GenAI revolutionizing banking: Opportunities and challenges. A Primer

GenAI is changing the banking industry through work automation, individualized customer experiences, and fraud detection. Operational cost savings from using GenAI chatbots in banking globally is 35 times more than not using GenAI. GenAI helps banks increase productivity, lower expenses, and enhance customer happiness.

Key takeaways

1 Productivity improvement through GenAI
Among industries globally, GenAI could add about $ 3.5 trillion annually in productivity on average, out of which the banking sector would be nearly 8 per cent[1]. Banks are starting with applications in software development, chatbots and media content generation.

2 Operational cost savings through AI assistants
GenAI has vast potential to execute business and technology processes autonomously. The operational cost savings from using GenAI chatbots in banking reached $7.3 billion globally. It is 35 times the operational savings without using GenAI[2].

3 Time-saving through GenAI
The rising adoption of GenAI assistants saves banks of 862 million hours of time, equivalent to nearly half a million working years[2]. Banks can utilize the time for other critical tasks like the sale of their products, asset and wealth management.

4 Loss reduction through fraud detection techniques
GenAI has positively impacted fraud detection, risk management, and compliance in banking. A study estimates that implementing GenAI in fraud detection techniques in banks can reduce losses by up to 20%[3].

5 Seamless customer experience
The integration of GenAI with virtual assistants has significantly enhanced customer support and experience. These AI-powered chatbots can resolve up to 80% of customer queries, allowing human agents to focus on more complex issues[4].

6 GenAI improves the conversion rate of marketing campaigns
Ongoing advancements in GenAI continue to drive innovation within the banking sector. A study found that GenAI-powered marketing campaigns have shown up to 30% conversion rate improvements[5].

7 Major value-creating banking functions
Corporate banking, retail banking and software engineering are the most value-creating functions with each providing a value of about $ 50 billion. The rest of the functions include wealth management, asset management, risk, IT and finance and HR.

**8 Banks adopting centralized GenAI organization**
As GenAI is in a nascent stage, more than 50 per cent of the banks in a GenAI maturity benchmark survey of US and European banks adopted a "more centralized" GenAI organization, even when their usual setup for data and analytics is relatively decentralized[1].

GenAI is revolutionizing banking by automating customer service and knowledge access. Instant content generation using GenAI tools simplifies complex data, streamlines business processes, improves team efficiency, and enhances creativity, thereby transforming banking experiences.

9 Cost-effective data security through GenAI
The global cost of cybercrime is expected to reach $10.5 trillion by 2025 if banks keep tracking transactions manually. GenAI can track them in terms of location, device, operating system in less time and cost[6].

Reimagining banking through GenAI
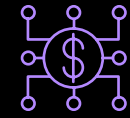
Impact of using GenAI in banking functions

- **Customer service:** Chatbots using GenAI automate most of the sequential tasks, enabling human representatives to focus on more complex issues. Bank of America uses GenAI for its chatbot Erica to open new accounts.

- **Fraud detection:** It can create synthetic data like real data. Hence, it can be used to create fraud detection models. Wells Fargo uses GenAI to detect fraud in its mobile banking app.

- **Personalized products:** GenAI uses customer data to predict preferences, which helps banks upsell and cross-sell their products. Bank of America uses GenAI to create personalized customer marketing messages.

- **Operational efficiency:** GenAI helps banks automate tasks, reduce errors, and improve decision-making. Citibank uses GenAI to develop and implement process improvements.

Maximizing benefits for banks through GenAI

- GenAI enables banks to offer personalized products, fostering deeper engagement and loyalty.

- Through advanced algorithms and pattern recognition, GenAI detects and prevents fraudulent activities, safeguarding customer assets and protecting the bank's reputation.

- GenAI models empower banks to make informed decisions, identify potential risks in real-time, and proactively manage them.

- By automating manual processes and optimizing resource allocation, GenAI helps banks streamline operations, reduce costs, and improve overall efficiency.

- GenAI leverages data analytics and insights to drive innovation and identify new business opportunities.
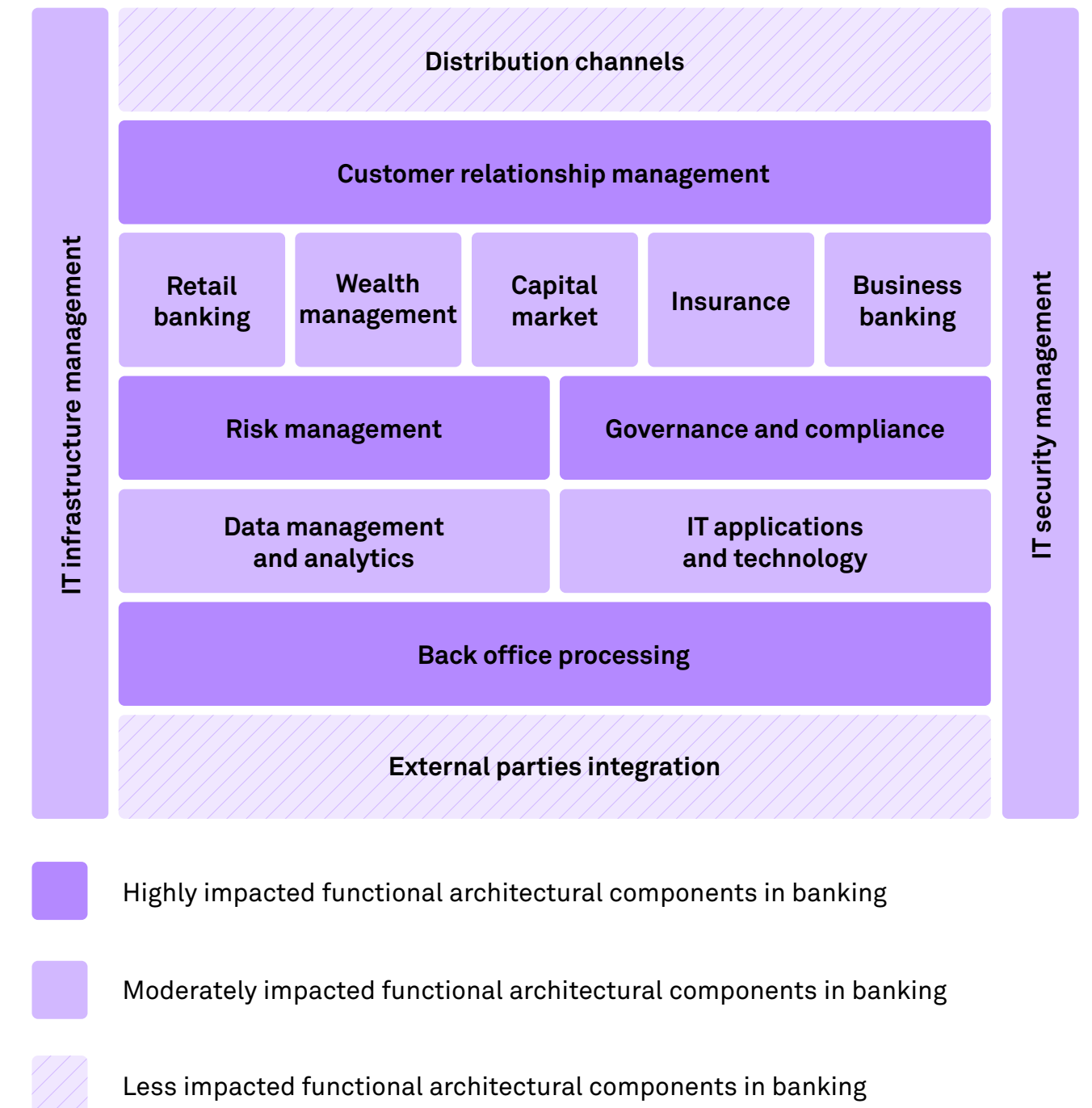
Empowering customers through GenAI

- GenAI enables banks to provide customized products, personalized financial advice enhancing the banking experience for customers.

- GenAI automates and streamlines banking processes, reducing wait times and enhancing customer convenience.

- GenAI helps banks strengthen security measures, protecting customers from fraud, unauthorized access, and identity theft.

- AI-powered chatbots and virtual assistants provide round-the-clock customer support, offering prompt and reliable assistance.

- Through efficient processes, enhanced security, and seamless support, GenAI enhances overall customer satisfaction with the banking experience.

GenAI transforming the banking landscape

The following table highlights the potential benefits of GenAI in each component of a general functional architecture of a bank.

Functional architecture component	How will GenAI help?
Distribution channels	Personalized customer recommendations and experiences for improved engagement.
Customer relationship management	Enhanced customer segmentation, targeted marketing.
Retail banking	Streamlined account opening processes and personalized financial advice.
Wealth management	Tailored investment strategies, automated portfolio management.
Capital market	Improved trading strategies, risk assessment, and automated market analysis.
Insurance	Automated underwriting, fraud detection, and personalized insurance products.
Business banking	Advanced risk assessment, trade finance automation, and optimized transaction processing.
Risk management	Enhanced risk modeling, early fraud detection, and real-time risk monitoring.
Governance & compliance	Automated compliance monitoring, regulatory reporting, and fraud prevention.
Analytics	Advanced data analysis, predictive modeling, and support for improved insights.
Information technology	AI-driven IT infrastructure optimization, cybersecurity, intelligent system management.
Back-office processing	Streamlined document processing, data extraction, and automated workflow.
External parties integration	Seamless integration with APIs, third-party sources for enhanced collaboration.

The diagram below shows the impact of Gen AI on banks' functional architecture:

■ Highly impacted functional architectural components in banking

■ Moderately impacted functional architectural components in banking

▨ Less impacted functional architectural components in banking

GenAI transforming the banking landscape

The following table highlights the potential benefits of GenAI in each component of a general functional architecture of a bank.

Function	Challenges	Solutions
Data dependence	Require large and representative datasets, which can be challenging to obtain in specialized banking domains.	• Utilize synthetic data methods to replicate authentic banking data. • Collaborate with financial institutions, adhering to legal frameworks.
Ethical concerns	Gen AI outputs may contain biases or discriminatory elements, raising ethical concerns.	• Recognize and rectify biases in organization's training data and algorithms to guarantee fair outcomes. • Employ advanced algorithms such as adversarial debiasing or counterfactual fairness to address biases proactively.
Interpretability	UUnderstanding potential biases behind Gen AI outputs can be difficult, impacting transparency and accountability.	• Interpretable AI models such as decision trees or rule-based systems • Integrate human judgment into decision-making.
Security risks	Gen AI introduces new security risks, such as adversarial attacks or unauthorized access.	• Implement robust cybersecurity measures to safeguard AI systems. • Minimize data security risks by restricting AI use to select clients.
Regulatory compliance	Compliance with strict regulatory frameworks, including data privacy regulations, can be complex.	• Stay updated with evolving regulations and adapt Gen AI system. • Collaborate diligently with legal experts.
Resource intensive	Training and deploying Gen AI models can be costly for smaller banks.	• Beginning with smaller AI projects that offer a clear ROI. • Leverage cloud-based AI services and use model compression.
Lack of real-world context	Gen AI models may struggle with understanding complex human interactions, impacting accuracy and relevance.	• Incorporate humans in the loop to correct the errors. • Generate simulated environments that mimic actual banking scenarios.
Limited generalization	Gen AI models may have challenges in generalizing their learning to unseen or evolving situations.	• Data Augmentation to improve generalization in Gen AI models. • Combine multiple models to form an ensemble learning architecture.

Future trends

GenAI is in nascent stage, but it has the potential for vast changes in banking. The following use cases are expected to prevail in future

- **Financial forecasting:** As GenAI will be able to integrate and analyze data from various sources in future, it will be able to identify data patterns and run simulations based on real-world context and hypothetical scenarios. It can help banks to make effective financial forecasts.

- **Generate financial advice for customers:** Training GenAI on customers' financial goals, risk-taking ability, income, expenditure. It can be used for budgeting recommendations. Also, it can help in smarter investment and wealth management and trading advice.

- **Minimize manual paperwork:** Manually analyzing financial documents is costly and time-consuming. GenAI can be used to summarize large documents and significantly cut operational costs.

- **Regulatory code change advisor:** GenAI will be used to make developers aware about underlying regulatory changes that will require them to change code. It can assist in automating the changes and providing documentation.

- **Manage risks and credit worthiness:** GenAI will be used to create a more accurate picture of borrowers after analyzing vast amount of data from multiple sources.

While GenAI is transforming the banking industry, it will not replace human jobs entirely. Instead, it augments human capabilities, enabling banks to deliver personalized experiences, improve efficiency, and enhance decision-making. It can be used for routine tasks while financial experts can make the ultimate decisions.

GenAI enables banks to automate crucial processes such as customer onboarding, fraud detection, and risk management. As a result, employees can concentrate on more intricate tasks, such as delivering exceptional customer support. The banking sector can significantly benefit from this, leading to an overall increase in efficiency.

Human expertise, empathy, and creativity of banking professionals remain essential for fostering customer relationships and driving innovation and decision-making.

Please refer to "Banking Domain Business and Technology Trends: Disruptions and Innovation- A Primer" for more details.

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