial reporting, suggesting a strong potential for success in financial transaction classification.

Suggesting banking products

GenAI can be employed to recommend banking products within a system.

Transaction monitoring

The system tracks the customer's transaction history, including card payments, and analyzes details such as the payment amount, location, and type.

Insurance recommendation

GenAI then provides personalized insurance product recommendations based on the transaction context and history.

Card payment transaction

The customer uses their card to purchase airline tickets for an international trip.

Identifying needs

From this transaction data, GenAI identifies a potential need for insurance, given the customer's purchase of airline tickets.

AI-driven systems can provide highly personalized suggestions by leveraging detailed transaction data. For example, it might suggest travel insurance that covers health, baggage, and other travel-related concerns.

This personalization increases the relevance of product recommendations, such as travel insurance in this case. GenAI systems can improve over time with more data and feedback, refining their recommendations and increasing their accuracy as they learn from customer interactions.

Similar AI technologies have been successfully implemented in areas like personalized marketing, financial advising, and product recommendations, demonstrating their effectiveness in understanding customer needs and preferences.

Banking assistant

GenAI can be utilized in a system to provide advice on banking products and services using NLP.

Handling financial documents

The GenAI system is set up to import various credit agreements and other documents. GenAI can also assist in the KYC process for business clients to streamline the analysis of submitted documents and risk assessment.

Personal banking assistant

Customers can ask questions about the credit agreements using either text or voice commands. GenAI can analyze banks' regulations and client banking history to help customers get information or assist call center employees with specific service advice based on customers' accounts and portfolios.

Natural language answers

GenAI processes the customer's questions, searches for relevant information within the agreement, and delivers accurate responses using natural language interaction.

Natural language processing (NLP) has made significant strides in understanding and interpreting text, allowing GenAI to accurately process and analyze credit agreements. This capability supports precise and relevant responses to customer queries and may include quoting specific sections, explaining terms, or providing details about repayment schedules, interest rates, and collateral.

GenAI systems can continually learn from new data and interactions, improving their accuracy and effectiveness over time as they process more agreements and customer inquiries.

Similar technologies have been successfully implemented in areas like legal document analysis, customer service, and financial advising, demonstrating their ability to handle complex information and provide accurate insights.

Service regulations assistant

GenAI can help customers better understand the bank's regulations.

Interaction with GenAI

A customer engages with GenAI via the bank's mobile app or website.

Answers to inquiries

GenAI provides responses to customer questions about banking service terms, covering topics like login procedures, security, and data handling.

Clarifying risks of sharing login details

If a customer inquires about sharing their username and password with family, GenAI explains the risks involved and stresses the importance of keeping login credentials private.

Offering alternative solutions

GenAI could suggest options like granting power of attorney, which allows others to access certain services without needing to share sensitive login details.

Modern GenAI models are increasingly adept at understanding and generating human language, which makes them well-suited to handle customer queries about banking regulations in a conversational manner. GenAI can provide immediate and consistent assistance anytime, without the need for human customer service representatives, improving the customer experience.

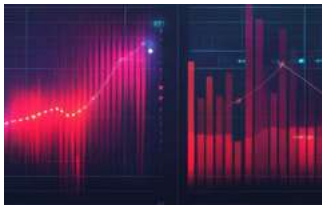
Similar technologies have already been implemented across various sectors, including banking, where AI-driven tools assist customers in understanding services, regulations, and procedures. Many financial institutions use AI-powered regulatory technology (RegTech) to ensure compliance with banking regulations. These tools help analyze large amounts of data, detect potential risks, and provide guidance on regulatory issues.

Automatic reporting

GenAI can assist in generating financial reports.

Gathering financial data

The bank gathers data from various internal systems like accounting, transactions, and risk management.



Data processing with GenAI

GenAI is employed to analyze and process the financial data, using techniques to detect patterns, key metrics, and critical information.

Collaborative report creation

Using the analyzed data, GenAI helps to create financial reports, including essential details required by regulatory authorities, such as balance sheets, financial performance, profitability ratios, and risk assessments.

Drawing conclusions

GenAI interprets the financial data and automatically generates insights and recommendations to guide business decisions and financial strategies.

Much of financial reporting involves repetitive tasks, such as summarizing balance sheet data, calculating ratios, and compiling performance indicators. GenAI can automate these tasks, reducing human error and increasing productivity. GenAI can not only summarize past data but also offer predictive insights based on historical trends, helping businesses make informed decisions and strategies.

This adds significant value to traditional financial reporting. AI has already been successfully implemented in financial analysis, auditing, and reporting processes (e.g., AI-driven auditing tools and RegTech platforms), proving that the technology can work effectively in finance.

Semantic search

GenAI can be implemented to search for banking transactions.

01

User query

The user asks the system, “Show me my transactions related to education.”

02

Database search

The system searches the banking operations database and other relevant datasets to find information that best matches the user’s request.

03

Query processing:

The semantic search engine interprets the query by understanding its context and meaning rather than focusing solely on individual keywords.

04

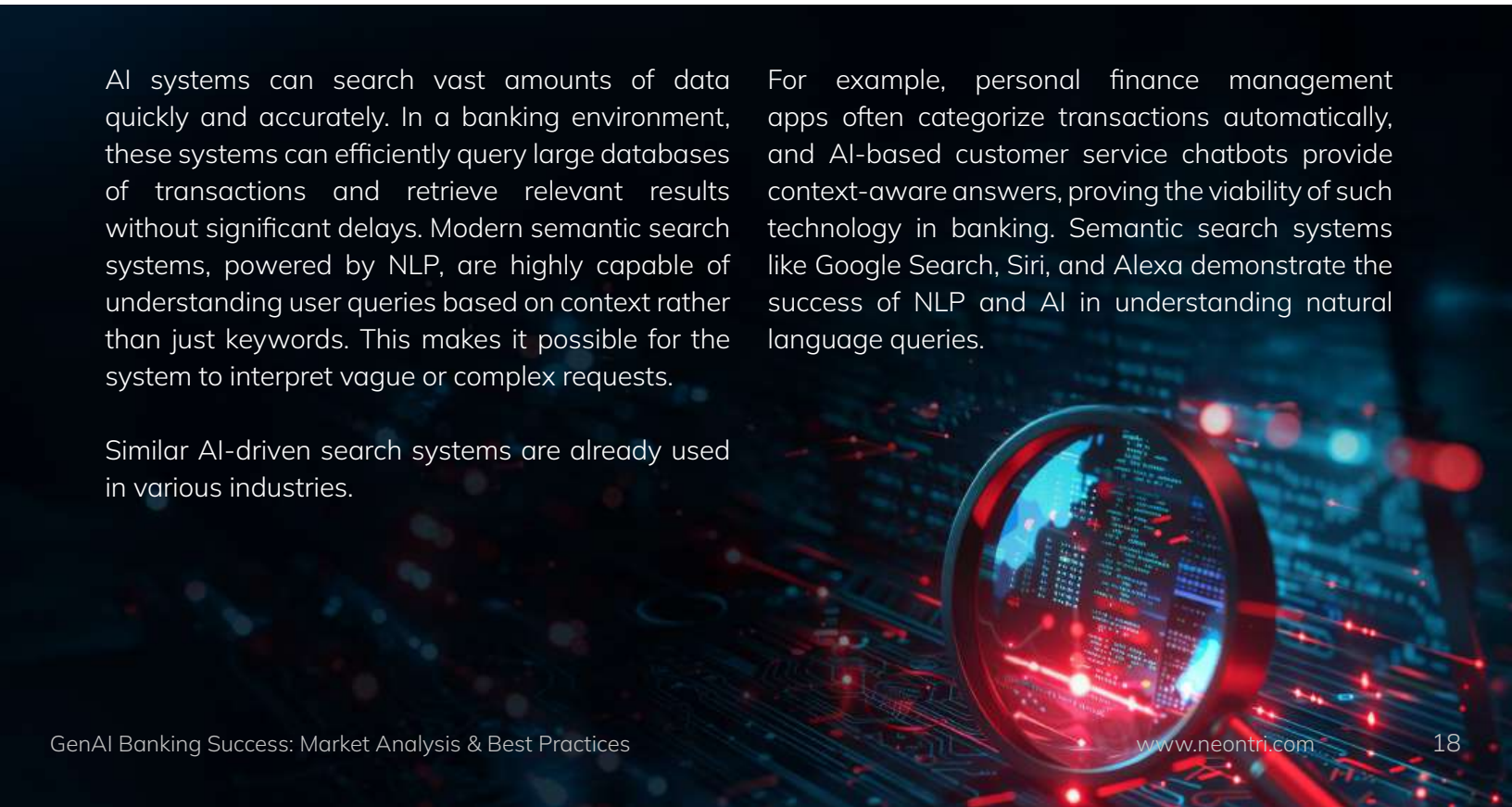
Presenting results

The system then identifies and displays relevant transactions related to education, such as tuition payments, educational loans, and payments to educational institutions.

AI systems can search vast amounts of data quickly and accurately. In a banking environment, these systems can efficiently query large databases of transactions and retrieve relevant results without significant delays. Modern semantic search systems, powered by NLP, are highly capable of understanding user queries based on context rather than just keywords. This makes it possible for the system to interpret vague or complex requests.

Similar AI-driven search systems are already used in various industries.

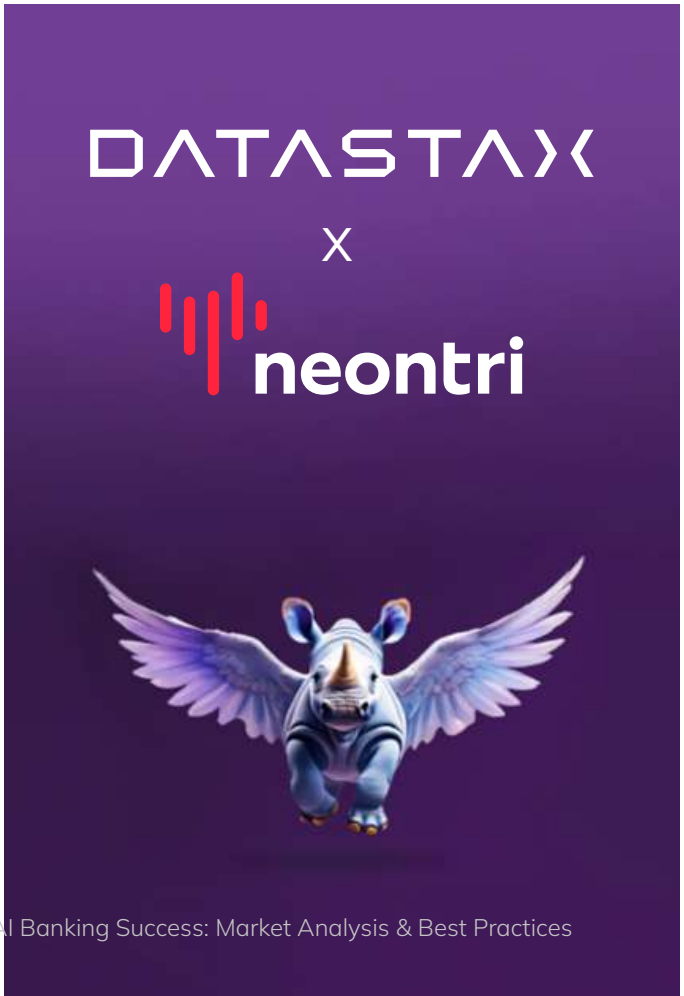
For example, personal finance management apps often categorize transactions automatically, and AI-based customer service chatbots provide context-aware answers, proving the viability of such technology in banking. Semantic search systems like Google Search, Siri, and Alexa demonstrate the success of NLP and AI in understanding natural language queries.



Implementing banking GenAI solutions with DataStax and Neontri

The journey from identifying potential use cases to deploying production-ready GenAI solutions can be complex, especially in the regulated banking sector. This is where the powerful combination of DataStax's enterprise-grade infrastructure and Neontri's banking technology expertise creates a game-changing proposition.

With over 10 years of experience in fintech and banking software development, Neontri understands that successful GenAI implementation requires more than just cutting-edge technology—it demands a deep understanding of banking operations, regulatory requirements, and enterprise-scale performance. By leveraging DataStax's comprehensive suite of GenAI-ready products, Neontri helps banks transform theoretical use cases into practical, value-driving solutions.



DataStax product suite for GenAI in banking

Astra DB

- Enterprise-grade vector database with 20% higher relevance than competitors
- SOC2, PCI, HIPAA, ISO 27001 compliant infrastructure
- 5x more cost-effective than alternative solutions
- Real-time data processing with unlimited scale
- Multi-cloud deployment (AWS, Google Cloud, Azure)

Astra Streaming

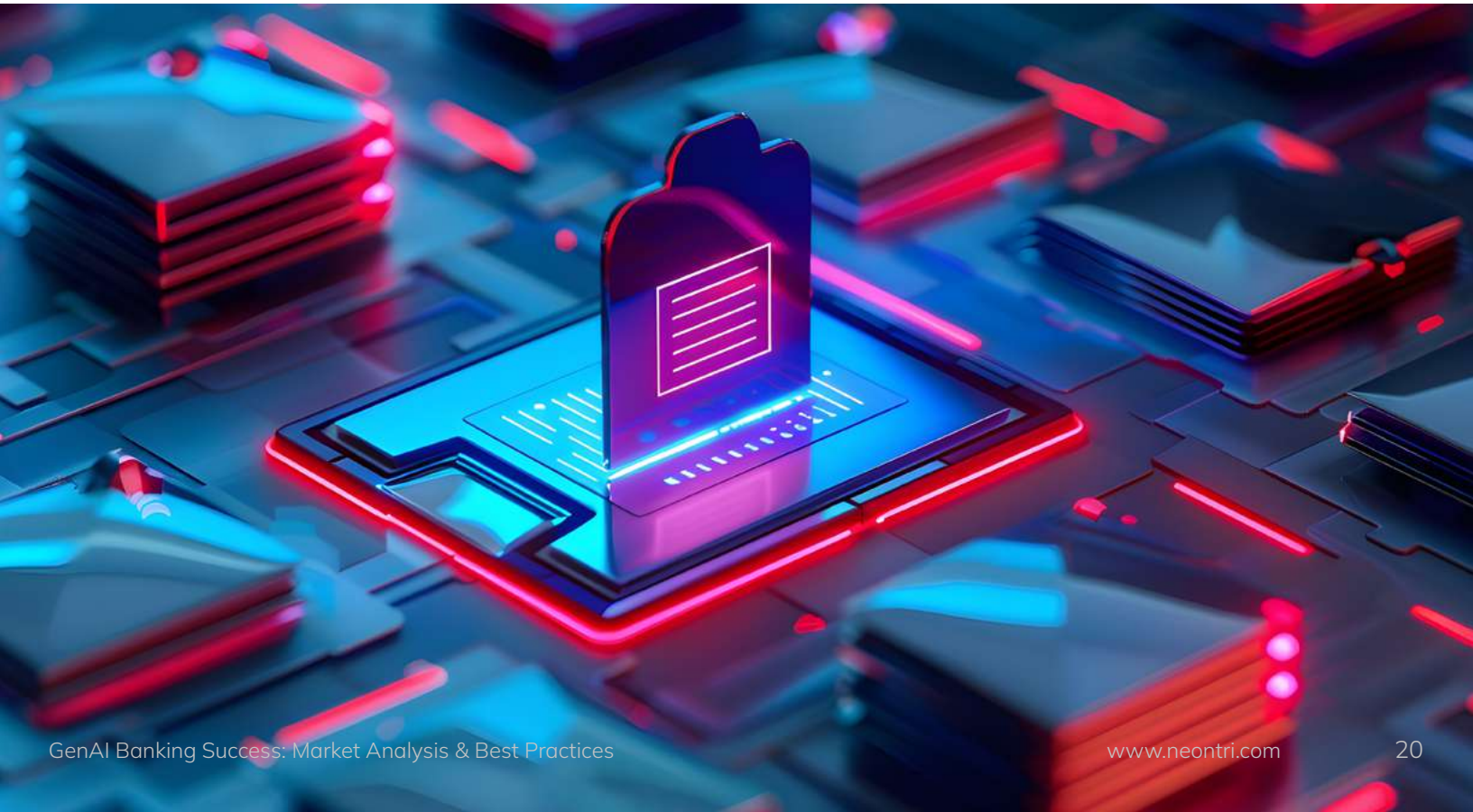
- Real-time data pipeline processing for live data ingestion
- Seamless integration with major LLM providers
- Enterprise-ready performance at petabyte scale
- Built-in vector embedding processing
- Zero operational overhead

Longflow

- Low code visual development environment
- Rapid testing and iteration capabilities
- One-click production deployment
- Integrated with Astra DB for vector search

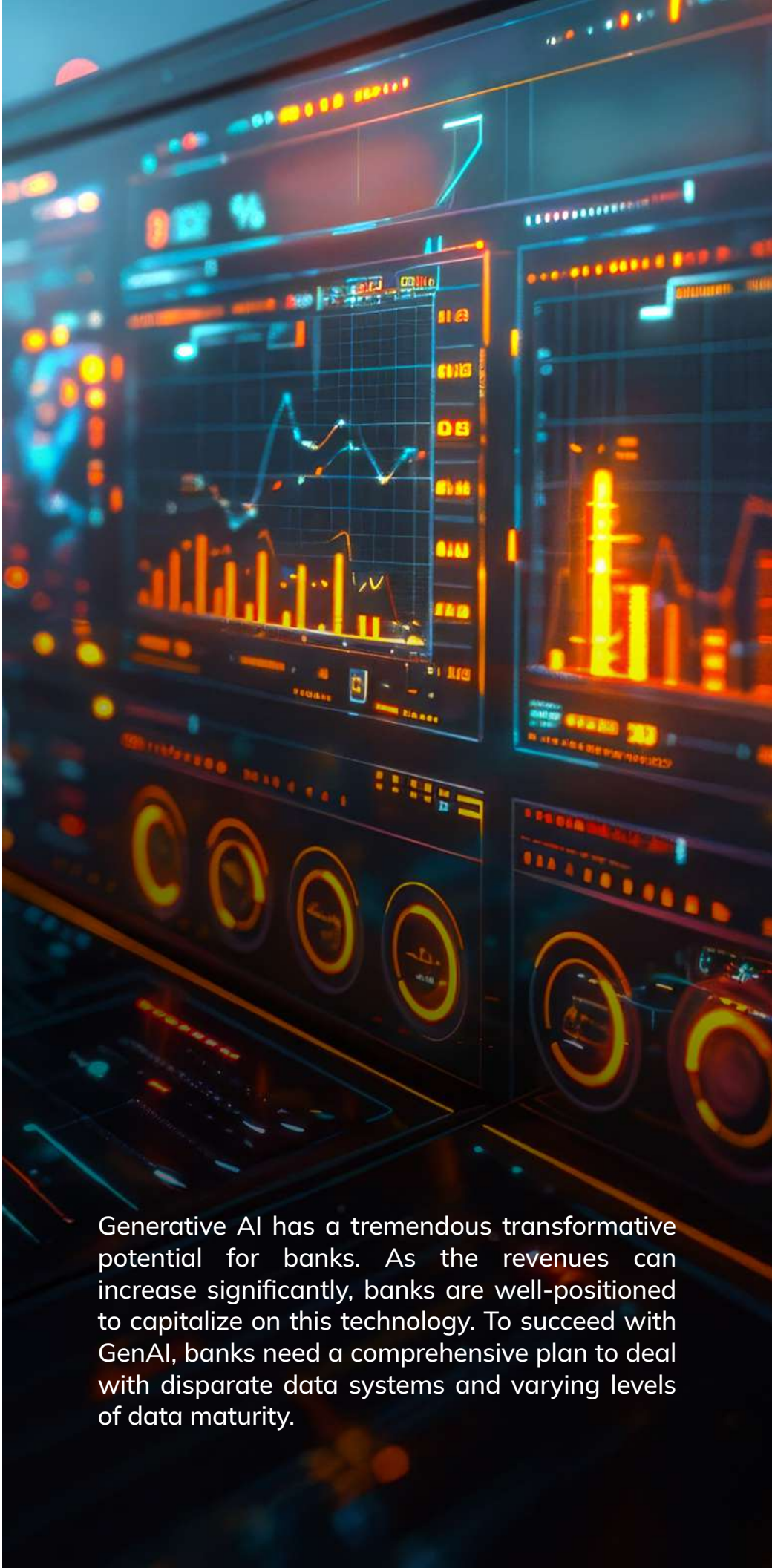
Banking use case implementation

Use Case	Primary Solution	Key Benefits
Transaction categorization	Astra DB	• Accurate AI classification • Real-time categorization • Self-improving models
Banking product recommendations	Astra DB + Langflow	• Contextual product matching • Personalized offerings • Real-time customer insights
Credit agreement assistant	Astra DB + Langflow	• Intelligent document processing • Natural language understanding • Compliance verification
Service regulations assistant	Astra DB	• Up-to-date regulatory information • Accurate compliance responses • Audit trail maintenance
Automatic reporting	Astra Streaming + DB	• Real-time data aggregation • Automated report generation • Compliance documentation



Examples of GenAI

04 implementation in banks



Generative AI has a tremendous transformative potential for banks. As the revenues can increase significantly, banks are well-positioned to capitalize on this technology. To succeed with GenAI, banks need a comprehensive plan to deal with disparate data systems and varying levels of data maturity.

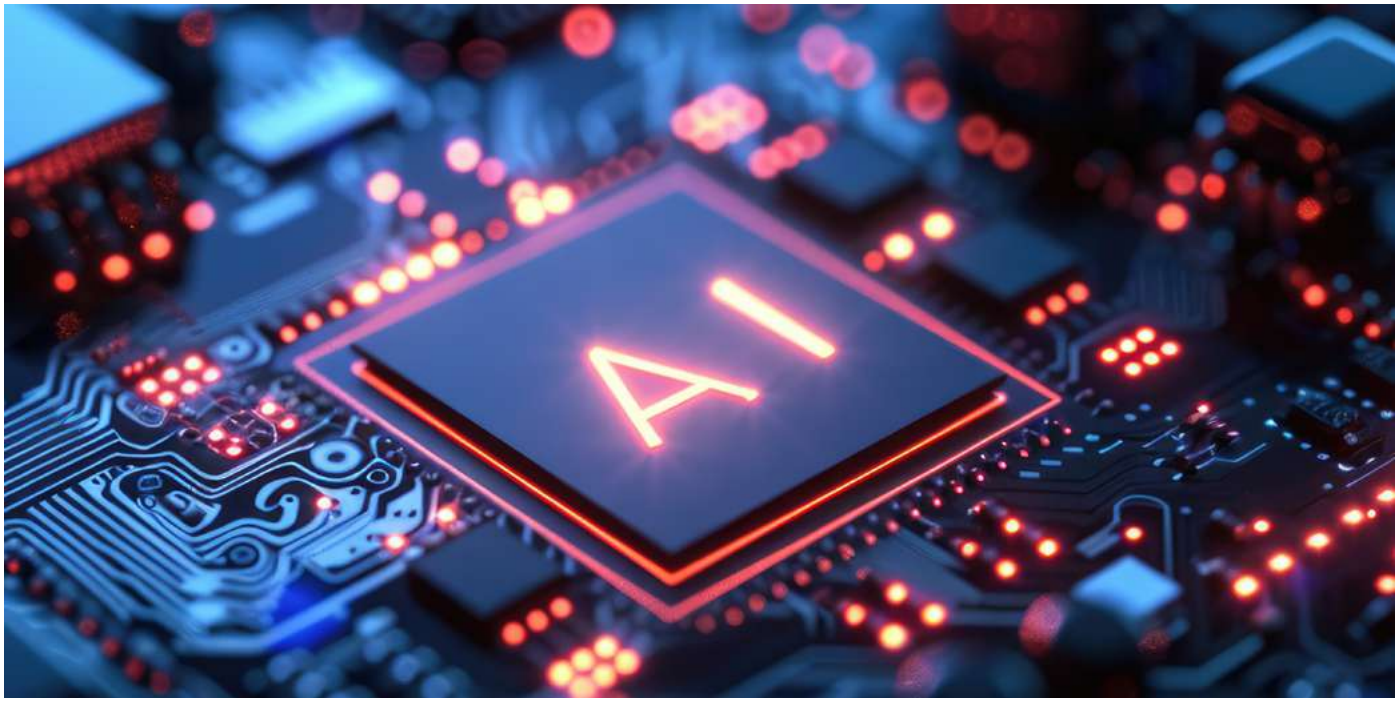
Transformative potential for banks

GenAI can address these challenges by handling unstructured data and providing user-friendly and accurate information. It offers enhanced capabilities for customer experiences, content generation, and data analysis, enabling faster technology delivery.

In order to succeed, banks need a comprehensive implementation plan, staff training, and an open approach to innovation.

A strong regulatory and compliance framework is also essential to ensure the safe and effective use of the technology in the highly regulated banking sector. So far, a few banks have openly admitted to GenAI implementation for various purposes.

Companies using Generative AI in finace and banking



Deutsche Bank

Deutsche Bank added GenAI technology to enhance its services. In probabilistic scenarios, GenAI will help provide personalized investment advice and improve portfolio management. AI algorithms analyze data and suggest tailored investment options, automating customer interactions and providing more personalized services.

Deutsche Bank has integrated GenAI for document summarization, streamlining the analysis of multiple documents and improving operational efficiency. The bank also leverages AI to improve risk calculations and data processing, which helps with faster and more accurate financial decision-making.

Deutsche Bank is taking a long-term approach to implementing GenAI, focusing on foundational elements like AI/ML infrastructure.

In partnership with Publicis Sapient, the bank built and proofed an AI platform in 2023, which will be scaled across all business areas—investment, corporate, private, and retail—to generate savings and new income streams.

The AI strategy emphasizes leveraging unique company knowledge and employee interactions for success. Publicis Sapient has developed capabilities that include AI infrastructure, data quality checks, large language models (LLMs), and responsible AI frameworks.

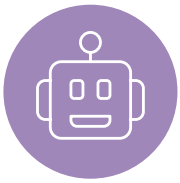
Deutsche Bank's GenAI use cases include software development augmentation, chatbot assistants, and anti-money laundering efforts. The technology aims to enhance customer service, productivity, and risk management while requiring employees to adapt to evolving roles. Adoption is inevitable, and Deutsche Bank's cloud and data investments position it to unlock the full value of GenAI.

Commonwealth Bank of Australia (CBA) introduced Generative AI (GenAI) to enhance customer experiences and test new products. The bank used GenAI to create "synthetic customers" or personas, which simulate customer behavior and interactions.

Such use of GenAI allows the bank to experiment with and refine its products in a secure environment before releasing them to the public. The primary goal is to understand better how real customers might respond to various financial challenges and product offerings.

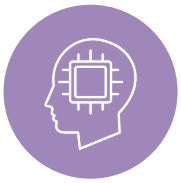
This innovative approach is expected to enable CBA to deliver better products more quickly and improve customer support in challenging situations.

The CBA announced it is strengthening its partnership with Microsoft to deliver enhanced customer experiences, primarily through the expanded use of Generative AI (GenAI) and cybersecurity initiatives. The partnership builds on existing AI tools, such as Microsoft 365's Copilot and GitHub Copilot, with a focus on improving customer interaction, operational efficiency, and security. These include:



Customer support

CBA will develop a GenAI-powered "CommBank Copilot" to resolve customer queries faster and provide better

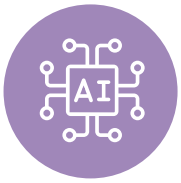


Employee experience

AI-powered Copilots will help CBA employees respond to customer needs more effectively.

Cybersecurity

Both organizations will share intelligence and develop tools to enhance security for CBA's business customers.



Engineering collaboration

CBA and Microsoft engineers will collaborate to use AI for innovation and problem-solving.

Sovereign capability

They aim to boost Australia's cyber skills and AI capabilities.

Australia and New Zealand Banking Group Limited (ANZ)

ANZ Bank has actively introduced generative AI (GenAI) into its services to improve operations, customer service, and employee productivity. Through its partnership with Microsoft, ANZ launched an AI Immersion Centre in Melbourne, designed to train 3,000 leaders on effectively and safely adopting GenAI across the bank. This initiative aims to help leaders leverage GenAI tools like Copilot for Microsoft 365 and GitHub Copilot to streamline workflows, enhance customer experiences, and boost overall productivity. The Centre will provide hands-on learning to help leaders safely understand and use generative AI.

ANZ has deployed GenAI for various purposes, including using a custom chatbot, Z-GPT, to integrate internal data for operational efficiencies. This initiative reflects ANZ's commitment to advancing AI in banking and setting industry standards. GitHub Copilot, another key tool, helps software developers improve coding productivity by 40-55%, leading to faster and higher-quality customer outcomes. The overall goal is to make GenAI a core part of ANZ's strategy to deliver value at speed while maintaining security and innovation standards.

ANZ is setting a new benchmark in the banking industry by integrating GenAI tools to create more efficient processes and better customer experiences at scale.

Mastercard is leveraging generative AI (GenAI) in several ways. Mastercard is exploring various GenAI use cases to transform banking, focusing on operational efficiency and customer experience improvements. The company also applies GenAI to manage and resolve payment disputes more efficiently.

Mastercard is utilizing generative AI to improve its fraud detection capabilities significantly. The technology enables Mastercard to double the speed of identifying potentially compromised cards, enhancing protection for cardholders and the broader financial ecosystem. Fraudsters often steal card details through methods like spyware, malware, and card skimming and sell them on illicit sites. Mastercard's AI technology can now predict full card details from partial numbers found online, allowing banks to block these cards more quickly and accurately. The generative AI system scans transaction data across billions of cards and millions of merchants, detecting new and complex fraud patterns. This advancement has led to:

100%
increase in the detection rate for compromised cards

200%
reduction in false positives for fraudulent transactions

300%
increase in the speed of identifying at-risk or compromised merchants

These improvements enable faster card blocking and necessary reissuing, continuous monitoring of compromised cards, and better cybersecurity, reinforcing trust within the digital payment ecosystem. Mastercard's enhanced Cyber Secure technology, which has been available since 2020, further supports these efforts by providing detailed cybersecurity information and protection measures.

OCBC Bank has launched a generative AI (GenAI) chatbot, becoming the first bank in Singapore to deploy this technology globally across its entire workforce. The chatbot, powered by Azure OpenAI, is designed to assist employees with writing, research, and idea-generation tasks. This implementation aims to enhance productivity and efficiency within the bank. OCBC has implemented a GenAI chatbot for its global employees to assist with writing, research, and idea generation. This tool has reduced task completion times by 50%, significantly boosting productivity across the organization.

The bank utilizes Cloudera's GenAI solutions to optimize data management, analytics, and AI capabilities, particularly in Indonesia. This includes leveraging AI for better data-driven decision-making. OCBC's integration of GenAI has improved efficiency in various operational aspects. The technology aids in streamlining tasks and enhancing research capabilities.

OCBC deployed multiple GenAI-powered solutions, including OCBC Wingman, OCBC Whisper, OCBC Buddy, and Document AI.

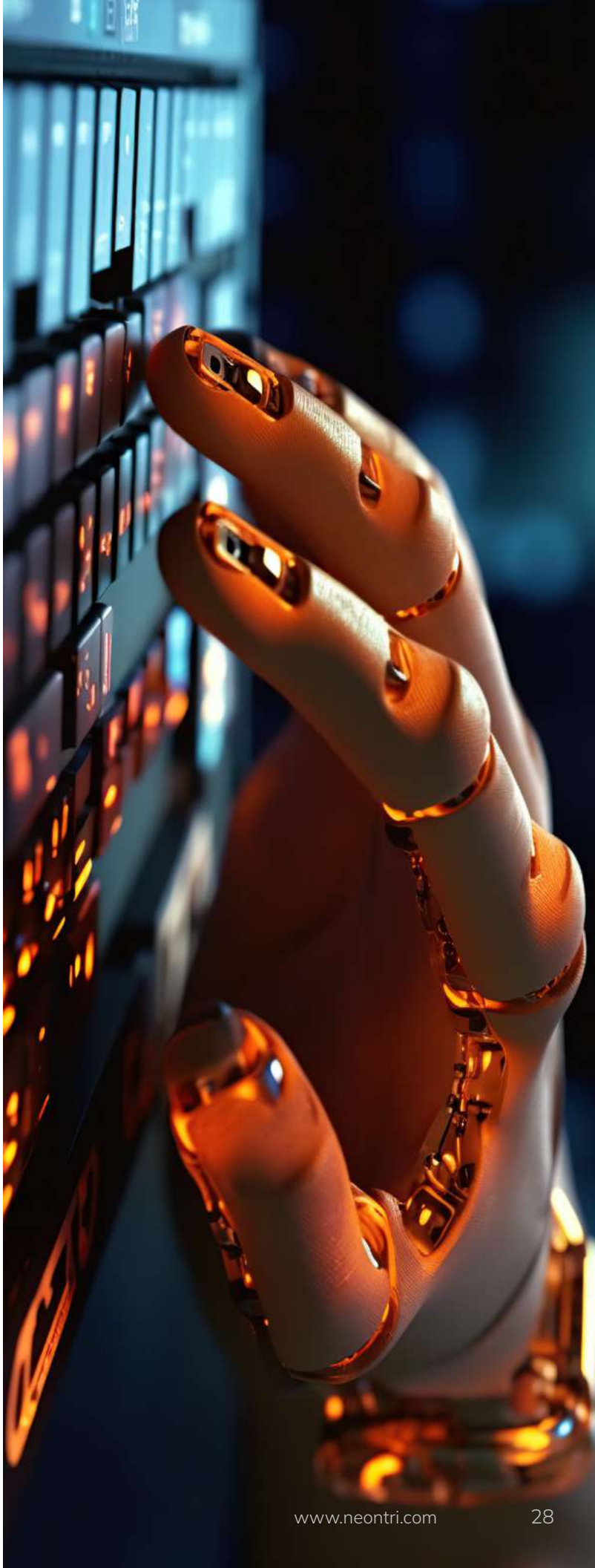
Name of tool	Description
OCBC Wingman	• Coding assistant used by developers to auto generate, debug and improve computer codes. • Productivity boosts of about 20 per cent reported since the tool was launched in May 2023.
OCBC Whisper	• Speech-to-text technology used to transcribe and summarise calls in real time at OCBC contact centre. • Currently under pilot trial
OCBC Whisper	• Speech-to-text technology to analyze all sales calls with customers and automatically identify potential anomalies in the sales process.
OCBC Buddy	• Internal knowledge base that functions like a chatbot for employees to get quick answers on bank policies and information such as medical claims and annual leave matters. • Searches over 150,000 pages of internal OCBC pages and documents. • Used more than 30,000 times monthly on average by all employees.
OCBC Buddy	• Allows employees to record face to face meetings using the the staff app. • A full transcription of the meeting is immediately emailed to the meeting owner at the end of the meeting.
Document AI	• Summarises key information from documents through drag-and-drop process, reducing time required to extract information from 30 minutes to 1 minute per document. • Used by employees who are required to read through multiple financial, risk and ESG documents.

Morgan Stanley

Morgan Stanley has integrated multiple GenAI tools, including a new tool named AI @ Morgan Stanley Debrief which is developed in collaboration with OpenAI. This tool aims to assist financial advisors with enhanced analysis capabilities and insights. The tool utilizes OpenAI's technology to create detailed notes during client meetings, with client consent and helps advisors quickly access relevant research reports and data.

This is intended to enhance productivity and ensure that advisors focus more on client engagement than administrative tasks. It is expected to save advisors valuable time, streamline the documentation process, and improve the accuracy of meeting records.

The firm's GenAI initiatives are designed to improve global analysis capabilities. The AI tools help process vast amounts of data to generate insights critical for decision-making and client interactions. Morgan Stanley's AI strategy includes a dedicated team for generative AI, integrating these technologies across various functions to drive operational efficiency and innovation.



JPMorgan Chase & Co.

J.P. Morgan Chase is incorporating generative AI into its services. J.P. Morgan uses a GenAI chatbot, described as a "research analyst," to assist employees by providing data-driven insights and answers, effectively streamlining research and analysis tasks for its staff.

The bank is rolling out an AI tool called LLM Suite to 140,000 employees. This tool is designed to assist in day-to-day tasks and significantly improve efficiency across various departments. The company uses GenAI to generate social media marketing content and plan itineraries for its travel agency clients, showcasing AI's potential to enhance client services.

The bank also introduced Quest IndexGPT, a generative AI solution for constructing investment indices that helps institutional investors optimize their strategies. The tool leverages AI technology to analyze vast datasets and provide more efficient, data-driven insights. Quest IndexGPT aims to improve decision-making in index management by streamlining processes, reducing costs, and offering new investment strategies that adapt to evolving market conditions.

ING Bank implements generative AI (GenAI) across five key domains: customer contact centers, KYC (Know Your Customer), wholesale banking, software engineering, and marketing content. While GenAI enhances customer service, especially through chatbots, it also brings innovation to KYC, allowing more nuanced risk assessments. In wholesale banking, AI can streamline loan processing and improve customer journeys. The use of GenAI in marketing and software engineering is already established, offering low-risk adoption opportunities.

In collaboration with QuantumBlack, AI by McKinsey, ING launched a GenAI-powered chatbot in September 2023. This chatbot helps deliver personalized customer support, providing tailored and secure customer interactions. ING is using GenAI to accelerate and refine its risk assessment processes, reducing processing times and improving the overall customer journey by making more efficient, data-driven decisions.

Ethical concerns and regulatory compliance are central to ING's AI strategy, focusing on managing biases and adhering to EU regulations. To remain competitive, ING has opted to use third-party platforms rather than develop in-house AI solutions. Talent shortages are a challenge, so ING invests in training to bridge this gap.

ING has been experimenting with GenAI and exploring new possibilities to improve operational efficiency and customer satisfaction.

05 Future of GenAI in banking

Many financial institutions have already implemented GenAI solutions in their services. These include technologies that improve operational efficiency, customer experience, fraud detection, etc. GenAI's potential can be implemented further and bring us a new level of services.

Potential future applications of GenAI in banking

AI has been a key driver of innovation in banking, improving data analysis, fraud prevention, and customer interactions. With the emergence of generative AI, a new range of opportunities has opened up. This technology uses sophisticated machine learning models to detect patterns within vast amounts of human-created content and apply them to produce new outputs.

Automated document handling and reporting

Generative AI transforms how banks process and present financial data, simplifying the creation of accurate and comprehensive financial reports. By gathering data from internal sources like accounting systems and transaction databases, AI analyzes patterns and key metrics that people may miss. GenAI capabilities allow the generation of detailed reports that meet regulatory requirements and provide clear insights.

GenAI is highly effective at extracting and analyzing data from diverse document types. It automates filling out onboarding forms by reviewing client-submitted documents, reducing manual input, and minimizing errors.

One key benefit is the AI's ability to offer automatic recommendations and conclusions, identifying trends, risks, and opportunities for better decision-making. This automation reduces the time and resources needed for financial reporting, minimizes errors, and allows banking professionals to focus on strategic tasks. Additionally, reports can be customized to highlight key metrics for different stakeholders.

Compliance assurance

Generative AI can be used to ensure that clients meet regulatory standards like Know Your Customer (KYC), anti-money laundering checks, and identity verification while also aiding in automatically identifying missing information or compliance risks. Implementing GenAI for compliance assurance follows several steps.

The first step involves integrating GenAI with the bank's existing systems, such as risk management and transaction databases. GenAI automatically collects and ingests vast regulatory data, internal controls, and historical compliance records. GenAI can analyze new regulatory requirements, update internal policies, and ensure procedures align with the latest standards.

This reduces manual work and ensures real-time compliance with evolving regulations. Once integrated, GenAI can help automate key compliance tasks, including reporting, KYC processes, and fraud detection. The system can continuously monitor transactions and activities and flag anomalies in real-time.

GenAI can simulate different regulatory scenarios, identifying gaps in compliance and testing how new policies affect compliance frameworks. Moreover, the GenAI systems learn from ongoing data, improving their ability to predict compliance risks and adjust processes over time. While GenAI doesn't fulfill the role of a compliance expert, it can significantly streamline the process of analyzing any risks or discrepancies.

Predictive insights

GenAI reviews past data to forecast potential issues or extra requirements for particular client profiles, allowing banks to address these needs preemptively. To do so, AI collects historical data from multiple sources, including transactional databases, risk systems, and market trends. The AI ingests this data for analysis. Then, it uses advanced algorithms to recognize patterns, key performance indicators (KPIs), and historical trends. By analyzing these, GenAI can forecast future events, such as financial risks or market shifts.

GenAI can run simulations to predict how different scenarios (e.g., regulatory changes) may impact financial performance or compliance. It tests various conditions and models outcomes. By continuously analyzing data, GenAI predicts potential risks—such as credit defaults, compliance violations, or fraud—and provides early warnings, allowing institutions to take proactive action.

GenAI doesn't just predict outcomes; it provides actionable recommendations based on its analysis. This helps decision-makers plan better strategies for mitigating risks and seizing opportunities.

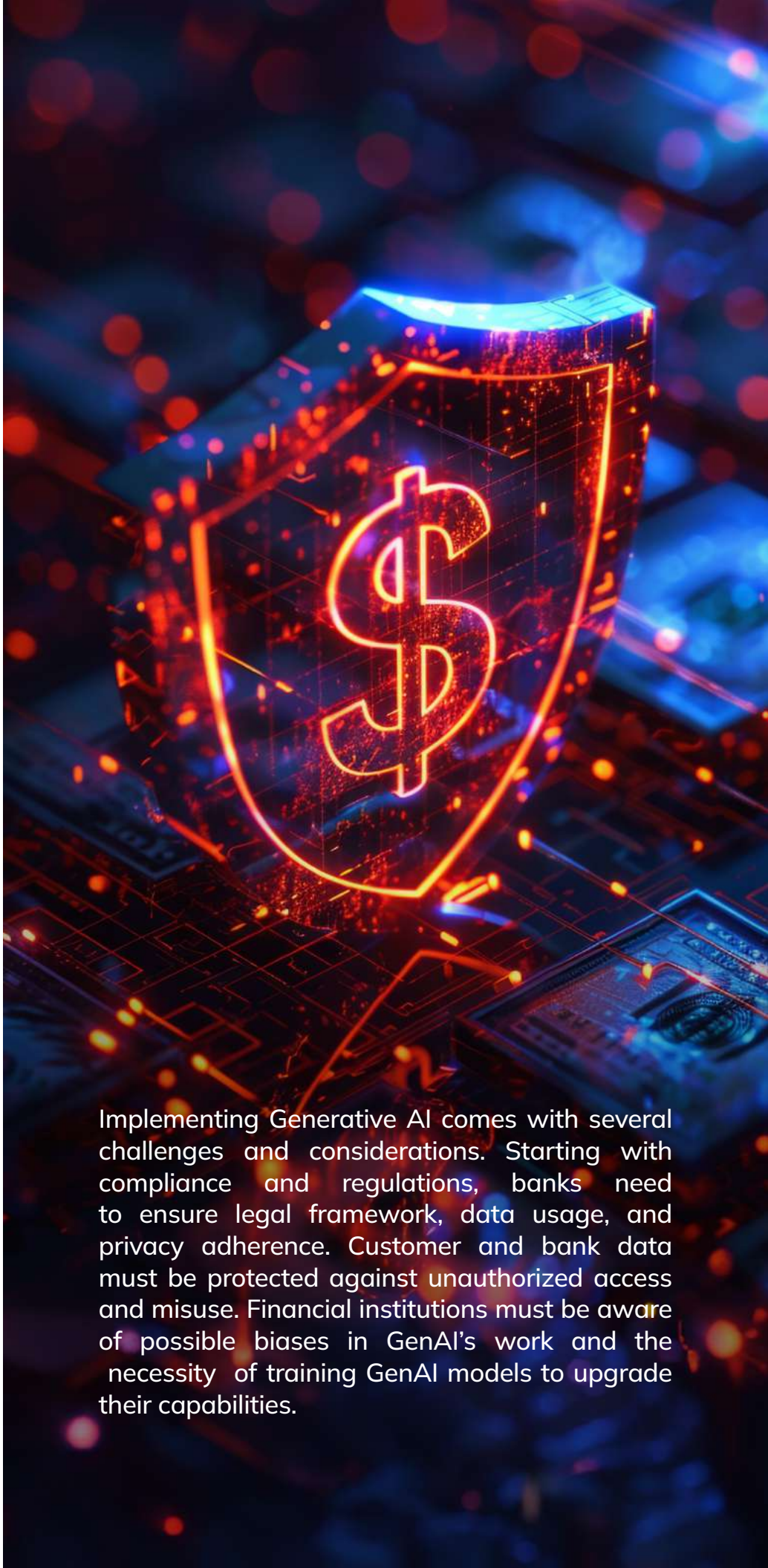
Instant verification

AI performs real-time checks of client details against multiple databases, boosting security and reducing the risk of fraud. The technology can quickly analyze and cross-reference information from multiple sources to confirm the accuracy of data inputs, such as customer details or transaction histories. It can perform real-time analytics on incoming data to identify discrepancies or anomalies, flagging potentially incorrect information immediately.

By recognizing patterns in historical data, GenAI can assess whether new data aligns with expected outcomes, aiding in the verification process. Moreover, it can generate automated responses or reports to inform users of verification outcomes, streamlining communication.

By integrating with existing databases and verification systems, GenAI can facilitate a seamless workflow, enhancing the speed and reliability of the verification process.

06 Challenges and considerations



Implementing Generative AI comes with several challenges and considerations. Starting with compliance and regulations, banks need to ensure legal framework, data usage, and privacy adherence. Customer and bank data must be protected against unauthorized access and misuse. Financial institutions must be aware of possible biases in GenAI's work and the necessity of training GenAI models to upgrade their capabilities.

Compliance

GenAI implementation involves different challenges depending on location and legal requirements. For example, various legal limitations must be considered in the USA and EU.

In the US, banks using GenAI need to ensure that sensitive customer data is handled in line with federal and state-level laws, such as the California Consumer Privacy Act (CCPA), to avoid privacy breaches. Another issue is transparency. In the USA, credit decisions are required to be explainable under the Fair Credit Reporting Act (FCRA). In such cases, decisions made by GenAI may not be clarified because they come from complex algorithms and deep learning.

In the EU, banks must adhere to the General Data Protection Regulation (GDPR) to protect customer data. Under GPDR, the customer data used for training purposes should be anonymized and limited to minimal use. This, however, may influence the quality of GenAI's work. The same regulation requires financial institutions to be able to explain and justify GenAI decisions, which may be problematic.

Security

Security is another aspect that would make the implementation of Generative AI in banking services difficult. GenAI systems can be vulnerable to cyberattacks such as data breaches, with hackers targeting financial institutions to access customer data.

In the US, the Federal Trade Commission (FTC) and other regulatory bodies enforce strict guidelines for protecting consumer information. AI systems increase the attack surface, making it challenging to secure every point. Banks in the U.S. face the risk of model manipulation, where adversaries exploit weaknesses in AI algorithms, leading to incorrect financial predictions or fraud. The lack of federal regulations specific to AI complicates the mitigation of such threats.

Under GDPR, banks must ensure that customer data is adequately protected. This complicates data transfers between the EU and other markets, making it challenging for global banks using GenAI to comply with cross-border data handling requirements. The EU's regulatory approach focuses on algorithmic transparency, but GenAI models can still be subject to malicious inputs or adversarial attacks, posing significant security risks. The key to security is making the models secure and resilient.

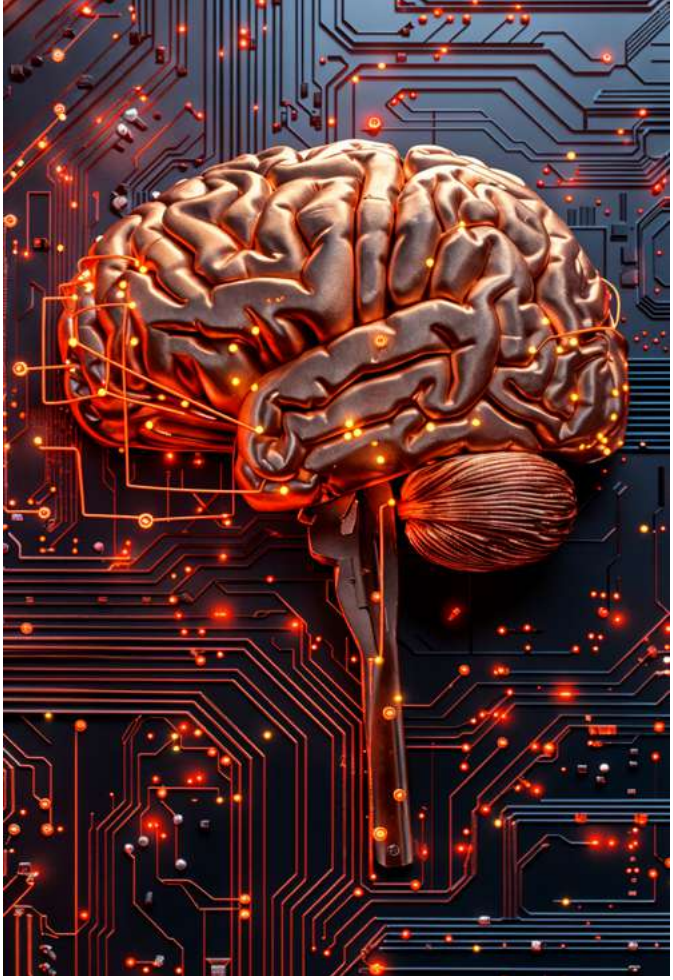
Another regulation worth mentioning is the European Digital Operational Resilience Act (DORA). The regulation sets strict standards for managing Information and Communication Technology (ICT) risks in the financial sector that can be directly applied to the use of GenAI in banking. Under DORA, banks implementing GenAI must implement a robust risk management framework, including monitoring of GenAI models' performance and ensuring data privacy.

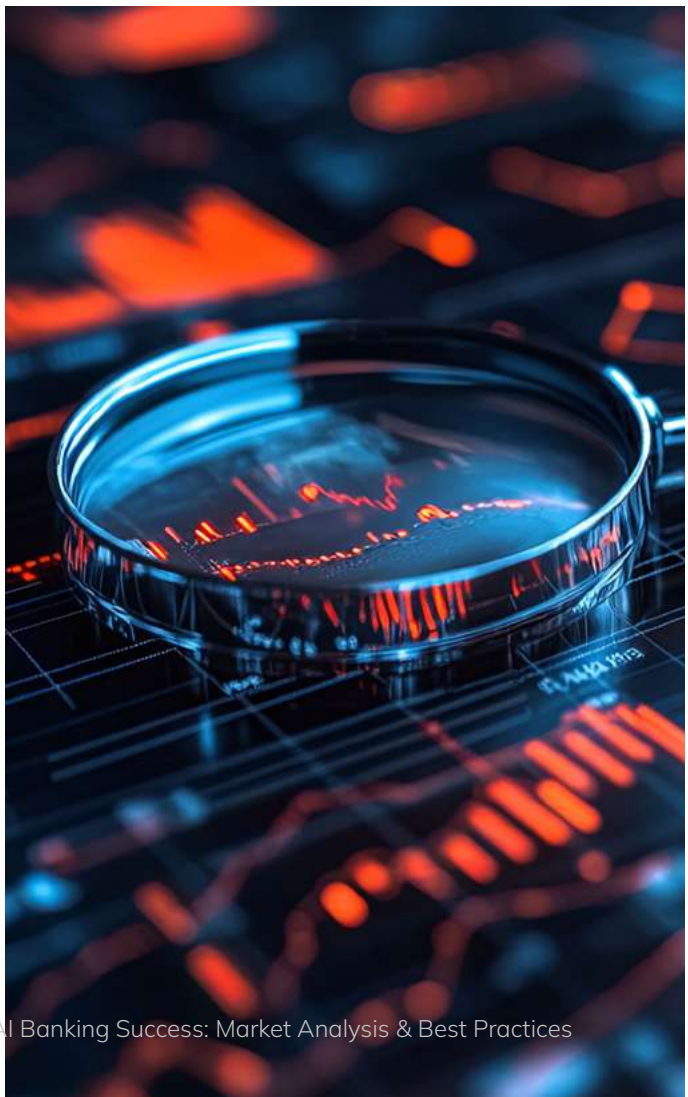
Hallucinations

Hallucinations are another risk when implementing generative AI in banking. Hallucinations occur when the responses generated by AI are false, misleading, or incorrect and are not based on underlying data.

In banking services, hallucinations are especially dangerous due to the risk of generating inaccurate or false information. Such cases can impact the customer trust, which is very important in the banking industry. Incorrect information produced by AI could be used by a client which could lead to wrong financial decisions.

Another example of misleading information generated by AI is incorrect financial data. GenAI may produce fabricated transaction details, account balances, or other data, which can mislead clients who rely on such information. A similar risk stems from false security alerts or errors in fraud detection systems. Hallucinations can cause incorrect flagging of fraudulent transactions.





Bias

Bias presents significant challenges in implementing generative AI (GenAI) in banking. GenAI can perpetuate and even amplify existing biases found in historical data, such as racial or gender discrimination. Any discrimination in the banking services may have severe consequences.

For example, AI systems used for credit scoring and loan approvals have been found to unfairly penalize minorities or women due to the biased data they were trained on. In the US, the Fair Lending Laws, such as the Equal Credit Opportunity Act (ECOA), require banks to ensure AI systems do not discriminate, but auditing AI for such bias remains complex.

In the EU, algorithmic bias can conflict with the GDPR's fairness and transparency requirements. European banks, especially those using AI for consumer creditworthiness, must ensure that models do not discriminate, yet data quality issues can lead to biased predictions. The GDPR mandates that consumers can challenge automated decisions, complicating the deployment of biased AI models.

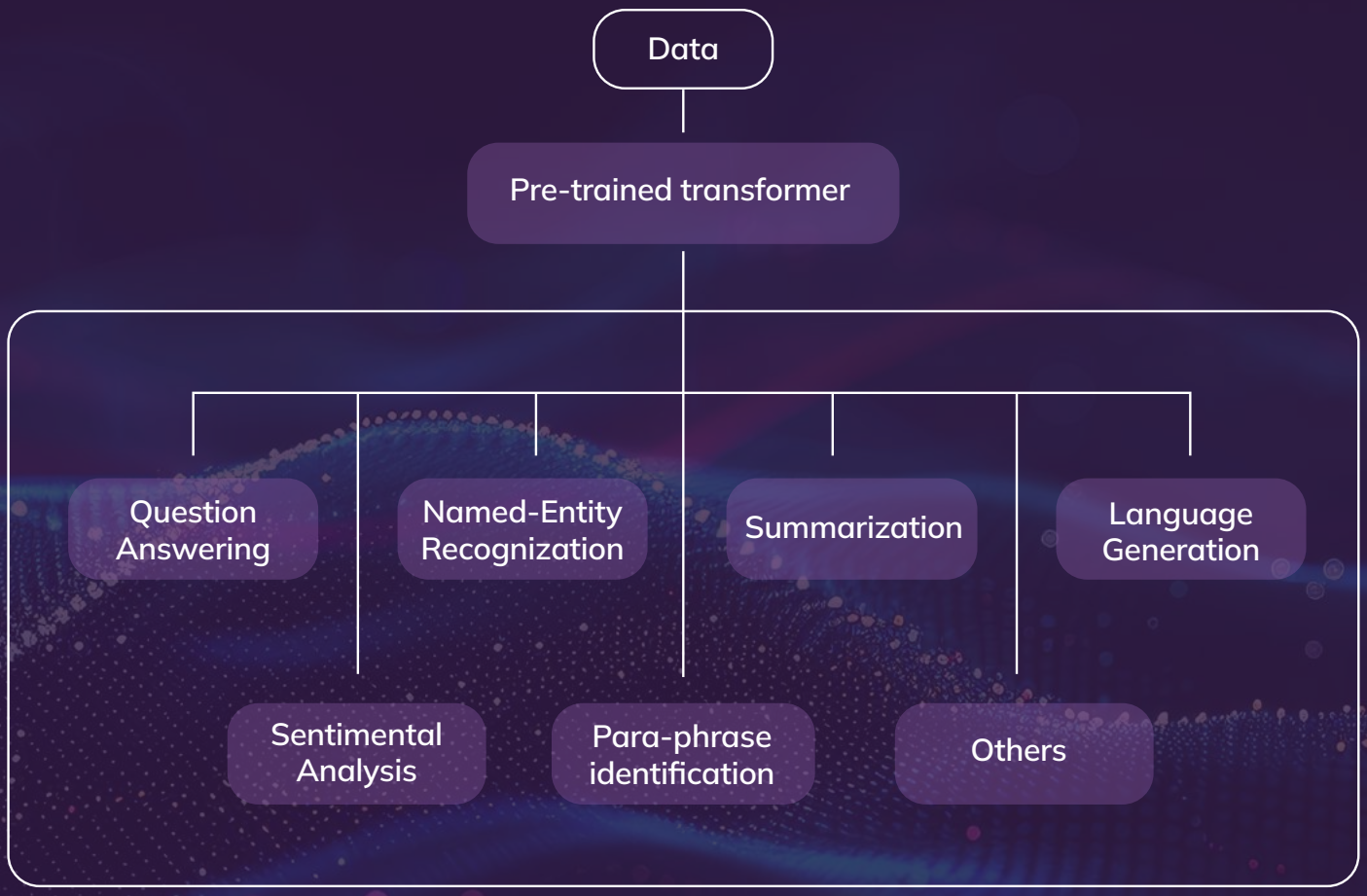
Fine-tuning models

In order to avoid errors in responses generated by AI, it's necessary to fine-tune the GenAI models. Such fine-tuning ensures the models deliver accurate and domain-specific outputs. In the case of banking, fine-tuning involves training of existing models using specialized data from the banking and financial industry. This way, the effectiveness for fraud detection or customer service increases.

To ensure GenAI models perform well in the financial domain, they need to be fine-tuned on proprietary financial datasets.

This will allow them to handle industry-specific terminology and requests and improve risk management and compliance. Fine-tuned models can automate key banking functions such as document processing and managing customer queries, which results in reduced manual workload.

It's necessary to remember that fine-tuning is an ongoing process, and the models need to be adjusted and trained to face the changing market conditions and regulatory frameworks.



Conclusion

GenAI is becoming a general-purpose technology, finding applications in marketing, writing, design, and software development. The banking and fintech sectors particularly benefit from its advanced analytics. Common applications include customer service chatbots, which have evolved to provide real-time, natural interactions and are increasingly used by banks. Some major banks have implemented such solutions to improve customer experience and streamline client support.

Beyond customer service, GenAI is also applied in fraud detection, anti-money laundering, and Know Your Customer processes, thanks to its ability to analyze large datasets and identify patterns. GenAI offers various innovative applications in banking, enhancing efficiency, customer service, and transaction processes.

However, implementing GenAI comes with challenges, such as compliance with regulations, protecting sensitive data, preventing biases, and ensuring continuous training for improvement. Moreover, banks may need to face cross-border legal limitations when exchanging information.

GenAI's potential in the banking industry is vast, especially thanks to its analytics capabilities. It could help automate various tasks, ensure compliance with legal requirements, offer predictive analysis, or provide customers with instant verification. Yet, the security of user data and legal compliance should be addressed when implementing GenAI solutions.

Neontri—your partner in banking GenAI transformation

Why Neontri for your GenAI journey?

Deep banking domain knowledge

10+ years of transforming financial institutions

Regulatory compliance

Extensive experience with GDPR, banking law, and personal data protection

Enterprise-ready implementation

Full integration with DataStax's suite of GenAI-ready products

End-to-end support

From proof of concept to production deployment

Technical excellence for GenAI implementation

Our advanced expertise in NoSQL and Big Data technologies enables us to create sophisticated GenAI solutions that effectively leverage bank data while maintaining the highest security standards and regulatory compliance.

As a long-standing DataStax partner, our engineering team has been at the forefront of developing Retrieval-Augmented Generation (RAG) best practices since 2023, with a specific focus on banking use cases.

Connect with our Technology Leader to discuss your GenAI journey

neontri

Marcin Dobosz
Director of Technology

marcin.dobosz@neontri.com

/in/doboszmarcin/

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